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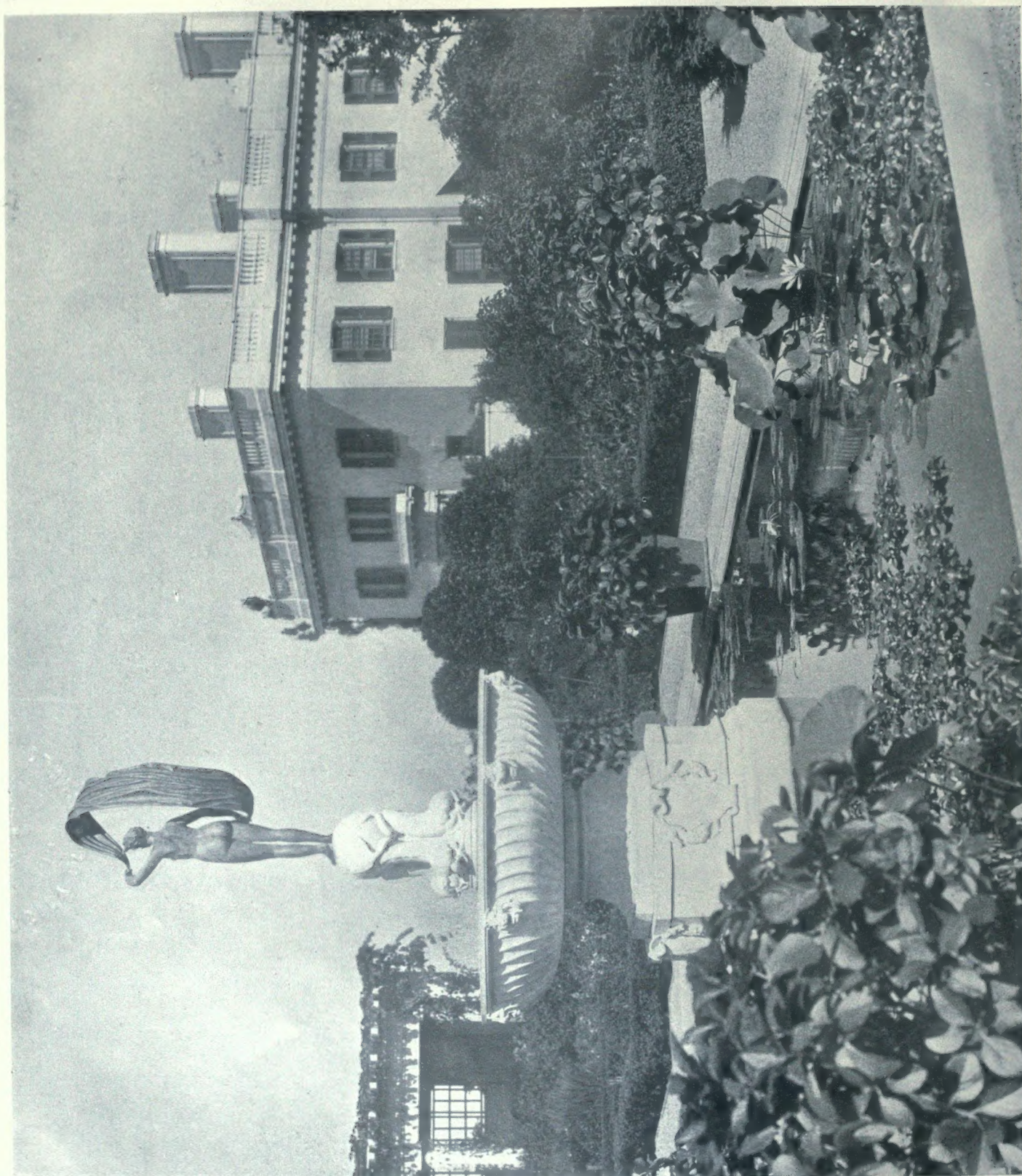
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A LILY POOL, WITH ITS SYMMETRICAL FOUNTAIN, A CHARMING UNIT IN A LANDSCAPE DEVELOPMENT.

Quebec Union Station

From The Great Monuments of Art and Architecture of the Old World, and Particularly
From The Noted Chateaux of France, Came the Architect's Inspiration
For The Design of This Building

By HARRY EDWARD PRINDLE



*So the future seemed
To mingle with the past. For a short space
I saw revealed the double threads that bind
This little speck of time we call "To-day"
To the great cycle of unending life
That has been and that shall be evermore.*

UNEXAMPLED for picturesqueness and magnificence of position on this continent, and for the romance of her historic associations, Quebec sits on her impregnable heights, a queen among the cities of the world. (Charles Marshall). The history of the city is intimately interwoven with that of old France, and this spirit is admirably expressed in its narrow, winding, ascending streets, its groups of high-pitched roofs, its churches, monuments and people.

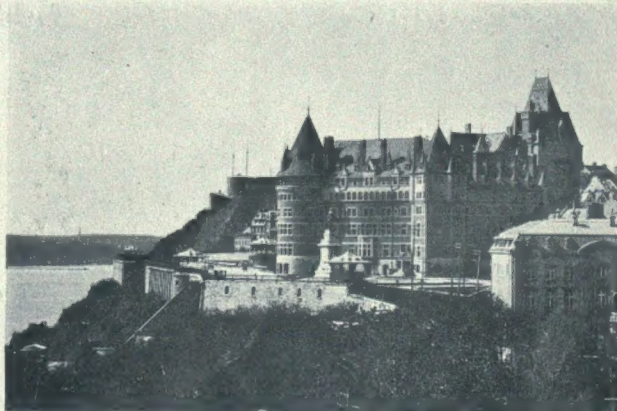
The mind of the observer contemplating its natural beauties inevitably turns to the old world, with its great monuments of art and architecture, and perhaps more particularly to the Chateaux of Chinon, Loches, Langlais, Chaumont, Chenonceaux, Ambroise, Blois, Chambord, and Azeay-le-Rideau which was the moving impulse from which has grown the design of the new Union Station Building.

The building is located on the property bounded by St. Paul, Henderson and St. Roche street, which has been entirely re-arranged, with new tracks, coach storage yard, express yard, freight sheds and freight office building. The station is approached from St. Paul street by an open paved plaza, approximately 300 ft. x 300 ft., enclosed by broad curving sidewalks reaching the entrances, with a driveway into the express yard. The concourse opens directly into Henderson street, which leads to the new freight offices. The plaza will be encircled with orna-

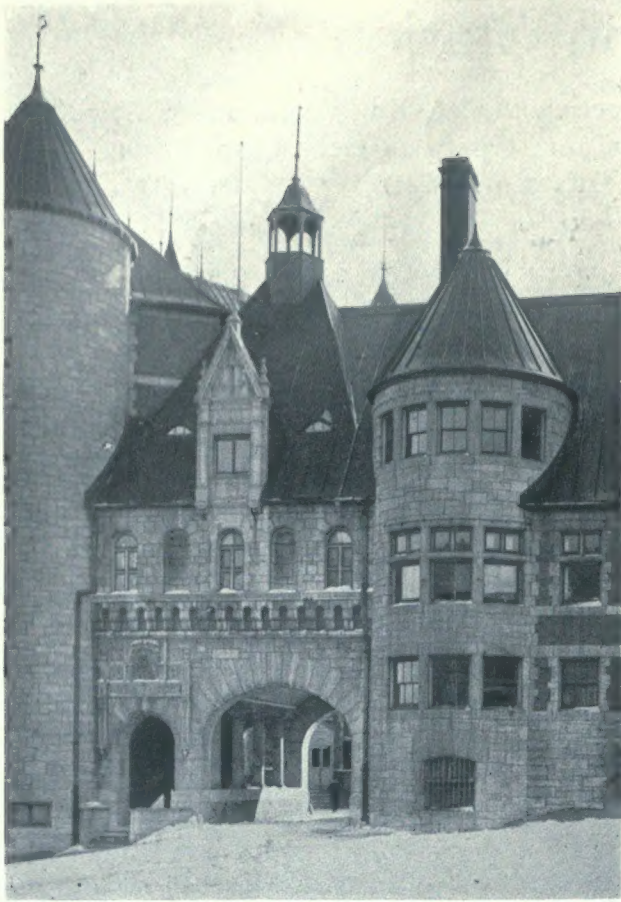
mental lamp standards and the central section flanked by tall steel flag poles. The planting spaces around plaza and on Henderson street will be filled with Lombardy poplars and the spaces at building occupied by harmonious masses of blue spruce and shrubs. The building is L shaped in plan, with the express wing approximately 46 ft. x 150 ft. parallel to St. Paul street, with power house 46 ft. x 75 ft. with a boiler stack 100 ft. high on the end toward St. Roche street. The concourse wing on Henderson street is approximately 65 ft. x 150 ft. and is practically on the diagonal axis of plan.

The roof of the central block rises about 90 ft., the roofs of the wings being roughly 50 ft. high. The exterior walls are faced with a dark wire cut brick, laid Flemish bond in white mortar with deep raked joints with stone facings and granite base. The roofs are of copper. The main entrance is 25 ft. wide, providing seven door openings, over which is a large window opening lighting the ticket lobby. The outer angles of central block carry brick and stone tourelles between which, at the roof level, is a large ornamental illuminated clock dial. At the base of the tourelles are carved stone shields bearing the Fleur-de-Lys, Rose, Shamrock, Thistle and Maple Leaf; the pediment over clock is ornamented with the coat of arms of the city of Quebec.

High up over the entrance executed in leaded glass are the armorial bearings of seven of the men famous in Canadian history, to wit: Montmagny, Governor of Canada, 1636 to 1647; De Tracy, Viceroy of Canada, 1665; Beauharnois, Governor of Canada, 1726 to 1747; Montcalm, Military Commander in Canada, 1756 to 1759;



A MONUMENT OF ART AND ARCHITECTURE.



THE OLD WORLD REPRODUCED IN THE NEW.

General James Wolfe, 1726 to 1759; Frontenac, Governor of Canada, 1672; Talon, first Intendant of New France, 1665 to 1672.

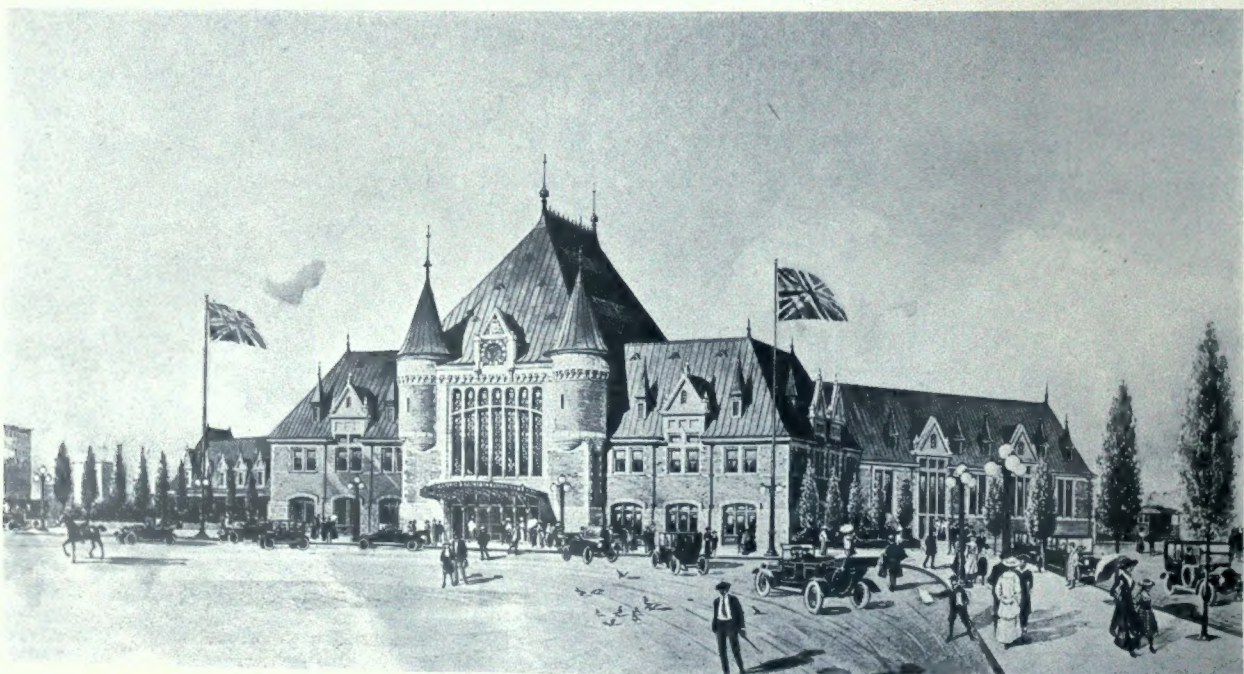
The walls of the entrance vestibule are of brick, with marble base, marble and terrazo floors and vaulted tile ceiling. On either side of the vestibule are the office staircase and the transfer company's office. The ticket lobby is 46 x 65 ft. x 60 ft. high, with a marble floor, the

walls being of a light tapestry brick, laid up white mortar with recessed joints. The high pitched ceiling is finished in Mosaic tile, shaded in color, with inlay patterns. Around the lobby are the ticket offices of the Canadian Pacific Railway and Transcontinental Railway, lobby and women's room, men's room, telegraph and telephone offices, customs offices and parcel rooms and baggage space, with an entrance to baggage room and concourse.

At the level of the offices on the floor above is arcade opening into the upper portion of the ticket lobby. The cornice, balustrades, clocks, wall decoration, etc., are all of faience tile in several colors. The cartouches in the cornice bear armorial devices in color, symbolic of railroads, steamships and hotel. The design of the leaded glass in ticket lobby ceiling will express the world-wide development of the Canadian Pacific Railway.

Off the line of traffic in a convenient location is a comfortable women's room finished in oak, the walls painted in harmonious tones with toilet-room adjoining. The concourse opens into ticket lobby and Henderson street, with three wide train gates. It is approximately 65 ft. x 125 ft. x 40 ft. high, the ceiling construction being of concrete, carried on four large semi-elliptical steel trusses. There are large window openings on all sides. The walls are of light colored tapestry brick, laid up with recessed joints in white mortar, through which runs a faience diaper pattern bearing the floral emblems of France, England, Scotland and Ireland. The brackets under the trusses are of faience tile in color, on which the emblems are merged.

The prevailing color of cornice is an old blue with dolphin and salamander inserts of faience



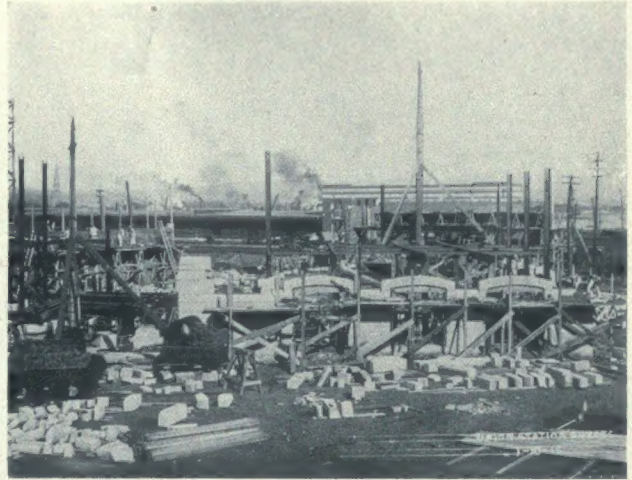
UNION STATION, QUEBEC, CANADIAN PACIFIC RAILWAY.

HARRY EDWARD PRINDLE, ARCHITECT.

tile. The floor is of marble and terrazo. Along the two sides of the room are long seats, finished in oak with marble base. The train indicators will be of the most modern type. The smoking room which opens off one end of the concourse is finished in oak, adjoining which is the men's toilet, with standard and pay toilets.

The baggage room contains approximately 2550 square feet, and express space contains approximately 4600 square feet. The upper portion of building is occupied by the offices of the Canadian Pacific Railway and the Transcontinental Railway.

The entire building rests upon a system of concrete piles, the floor and part of room con-

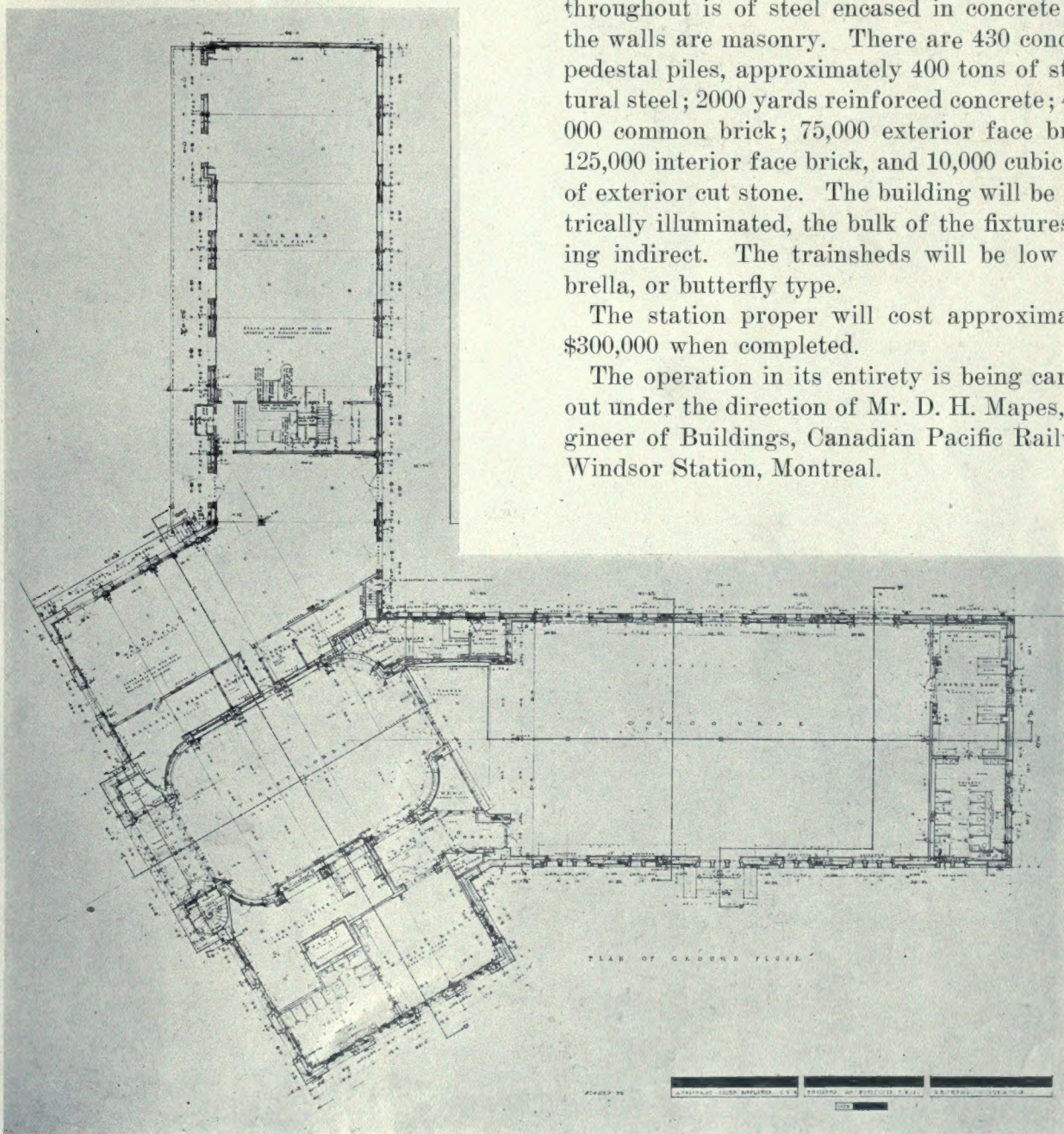


COMMENCING THE SUPERSTRUCTURE, UNION STATION, QUEBEC.

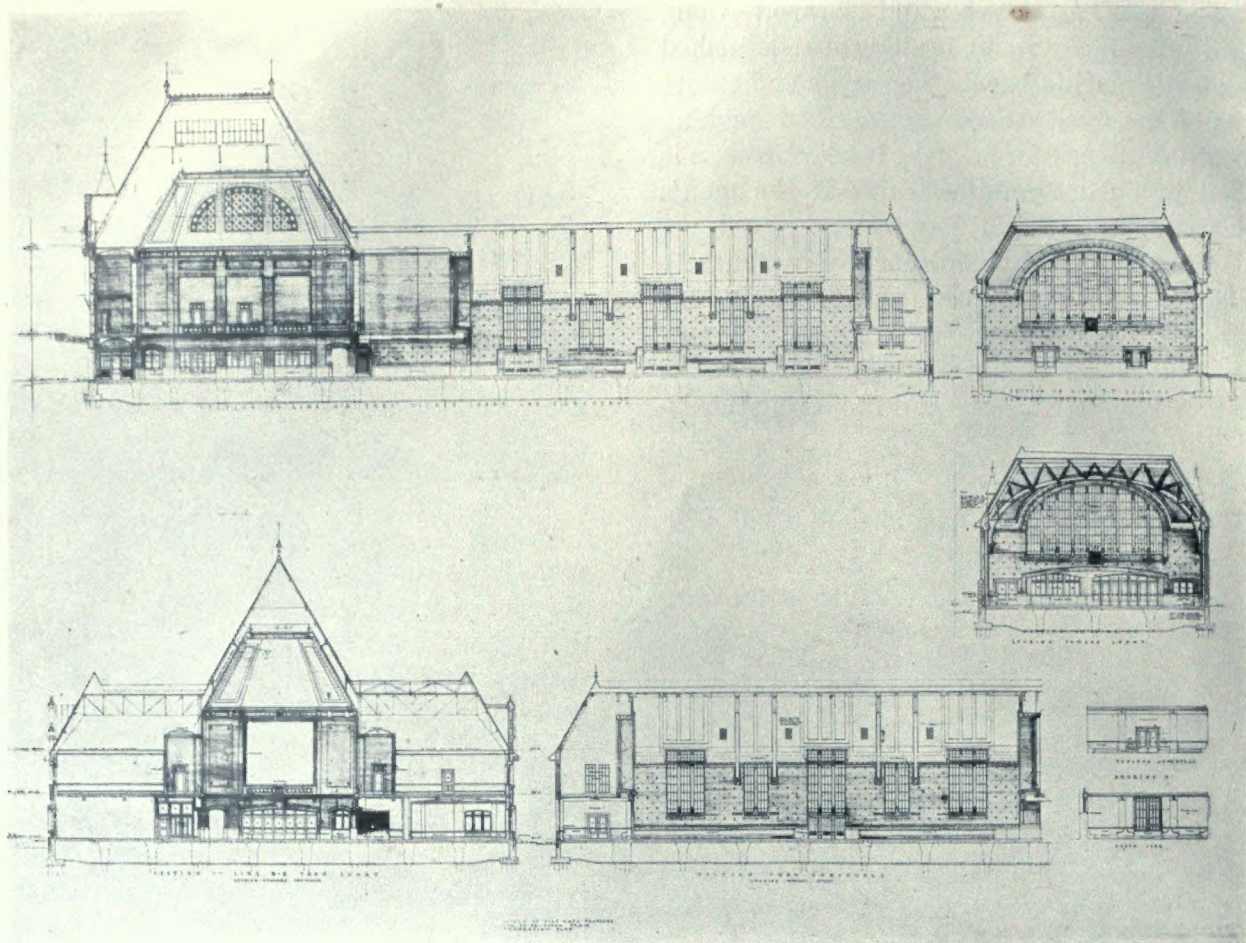
struction is reinforced concrete, sloping surfaces of roof are of gypsum block. The frame throughout is of steel encased in concrete and the walls are masonry. There are 430 concrete pedestal piles, approximately 400 tons of structural steel; 2000 yards reinforced concrete; 400,000 common brick; 75,000 exterior face brick; 125,000 interior face brick, and 10,000 cubic feet of exterior cut stone. The building will be electrically illuminated, the bulk of the fixtures being indirect. The trainsheds will be low umbrella, or butterfly type.

The station proper will cost approximately \$300,000 when completed.

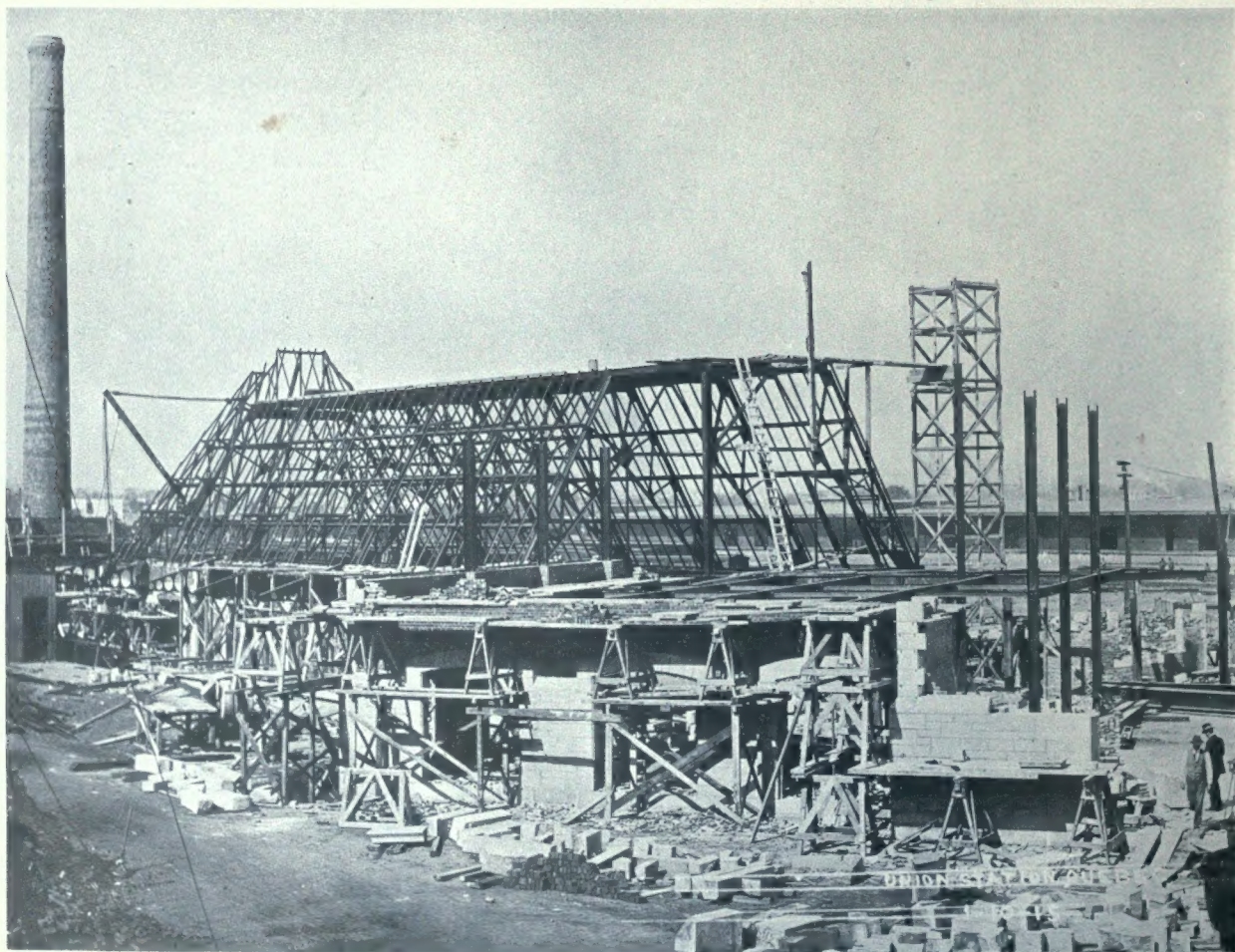
The operation in its entirety is being carried out under the direction of Mr. D. H. Mapes, Engineer of Buildings, Canadian Pacific Railway, Windsor Station, Montreal.



GROUND FLOOR PLAN, UNION STATION, QUEBEC, CANADIAN PACIFIC RAILWAY.



SECTIONAL VIEW, UNION STATION, QUEBEC.



STEEL FRAME, UNION STATION, QUEBEC.

HARRY EDWARD PRINDLE, ARCHITECT.

For King and Country

Architects and Engineers of Canada Nobly Doing Their Share For the Cause of the Empire

CAPTAIN MCGIFFIN, of the firm of Chapman and McGiffin, has been connected with the Canadian Engineers for a number of years, having held a commission in the 8th Field Company, Canadian Engineers. Since the camps at both Niagara and Toronto were formed Captain McGiffin has been Assistant Commander, under Col. Caldwell, of the Royal Canadian Engineers, who have had charge of the erection and maintenance of the buildings which have been necessary at both camps.

Major H. Eden Smith, of the firm of Eden Smith and Sons, architects, Toronto, has been a well-known figure in military circles in Toronto for the last twenty years, the whole of that time having been spent in connection with the Queen's Own Rifles, for which regiment he has always been an ardent worker. At the outbreak of hostilities Major Smith joined the 35th Battalion, recruited from the Queen's Own Rifles, which he helped organize. Later, Major Smith was given charge of the draught reinforcements to the 3rd Battalion, France.

Major Paul E. Mercier, who has recently succeeded the late Major Janin as Engineer for the City of Montreal, was born at St. Hyacinthe, Quebec, in 1877, and for ten years after his graduation from L'Ecole Polytechnique was connected with the Dominion Government engineering staff. He spent a number of years in the Yukon and the Province of Quebec as resident engineer. On his return from the Yukon, he took charge of the National Transcontinental, later entering into partnership with S. A. Baulne, of Montreal, as consulting engineers. Major



MAJOR H. EDEN SMITH,
3rd Battalion, France.



CAPT. MCGIFFIN,
Commander R.C.E., Exhibition Camp, Toronto.

Mercier is well known in military circles, having organized and commanded the Officers' Training Corp at Laval University.

Captain Clayton Stewart has returned to Toronto from the front on sick leave, having spent five months in the trenches.

Captain Arthur S. McConnell, Assistant Professor of Architecture at Toronto University, has been appointed Adjutant of the 116th Ontario Battalion. Capt. McConnell has been training with the C.O.T.C. since the beginning of the war.

Lieut. H. M. West, City Engineer of North Vancouver, who has enlisted for overseas service, is a graduate of Toronto University. Previous to enlisting, the huge sewerage system of North Vancouver was brought to completion under his supervision. The city council of North Vancouver are in the meantime holding open his position until the war is over.

Canadian engineers rightly read with interest the New Year's honor conveyed to General Bertram, member Canadian Society of Civil Engineers. Born at Dundas in 1853, General Bertram entered the organization of John Bertram & Sons, for which firm he was Montreal manager when war broke out.

Sir Sam Hughes was quick to recognize his abilities with the knowledge he had of machine work and the training he had had with the Canadian militia, with which he had held a command for several years. General Bertram was made Chairman of the Canadian Shell Committee at its inception, and it is to his credit that the great industry which has been added to Canada is in such a flourishing condition to-day.



METHODIST BOOK ROOM, TORONTO.

BURKE, HORWOOD & WHITE, ARCHITECTS.

Methodist Book Room, Toronto

This Immense Building With Its Imposing Appearance is a Model, Containing Many Utilitarian Features For The Successful Operation of a Large Industrial Organization

By W. H. RATCLIFFE

THE Methodist Book and Publishing Company's new building, situated on Queen street west, is one of the largest and most up-to-date publishing buildings in Canada. It embodies not only the publishing department, but all of the Connexional offices, such as the Missionary societies, Sunday School and Young People's work, Superannuation Fund and Social Service Departments.

The Methodists of Canada are to be commended for the progressive step they have taken in having their various departments in such a building, where abundance of light, air and room tends to the contentment of the employees, and therefore efficient labor.

The site is ample for present needs and future extensions, having a frontage of two hundred and thirty-one feet on Queen and Richmond streets, and two hundred and twenty-one feet on John street.

Owing to its close connection with church work, the building was designed in the Gothic style. It has a frontage of one hundred and thirty-five feet on Queen street, two hundred and twenty-two feet on John street and one hundred and ninety-two feet on Richmond street. All of the street fronts are paved with cream matt glazed terra cotta from the granite base to the roof.

The entire structure is as nearly fireproof as it is possible to be. All sash and frames are metal, and all windows opening into the court are of steel and glazed with wire glass. The partitions are of tile, and each floor is divided into sections by automatic fire doors. The

floors are finished with concrete, asphalt, terrazo or marble, except where it was absolutely essential to have wood.

The construction is skeleton steel, with hollow tile floor arches in the office, and reinforced concrete in the factory sections. Each column rests on a caisson of concrete, varying from five feet six inches to eight feet six inches in diameter, and extending to bedrock a distance of approximately forty feet below the street level.

Considerable difficulty with water was experienced, from an underground creek. Sheet piling and continuous pumping were necessary.



ENTRANCE METHODIST BOOK ROOM, TORONTO.

The steel work is designed for a line load of four hundred pounds per square foot in the factory section, and the addition of five storeys, as the necessity arises. It is one of the heaviest steel contracts in Toronto, two thousand two hundred tons being used. The structure is sufficient to support a building with light floor loads, such as an office building, ten storeys in height.

The main entrance is on Queen street, and is protected by a cast bronze marquis. The main entrance hall is roomy, and is pleasing in appearance, though simple in design. It is decorated with Battachino marble wainscot, mahogany trim and ornamental plaster ceiling. The floor is of square marble tile.

The electric fixtures in the hall and on either side of the entrance are of cast bronze specially designed.

In this hall are show windows and doors leading into the stores on either side. Millways for three passenger elevators are provided, two being installed at present.

From Queen street also is the main driveway into the court, which is over the boiler room and coal vault. The court is through a lane to Duncan street.

There are five stores on Queen street, two of



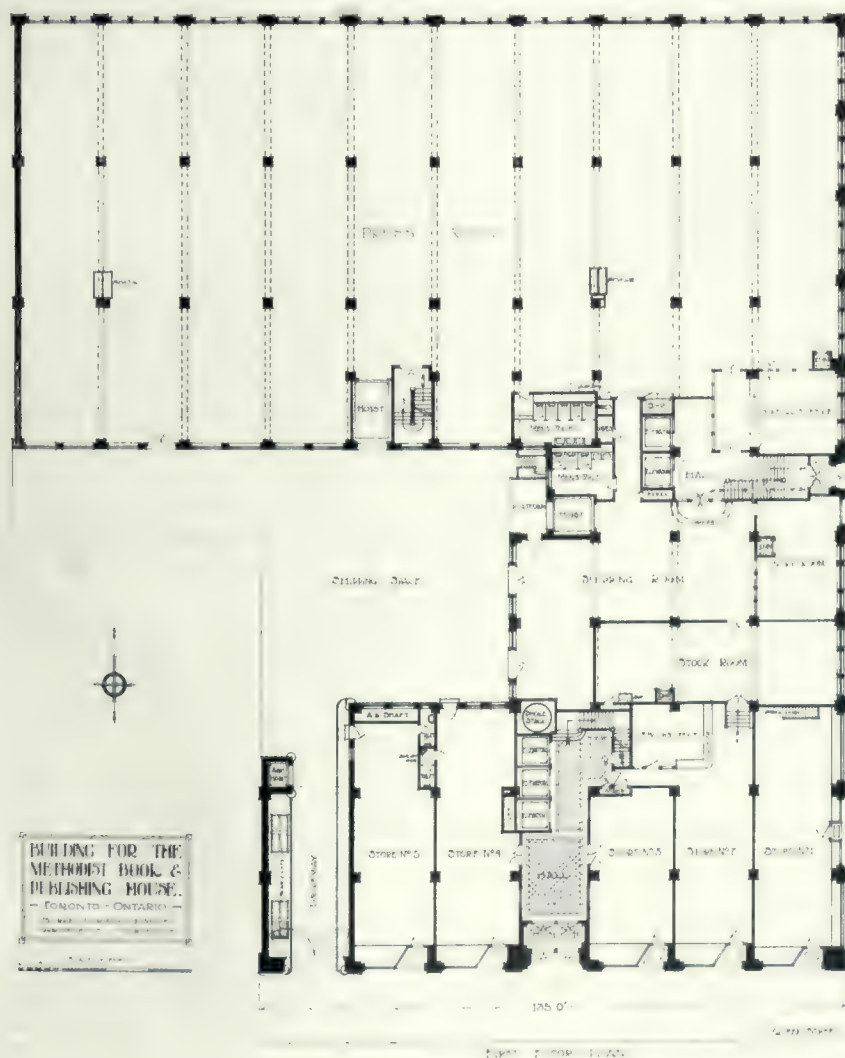
PRIVATE OFFICE, METHODIST BOOK ROOM, TORONTO.

which are occupied by the retail department of the Book Room. The remaining stores are the only portions of the building rented to concerns having no connection with the Methodist Church.

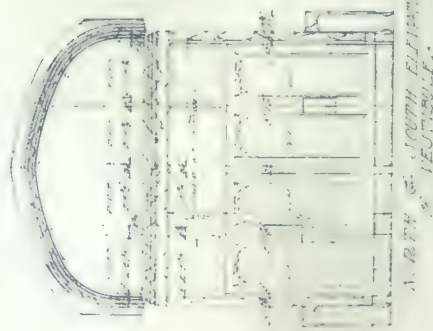
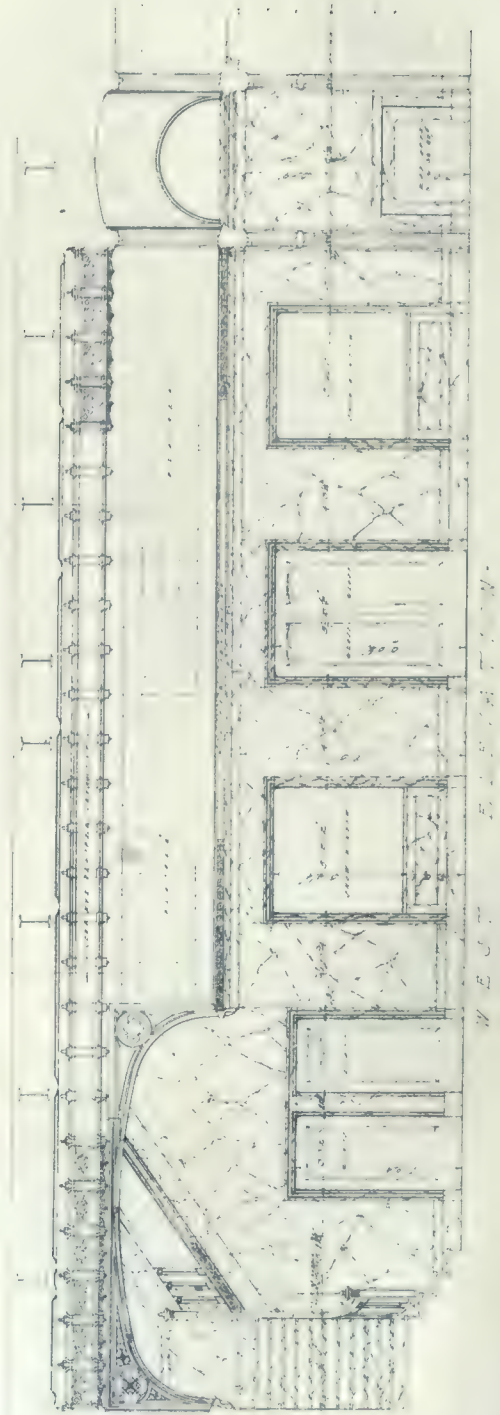
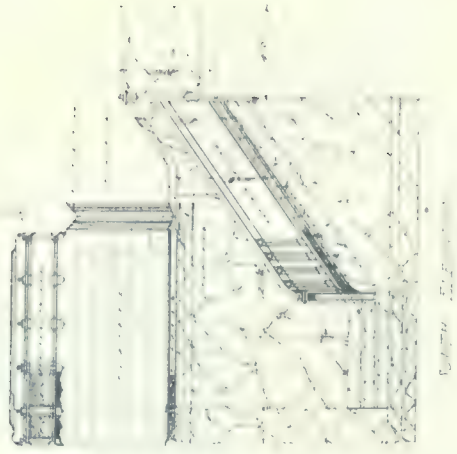
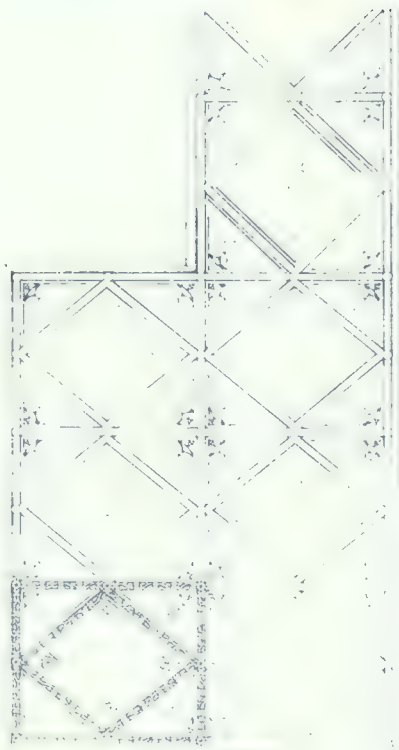
To the rear of the stores is a large stock room fitted with large bunks for surplus stock. Behind this again is the shipping room, with large doors opening directly to the court. No goods are handled on the street fronts.

The employees' entrance is on John street, below which in the basement are the timekeeper's office and the locker rooms. Provision is made for two employees' elevators. A stair leads up from this entrance to the various floors above and connects on each floor with the office of the foreman of the department on that floor. The balance of the ground floor is the pressroom, which is seventy-five feet wide and two hundred feet long. All of the presses are located in this room, from the small job press to the large automatic feeding Miehle presses. They are arranged around the walls, having the centre free for the handling of paper. The floor of this central space is asphalt.

Leaving the press-room, the material is raised by a large freight hoist to the bindery on the second floor, which is of the same dimensions as the pressroom. Here it is cut and bound and passed through to the mailing-room, or wholesale book department, which occupies



MAIN ENTRANCE CORRIDOR,
METHODIST BOOK ROOM, TORONTO.
BURNS, HORNWOOD & WHITE, ARCHITECT.



1. 10. 24. S. SOUTH ELEVATION
OF VESTIBULE.

the remaining portion of the second floor.

The sample room of the wholesale department is served by the passenger elevators from the main entrance hall.

In the factory sections there are two freight hoists and four dumb waiters. The hoist serving the press room and bindery is of the heavy duty type. Its car is eight feet wide and fourteen feet long, and is capable of lifting five thousand pounds at high speed, or ten thousand pounds at low speed.

The dumb waiters are automatic, the car being sent to any floor desired, or brought to the user by pressing the corresponding button. None of the doors can be opened unless the car is at that floor.

The front portion of the third floor is occupied by the general offices of the Book Room. The office is separated from the corridor by a long counter, with a bronze cashier's cage centrally located.

The central section of the third floor is occupied by the library department and the offices of the publication and factory managers, while the rear portion on John street and the Richmond street section are occupied by the stereotype, job and proofreaders' rooms. The proofreaders' room is divided into stalls, each one accommodating its reader and checker.

The north-east corner of the fourth floor is devoted to the board room, which is a large and well lighted room, having windows on the Queen street and court sides. This room is used for the meetings of the Ministerial Associations, as well as board meetings.

The balance of the Queen street section is oc-



CORRIDOR, METHODIST BOOK ROOM, TORONTO.



STAIR HALL, METHODIST BOOK ROOM, TORONTO.

cupied by the Woman's Missionary Society. The central portion is given over to other offices and a lunch room, where meals are served the employees at a nominal sum.

The balance of this floor is devoted to the linotype and type-casting departments.

The fifth floor is entirely occupied by various Connexional offices.

Ample toilet accommodation is provided on each floor, for both the office and factory sections. The office toilets have white Italian marble wainscot and stalls and terrazo floor, while the marble in the factory toilets is Valley grey and the floors asphalt. All are ventilated by exhaust fans located in pent houses on the roof. Exhaust fans are also located there to ventilate the stereotype, type-casting and linotype rooms.

The Richmond street section of the basement is devoted to paper storage. Here thousands of tons of paper may be piled to temper.

All of the paper comes into the receiving room by way of chutes from the court. Here it is unwrapped and piled on benches and trucked out to be stored.

A vault runs the full length of the building on Richmond street underneath the sidewalk. This is used for the storage of book plates, cuts, etc.

Locker rooms, machine shop, engineer's office and carpenter shop occupy the balance of the basement, with the exception of the north-east corner, which is on a lower level, where are located the generators and switchboard. All connections from the generators and street service to the switchboard are in ducts, as well as the leads from the switchboard to the risers for the panel boards on the various floors.

The floor of the sub-basement is twenty-seven feet below the street level. Here are located the sump, pump and boiler rooms and the coal vault.

All drainage below the sewer level is led to the sump, which is six feet in diameter and eighteen feet deep, where it is automatically



COMPOSING ROOM, METHODIST BOOK ROOM, TORONTO.

pumped to the drain by electrically driven bilge pumps.

Provision is made in the boiler room for four boilers, but only two are installed at present. They are of the latest water-tube type, rated at three hundred horse-power each. The stoking is done automatically. The coal is handled from the vault to the hoppers in the stokers by an electric conveyor. Connected to the conveyor is a scale, so that actual consumption of coal may be recorded.

The boiler, pump and generator rooms are supplied with fresh air by a supply fan.

Below the boiler room floor is an ash tunnel, the floor of which is forty feet below the street level. The ashes are dumped from the hoppers under the stokers into an ash car, which is run on to an hydraulic hoist and raised to waggon height and dumped, thus saving laborious handling.

The building is heated by exhaust or direct steam, as may be desired. All piping is arranged to suit the enlarged building.

A watchman's time clock has been installed, with stations on the various floors, which automatically records on a master clock located in the engineer's office.



BINDERY, METHODIST BOOK ROOM, TORONTO.

GOOD ROADS CONGRESS

At the Good Roads Congress, to be held in Montreal, a programme of lectures and discussions is being compiled, the names of those taking part embracing most of the leading experts in road making on the American continent.

The congress will be under the auspices of the Dominion Good Roads Association, of which the honorary presidents are U. H. Dandurand, of Montreal, and W. A. McLean, Chief Engineer for Highways in Ontario. The president of the Association is B. Michaud, Deputy Minister of Roads for the Province of Quebec, while O. Hezelwood, president of the Canadian Automobile Federation, is vice-president. The other officers are G. A. McNamee, secretary of the Dominion Good Roads Association; R. S. Henderson, president of the Manitoba Good Roads Association; Alderman R. J. Shore of Winnipeg, Lieut.-Col. W. N. Ponton, president of the Associated Boards of Trade, Belleville, Ont.; Howard W. Pillow, president of the Automobile Association of Canada, and J. A. Sanderson, honorary president of the Ontario Good Roads Association and of the Dairymer's Association of Eastern Ontario.



PRESS ROOM, METHODIST BOOK ROOM, TORONTO.



BOILER ROOM, METHODIST BOOK ROOM, TORONTO.

Building Operations During Cold Weather

A Discussion of The Possibilities of Winter Construction

By F. M. PAULL*

FORCE of habit is apparently one of the strongest compelling influences. Let business take a certain trend for a few seasons and the majority of people will take it for granted that the resulting conditions are a necessity and must naturally exist.

This is the state of opinion in certain quarters at the present time in connection with the sale of building material during the fall and part of the winter season. In general building activity drops off.

While this is not a necessity, it is a fact that by taking the "dull season" for granted, the buyer has accustomed himself to do season buying instead of distributing his expenditures over a period of twelve months. It has been made easy for him to do his buying during a short period. Because of this concentrated expenditure he has not taken advantage of the lower prices of material and labor which exist in the winter time.

Building is to-day, however, an all-year-round proposition. Comparatively few of the big builders lay up a job on account of cold weather if they can by any means induce the owner to go ahead with the plans.

Since there is no real reason for not building in the winter time, a concerted action on the part of those most vitally interested should result in increased building.

Working on this theory, and already convinced of its truth, a Detroit company recently started a campaign. The object of the campaign is to correct existing conditions in the building trade. However, before going ahead on their theory without anything to back them up they appealed to the two classes of people in the building trade who should be most interested in seeing a movement for "More Winter Building" success—the architect and the other manufacturers of building material.

The architect was first sounded—a letter being sent to a list of six thousand or more in all parts of the country. It asked their opinion of the feasibility of doing away with the "dull season" if conditions were made right—the conditions to be unusual inducements in the way of price, shipments and service between November 1st and April 1st, and in addition, special sales and advertising campaigns, setting forth the advantages of building in the winter time. While the replies were not all favorable, there were enough favorable ones to show that architects are as anxious for more winter building as are building supply manufacturers.

The consensus of opinion proved the theory correct that "the winter dull season is mostly a matter of tradition," which could be overcome if everybody—architect, building trades, press and manufacturers worked together.

Substantially the proposition was the same one put up to the architects, and was as follows

1. Do you think more business could be uncovered during the next six months if supply people made special inducements in price, service, delivery, etc.?

2. Do you think that any such co-operative campaign would appeal to the building supply people generally?

3. Would you be willing to co-operate in such a movement? If so, to what extent?

The third proposition provided for giving special advertising instructions in methods of increasing sales, every advertising department to undertake a special "More Winter Building" campaign through their sales and advertising organizations, and to enlist the co-operation of architects and contractors.

The replies received from the manufacturers proved that everybody was interested. Just as in the case of the architects, not all were of the opinion that building could be stimulated in the winter time, even if everybody pulled together. All of the replies were suggestive, however. A few of them will serve as samples of the reasons given for and against the practicability of winter building from the manufacturers' point of view.

A manufacturer of gypsum thinks such a movement would benefit the dealer.

"Of course," he writes, "there is no argument against the fact that it would be better to have building conducted uniformly. Anything we could do to bring about this condition would reflect, indirectly at least, to our credit, if it had only the effect of bettering conditions for our dealers."

On the other hand, a cement concern thinks that cold weather holds un-concrete work somewhat more than some other form of building. To quote their own words:

"We agree with you that a good deal can be done along the lines of stimulating winter work, and we are certainly going to do everything we can in that direction."

A manufacturer of asbestos sheathing paper and all materials used in the installation of heating plants, strongly indorses the idea as follows:

"Wish to assure you that we appreciate your

*Fenestra Dept. Detroit Steel Products Co

sending your winter building proposition to us, and your suggestions have our approval. Without doubt an increase in winter building would give improved conditions to all material houses. We shall be glad to further the movement in every way possible. I think your scheme of going after architects and builders to influence them in wider activity during the winter season is an excellent one, and I want to put myself on record as being heartily in favor of your idea."

Two concerns thought it too bad that the movement for more winter business wasn't started earlier. One of them, a sheet metal concern enthusiastically supported the movement in the following terms:

"The more we think about this proposition the more we are warmed up to the subject, and we now consider it a very happy thought to promote the idea of more winter building. It is unfortunate this subject did not come up at least sixty days ago, so that what we want to put into the minds of the architects and contractors could have been put there somewhat earlier."

The other concern mentioned, hopes for results in 1916 if the movement is pushed now. This is what they say:

"So far as possible we will fall in with your idea. We are in hearty accord with it and hope that enough effort will be put back of the cam-

paign to carry weight. We can hardly expect much results this winter, but certainly hope for some effect in 1916."

Others also replied favorably and promised to co-operate in the movement for more winter building.

"We will do what we can to assist in this movement, as it is an excellent one and will probably be able to obtain some results in this way," writes one.

"We are very much interested in your proposed campaign for 'More Winter Business' for building supply people? We are very sorry indeed to state that our experience in campaigns of this kind has been very limited and we would hesitate therefore offering suggestions as to how it should be conducted. We do, however, think that more business would be uncovered during the next few months if builders could be induced to build during the winter instead of in the spring," writes another—and still another has the same view as follows:

"We have read with interest your letter of October 12th regarding 'More Winter Business' and there is little question but what a properly conducted campaign directed into the right channels might release considerable business during the winter months that might otherwise hold over until spring."



THE LONG PERGOLA IS AN ADMIRABLE ARCHITECTURAL BRIDGE BETWEEN THE HOUSE AND THE GARDEN.

Two manufacturers while personally endorsing the plan to stimulate winter building believed the old bug-a-boo that "there always had been a dull season and always would be one" was too deep seated to be overcome at this late date.

"The opinion seems to be here," one says, "that the bulk of small building will be held up during the cold weather, however desirable it may be to extend it."

Climatic conditions would be the stumbling block for any campaign, thinks the other—("We believe it would be a distinctive advantage to do away with the dull season, but we do not see very well how this can be overcome entirely, on account of climatic condition.")

And so it was all along the line. The consensus of opinion seems to be that any manufacturer entering on such a campaign would benefit the architect, contractor and owner and get out of it just about what he was willing to put into it.

Since the question of More Winter Building was originally brought up, the Building Trade Press has devoted considerable space to discussion of different phases of the question.

A prominent eastern architectural magazine wrote as follows:

"We are heartily in favor of the movement

which you have inaugurated for winter building. There seems to be no good or sufficient reason why building operations could not be carried forward to advantage during the winter months throughout a very large proportion of the United States, and to do so would unquestionably be of some benefit to all parties concerned including architects."

Another publication believes it is impossible to eliminate business seasons. They write:

"This does not seem to be any more practical in the building business than in the drygoods business. The delays incident to the completion of a building in the winter, excessively cold weather and storms, are unavoidable, and for buildings that represent a great outlay of capital such as hotels, apartment buildings and office buildings, there does not seem to be any appreciable advantages in their completion in the spring or the early fall, for the reason that they cannot reasonably expect tenants until the fall, thus leaving a period of several months from which they receive no rentals, to which should be added higher cost incident to the building, and heating the building in winter work. On the other hand, buildings of this type, completed in the early fall, can reasonably expect prompt returns by early rentals."



ARCHITECTURAL DIGNITY COMBINED WITH COMFORT, A FINE SOLUTION OF THE PIAZZA PROBLEM.

Complicated Concrete Construction

Noteworthy Illustration of What is Being Accomplished in Concrete

A STRIKING example of the adaptability of concrete to complicated structures is given by the St. Michael's Church now being completed, corner St. Urbain and St. Viateur Sts. in Montreal. The church proper covers an area of about 170 x 90 (exterior dimensions). There are really no columns in this church, and the whole structure is built of plain and reinforced concrete. The style is Byzantine, and the illustrations reproduced here give a better idea of the design and appearance of the building than any lengthy descriptions.

The lay-out, not only from an architectural but also from an engineering point of view was made in all its detail by the architect. It remained for the engineer only to check up the stresses in the concrete, and provide the neces-

four strong tower abutments. Arches, cantilevers, the dome proper, etc., are clearly shown on the illustrations. The dome is about 118 ft. above the sidewalk and 110 ft. above the auditorium floor, and the tower is 170 ft. high.



CONCRETE DOME, SHOWING FORMS IN PLACE.

sary steel to take the tension stresses, and in doing so it was easily ascertained that details of construction were also gone into by the architect, as no changes had to be made, and the church is built in strict accordance with the original plans of Mr. Beaupré Champagne, the architect.

The church is founded on rock. The basement ceiling is carried by flat arches 54 ft. clear span having a raise of 30 ins. only. The arches are 18 ft. c. to c. and are connected with a flat slab 7 ins. thick.

The main auditorium is covered by a dome 74 feet in diameter. This dome is carried by four full centre arches, each 52 ft. diameter, which arches are being carried down to rock by



REINFORCED CONCRETE BEAMS IN BASEMENT.

The outside walls are all covered with Green-dale brick and terra cotta, as the illustrations show. The dome and roofs, however, are finished in concrete, the dome having received a colored waterproof cement finish about 1 in. thick, showing green shamrocks on a white field. The green color was obtained by mixing a green pig-



DETAIL OF CONCRETE STAIRWAY, ST. MICHAEL'S CHURCH, MONTREAL.

ment with the ordinary cement, and the white is obtained by the use of white cement.

It is gratifying to state that although the structure is rather unusual and of huge proportions, the work was executed without any serious accident to men or property.

THE BRITISH COLUMBIA LUMBER SITUATION

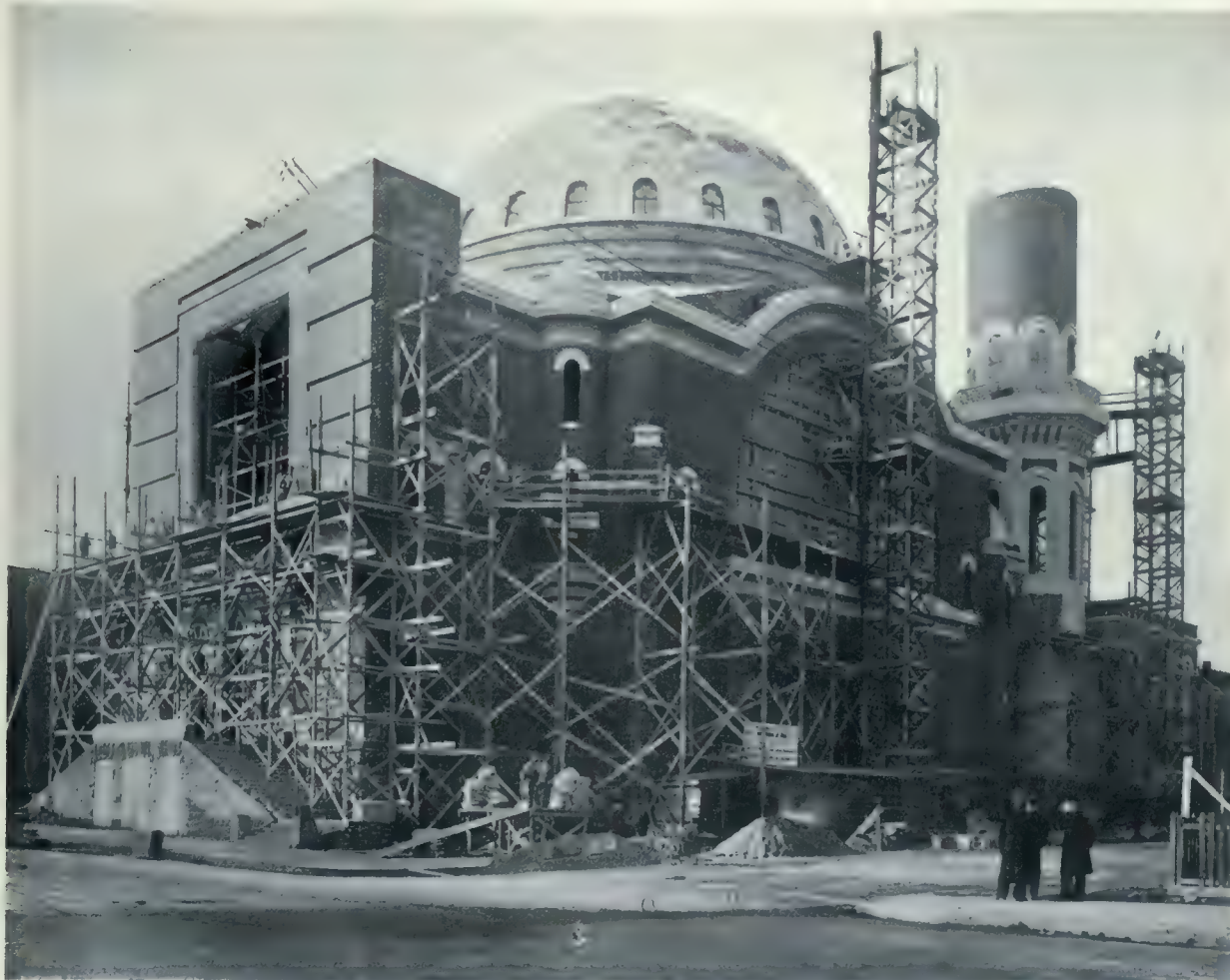
The serious situation confronting the lumber industry of the West owing to chronic over-production and ruinous price-cutting received a great deal of attention at the Pacific Logging Congress and the annual meeting of the Western Forestry and Conservation Association. Both of these meetings were held in the lumbermen's building at the Panama International Exposition at San Francisco.

Conditions in British Columbia were dealt with in a letter sent to the president of the association by the Hon. W. R. Ross, from which the following quotation is made:

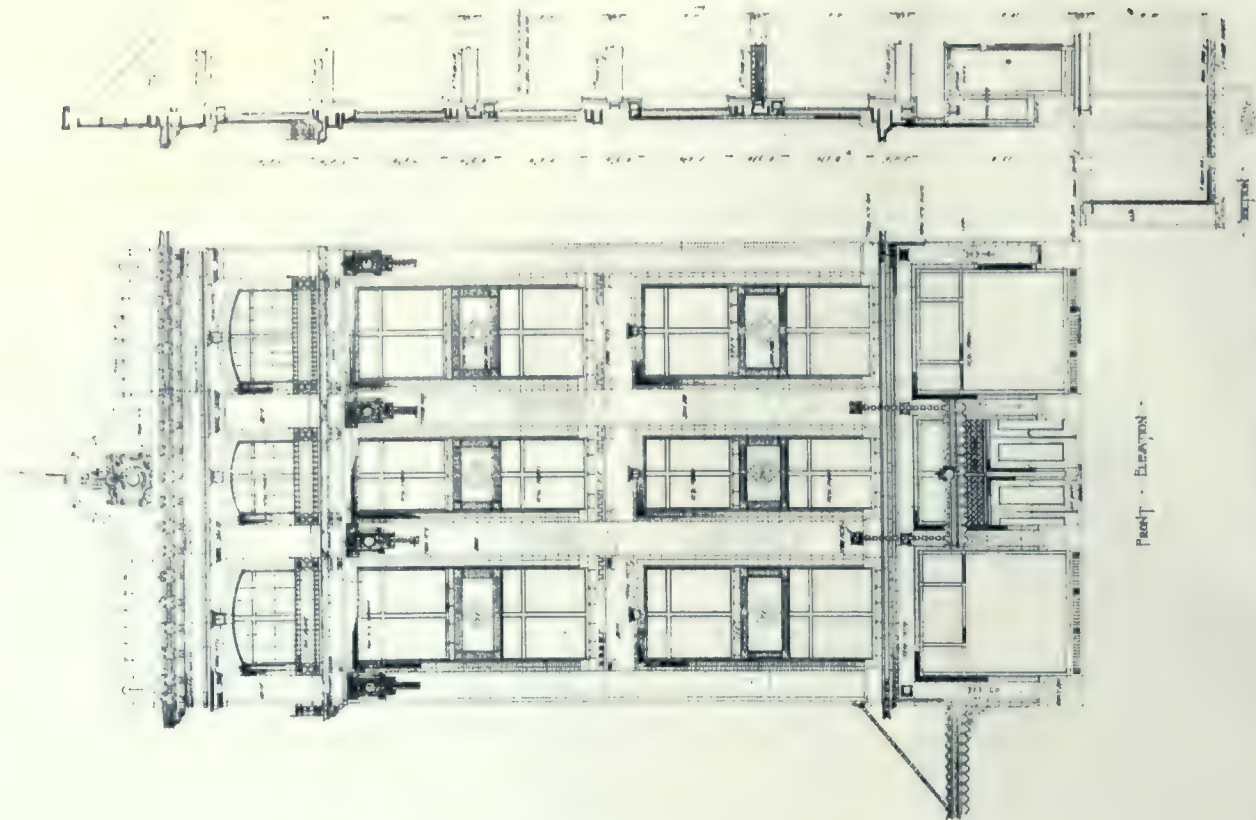
"It is with great regret that I find myself unable to attend your meetings at San Francisco. I desired particularly to be present at the discussion of conditions affecting the lumbering industry. It seems to me that there has been definite

progress during the present year. Discussion of what is wrong with the industry is becoming clearer and effort along definite lines is beginning to take shape. From this side of the line we are watching with great interest your work of replacing demoralization by organization and of endeavoring to secure to wood its legitimate market.

"As you know, no Government is so closely identified with the lumbering industry as is that of British Columbia. Present prosperity, public revenue and future development in this Province depend very largely on the profitable marketing of our forest products. Hence the situation of the lumbering business is viewed with the greatest concern by the Government, and every method of restoring the industry to sound health is being studied by us. For the moment we are concentrating upon the conservation of lumber markets, to secure to our products their full legitimate market and check the shrinkage in consumption from which wood has suffered so seriously in the past few years. Government campaigns of advertising have, in the past, been of considerable effect when applied to immigration or the marketing of fruit. The official campaign we now have in progress is, I believe, the first one that has been launched on behalf of the lumbering industry. We intend to push the work



COMPLICATED CONCRETE CONSTRUCTION, ST. MICHAEL'S CHURCH, MONTREAL.



FRONT ELEVATION OF CARTY BUILDING.

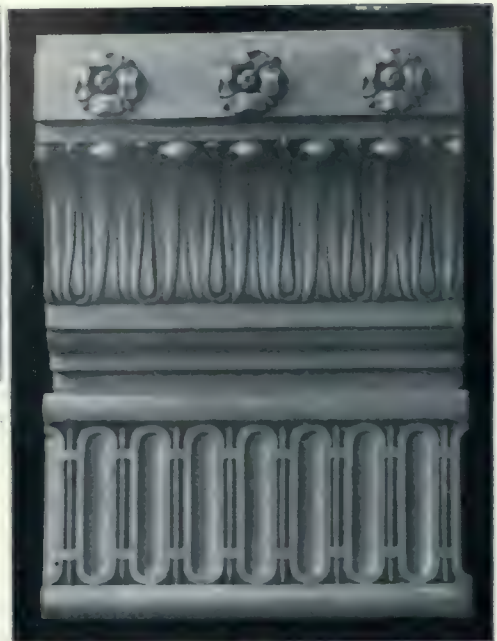
F. S. MALLORY, ARCHITECT.



EXTERIOR VIEW OF CARTY BUILDING.



IMPOST CAP.



WINDOW
AND
SPANDREL
ORNAMENT.



TERRA COTTA DETAIL.
CARTY BUILDING,
TORONTO.

F. S. MALLORY, ARCHITECT.



ENTRANCE MOULDING.



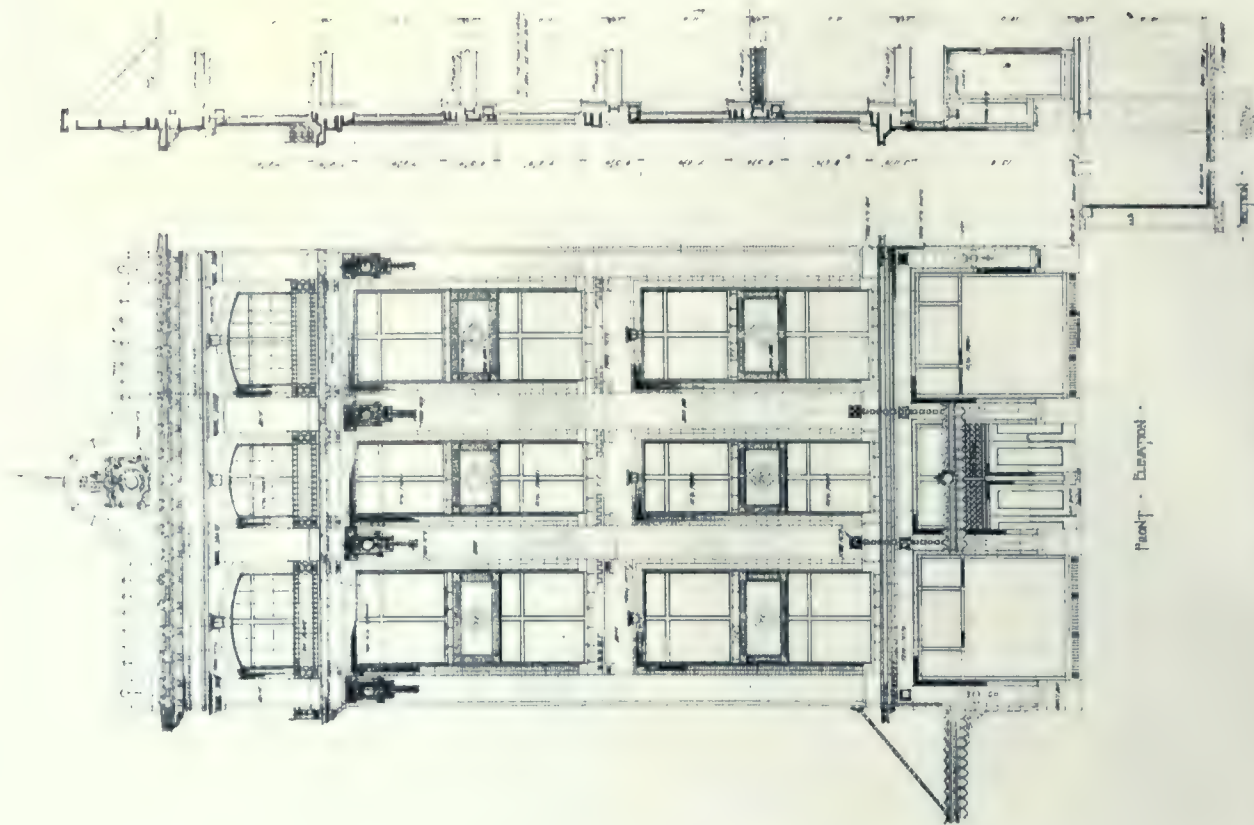
SHIELD.

wood floors and plain plastering. The top floor, which is used as general offices, has terra cotta balconies, with wrought iron railings, and the whole of the building on the two fronts is capped with a heavily enriched terra cotta cornice and pediments. A part of the first floor was partitioned off with hollow tile and fitted up with a mezzanine floor at the rear, and elaborately decorated, to be used as a candy store.



PANEL AND MOULDING.

CONSTRUCTION



FRONT ELEVATION OF CARTY BUILDING.

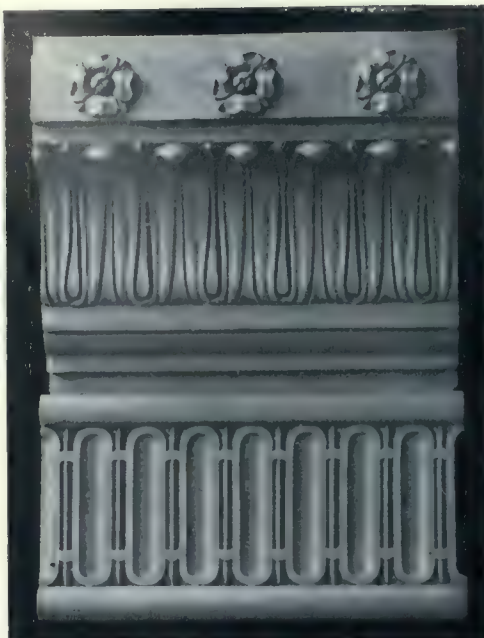
F. S. MALLORY, ARCHITECT.



EXTERIOR VIEW OF CARTY BUILDING.



IMPOST CAP.

WINDOW
AND
SPANDREL
ORNAMENT.

ENTRANCE MOULDING.

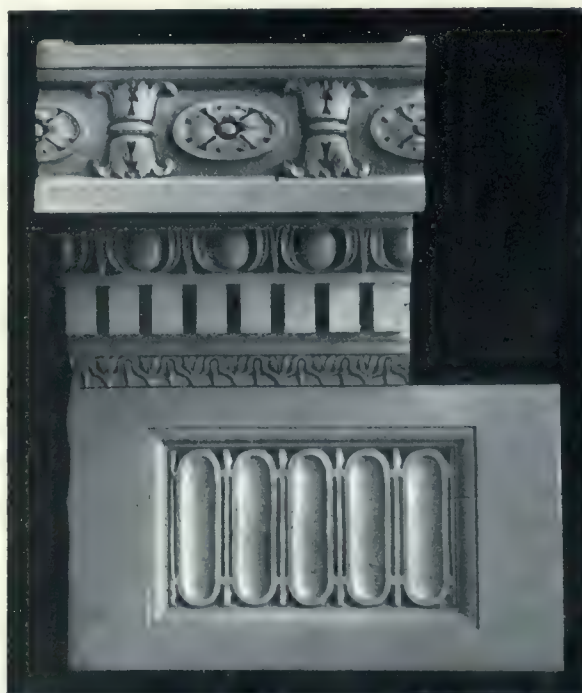


SHIELD.

TERRA COTTA DETAIL.
CARTY BUILDING,
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F. S. MALLORY, ARCHITECT.

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PANEL AND MOULDING.

CONSTRUCTION

A JOURNAL FOR THE ARCHITECTURAL
ENGINEERING AND CONTRACTING
INTERESTS OF CANADA



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CONTRIBUTIONS.—The Editor will be glad to consider contributions dealing with matters of general interest to the readers of this Journal. When payment is desired, this fact should be stated. We are always glad to receive the loan of photographs and plans of interesting Canadian work. The originals will be carefully preserved and duly returned.

Entered as Second Class Matter in the Post Office at Toronto, Canada.

FRASER S. KEITH - - - EDITOR AND MANAGER

Vol. IX Toronto, January, 1916 No. 1

ESTABLISHING A STATUS

The splendid example set by the architects of Canada in answering their country's call has placed the whole Dominion under such obligation to them, both individually and collectively, that some show of appreciation from the Government in respect to the status of architects would be at the same time a just tribute to the profession and a benefit to the country.

With the Conservation Commission at Ottawa working to establish a standard building by-law for Canada and a gradually awakening public conscience in respect to the class and appearance of buildings and their relation to the

city or community in which they are to be erected, this is an opportune time for the architectural associations of the Dominion to co-operate in a vigorous manner towards securing legislation for their mutual benefit and protection. It will take more than a half-hearted effort to secure such, but the situation warrants doing everything that can possibly be done by the architects themselves with the use of all the influence they possess to achieve this much-to-be-desired end.

In the State of Michigan a registration act has been passed regulating the practice of architecture and placing it within the jurisdiction of a board of examiners, composed of architects who have been in active practice as principals within the State for not less than six years, with the condition that one of the members is to be the senior professor of architecture at the Michigan University.

In New York State a registration law became effective last year, which placed in the hands of a board of regents, who perform the same office for the medical profession, the fixing of standards for the education of architects, the conduct of examinations of those who desire to practice, and the issuance of certificates admitting to practice all entitled to assume the name of architect.

Commenting on the situation as it applies to Chicago, with its glaring evidences of a lack of architectural co-ordination, one of the members at a convention of Illinois architects said: "Chicago's buildings wouldn't even make good ruins. They are a sort of grotesque and painted debris. The churches look like forts. The theatres look like dry goods stores. The dry goods stores look like mausoleums. The general run of apartment buildings look like wedding cakes. And the city's public edifices run the gamut, as Mark Twain said, from Grecian to Roman to catch-as-catch-can styles of architecture. Chicago's loop is, futuristically speaking, a cross between the catacombs of Rome and the nightmares of Aubrey Beardsley; a composite of gingerbread, optimism and dyspeptic towers. As for the outlying homes, they are the result chiefly of speculative plunges instead of artistic flights, and are about as soothing to the eye as porous plasters are to the back. American architecture is a compound of transplanted freaks and politics. The profession is crowded with men who, having been born in Italy or France or Sweden, seek to plant Parthenons, palaces or icebergs in the busy commercial streets of this country."

These remarks, in a lesser degree, perhaps, apply to many cities, and will no doubt obtain until the architectural profession is elevated to the position it deserves. This question is of national significance, and deserves to have national consideration.

A RICH PRIZE

Now comes the main chance for the architects of Canada. No more should art languish on account of inactivity, nor genius be hidden for lack of an incentive. Architecturally all roads lead to the city of Sarnia, where the Board of Education has made a wonderful offer to procure competitive sketches and estimates for the erection of a new public school building. A sheet, headed "Information for Architects," has been issued by the Chairman of the Management Committee of the Board of Education of Sarnia, which is intended to be taken seriously, but which is really a huge joke. For the benefit of those of our readers who have not seen this wonderful document we reproduce it herewith in full, emphasizing certain portions by black-faced type:

The Management Committee of the Board of Education of the city of Sarnia has been instructed by the Board to procure competitive sketches and estimates for the erection of a new public school building and such specifications as to material and workmanship as will indicate the character of the building and enable the committee to judge of the relative merits of the proposed buildings.

COST.—The sketches and specifications submitted shall be on the basis of a total expenditure for the building, including blackboards, seating, etc., of approximately \$50,000.

GUARANTEE.—Each architect shall guarantee in writing that the building designed by him can in the ordinary course be constructed for his estimate of the cost, and that by responsible contractors.

BUILDING.—The building shall be of brick, two storeys in height, with stone basement, and shall contain ten class-rooms, one of them suitable for a kindergarten class if required, teachers' rooms, cloak-rooms, etc.; with steam heating automatically regulated; with forced ventilation; with drinking fountains and washing appliances suitably placed; closets in the basement; basement to be divided into compartments of the proper size for play rooms, workshops suitable for industrial training, domestic science, etc., and to be well lighted and ventilated. The building must conform in every particular to the regulations and recommendations of the Ontario Department of Education.

DRAWINGS.—The sketches required must show:

- (a) Basement.
- (b) First floor.
- (c) Second floor.
- (d) Front elevation.
- (e) Rear elevation.
- (f) **Perspective** from one corner of building, the point of sight to be taken at the level of the ordinary spectator.

The sketches are to be on a one-quarter inch scale, without shading and without any accessories such as sky, trees, figures, etc.

MOTTO OR CIPHER.—Each sketch is to be marked by a motto or cipher. There shall be no name and no handwriting upon the drawings or specifications. A plain sealed envelope bearing the same motto or cipher on the outside, and containing the architect's guarantee of cost and his motto or cipher, name and address, is to be sent by mail or delivered by some person other than the architect or any person in his employ to James Shanks, Esquire, 272 Wellington street, Sarnia.

TWO OR MORE SKETCHES.—A competitor is not restricted as to the number of designs he submits, but each must be under a separate motto or cipher.

DELIVERY.—Drawings are not to be framed, glazed or mounted, and are not to be personally shown or delivered by the designer. They are to be sent or delivered to James Shanks, Esquire, 272 Wellington street, Sarnia.

JUDGES.—The Board of Education shall be the final judge, but the committee may reject any or all plans.

EXPLANATIONS.—A brief typewritten explanation with the motto or cipher of the designer, but without a name or handwriting thereon, may accompany any design, but no architect shall be permitted to interview the committee or any member of the board regarding any design submitted, or to be submitted by him.

COMPENSATION.—If a plan is decided upon by the committee and the Board of Education, and is duly approved by the Public School Inspector, and the money to erect the building is furnished by the city, the author of the plan approved of and accepted, provided his guarantee of cost is not exceeded by all the contractors satisfactory to the committee who tender (each and all of which are conditions precedent to any liability to pay), shall be paid for completed plans and specifications (including all necessary details) promptly completed and furnished in accordance with his preliminary sketches, specifications and estimates, two per cent. of the actual cost of the work, and arrangements for the superintendence of the work may be made in the discretion of the parties.

DISPOSAL OF DESIGNS.—No unsuccessful design shall be

shown to any competitor, nor to any person other than a member of the Board of Education, without the consent of the author, and all designs other than the one accepted (if any) shall be returned to the competitors as soon as a selection is made.

TIME.—All sketches, specifications, estimates and guarantees must be in the hands of James Shanks, Esquire, before four o'clock, on Monday, the 31st day of January.

Surely the members of the Board of Education of the city of Sarnia are a bunch of practical jokers, the crowning part of the farce being the time allowed for the competition. The invitation to compete was received by a firm of architects in Toronto on January 5th, the time set for all sketches, etc., to be in hand being Monday, the 31st day of January. When a Board of Education desires to insult the architectural profession, why not confine itself to its own home town, instead of making itself ridiculous before the eyes of the whole country.

REGISTRATION OF ARCHITECTS
IN NEW YORK STATE

The Board of Examiners for registration of architects in the State of New York held its first meeting in Albany recently, and took measures to inaugurate the work of issuing certificates to all persons qualified to practice under the title of architect.

The New York State registration law, which went into effect on April 28, 1915, places in the hands of the board of regents, who perform the same office for the medical profession, the fixing of standards of education for architects, the conduct of examinations of those who desire to practice and the issuance of certificates admitting to practice all entitled to assume the name of architect. The law does not interfere with the right of engineers, contractors or others who make drawings and engage in building work, but requires everyone who wishes to practice as "architect" to obtain the regents' certificate. The conditions under which such certificates can be obtained are as follows:

First.—Possession of a diploma or satisfactory certificate from a recognized architectural school or college together with at least three years' practical experience in the office of a reputable architect or architects.

Second.—Registration as an architect in another state or country where the standard of qualifications is not lower than that required in New York State.

Third.—Practice exclusively as an architect for two years previous to April 28, 1915.

Fourth.—Practice exclusively as an architect for one year previous to April 28, 1915, providing application for certificate be made before April 28, 1916.

Every person applying for examination or certificate of registration shall pay a fee of \$25 to the board of regents. No annual fee is required.

Architectural Digest

Articles of More Than Passing Interest From Our Contemporaries

REIMS CATHEDRAL.

An interesting series of opinions on the subject of the restoration of the sculptures of Reims Cathedral is given in the "Strand Magazine." M. Paul Bourget, the well known author, says: "At a time when the skill of surgeons can repair injuries to our wounded heroes, are we to leave our works of art without heads or arms? I know that the restoration of the great doorway will present difficulties, and I do not know if the moulding of all the small figures which have been burned has been preserved. But the indisputable duty of the nation seems to me to be to restore all that can be scrupulously copied." M. Emile Boutrons thinks it should be "partly restored." M. Leon Berard, a former Minister of Fine Arts, says that restoration "is an artistic impossibility." M. Joseph Reinach: "Formerly we had no Parthenon, no Paestum, no Forum of Trajan. Now we have them. Let us keep them. They are so many treasures of our sorrows and sufferings. Do not let them be touched." M. Antonin Mercie, the sculptor, is against any attempt at restoration other than replacing the roof. He says: "Have you ever thought of repairing the Parthenon? To touch it would be to chase away the gods who still dwell there, and who will never leave it." M. Rodin says: "Ignorance is so great everywhere that people think a cathedral can be repaired and restored. If that were true the harm would not be great; we could rebuild cathedrals as we rebuild a battleship. But the sad thing is that no one now knows how to build them." The consensus of opinion seems to point to the impossibility of adequate restoration; the only thing which could render it possible would seem to be the existence of actual casts, which probably have never been taken.

FIRE PROTECTION IN SCHOOLS.

After each fatal fire in school buildings, such as seem to recur at more or less regular intervals, the question is raised: "How many such lessons will be required before defective or improper construction in school houses will be totally abolished? How long will a saving in expense, which is possible only at the risk of children's lives, commend itself to those in authority?"

It seems that in the case of the Peabody school house fire, the children had been regularly and thoroughly trained to make a quick and orderly departure from the building in just such an emergency as occurred, and only a few days prior to the fire, in a test drill, but two minutes were required for all of the children to leave the building. Moreover, it is generally agreed that the conduct of the teachers, after the alarm had been given, was intelligent and heroic. Whatever it was possible to do they apparently did, and yet many lives were sacrificed.

In view of these facts, it seems that the necessity for something more than the ordinary precautions taken to prevent panic and provide a reasonably quick means of escape from a building of this character is clearly indicated. In other words, it is obvious that only when school buildings are constructed entirely of materials that will not burn, is the danger from fires sufficiently well provided against.

It has been stated that there are but three classes of buildings where attendance is involuntary—hospitals, for the care of the mentally or physically defective—jails, where law-breakers and criminals are detained, and schools, where the children of the country are prepared for their life work. The first two classes are now almost invariably constructed of fireproof materials, and why in the case of schools the same safeguards should not be placed around the lives of the occupants whose attendance is required by law, is not apparent.

In addition to the fireproof construction of school buildings, there is another method of protecting them from fires and rendering lives therein reasonably safe. This consists of the proper installation of automatic sprinklers. This method is especially suited to buildings already constructed, and which for one reason or another could not be readily replaced or rebuilt of non-burnable materials.

It is claimed that no serious catastrophe or panic has ever taken place in a building with a properly maintained system of automatic sprinklers. If this claim is entirely accurate, which seems probable, since we have never known of its being seriously disputed, any excuse for longer exposing the lives of children to the danger to which the children of the Peabody school were exposed is invalidated, and failure to employ means readily at hand for the protection of lives becomes a serious matter.

In both the construction and equipment of school buildings, as well as those belonging to other classes, the architect's influence is unquestionably great, and it is hoped that the architects of this country will have their consciences quickened by reading the reports of this last needless sacrifice of human lives, until they will no longer share the responsibility that will attach to the erection of buildings intended for the housing of children for either instruction or entertainment, that have not been made as nearly safe as the means now readily at hand would unquestionably make them.—"American Architect."

FIRE PREVENTION VS. FIRE PROTECTION.

"Locking the barn-door after the horse has been stolen," is a time-honored expression; but it applies with peculiar emphasis to many of our supposedly modern municipal governments. Especially is this true in the matter of the fire loss.

While enormous sums are spent annually in the equipment and upkeep of fire departments for the purpose of controlling and extinguishing fires, it is almost a novelty to find a municipality with a department charged with the inspection, and with authority to enforce the correction, of conditions favorable to fires. In some of our larger cities some progress has been made by the fire departments, which have set apart small details of their staffs, charged with inspection work. The result of their work is minimized, however, by the fact that the inspectors have not sufficient authority.

The fire chiefs have it in their power to advance the fire prevention campaign and secure results. If a fire chief's record depended upon his keeping down the number of fires, instead of his ability to handle fires after they have broken out, there would be greater effort at inspection. Fire chiefs should insist upon sufficient men for inspection work; these men should be held responsible for the inspection and correction of dangerous conditions, and, to make their work effective, the inspectors should be clothed with fire marshal authority, in order that any fire breaking out in their inspection districts might be thoroughly investigated and the cause definitely assigned. In this way an inspector's reputation for thoroughness would be at stake, and, with the knowledge that a fire would be investigated by one familiar with the conditions, there would be fewer fires of a suspicious character, or due to carelessness.

Municipalities can well afford to make generous appropriations for fire-preventive inspection work. It is an investment which will yield large returns, not only in reduced fire loss, but in reduction in the cost of upkeep of fire departments and equipment.—Conservation.

METAL CORROSION BY PLASTER.

Theoretically cement will preserve metal work whereas gypsum will corrode it, but in practice gypsum plaster has no corrosive effect and is equal to Portland cement, provided that gypsum plasters as now made have a sufficient proportion of hydrated lime incorporated in the manufacture to more than neutralize any free acid in pure gypsum.

Mr. W. H. Walker, Director of the Research Laboratory of Applied Chemistry of the Massachusetts Institute of Technology, said recently that every engineer is well aware of the fact that acidulated water, no matter how small the percentage of acid may be, tends to corrode steel by increasing the number of hydrogen ions present. It had been made clear, from tests he carried out, that there were certain alkaline substances present in concrete which corrected any acidity and so protected the contained metal work from corrosion.

This fact has an important bearing upon the question of whether concrete will protect iron or steel from corrosion. Inasmuch as Portland cement, when it sets or hardens, liberates a quantity of caustic lime, which is a strong alkali, the answer to the question must be in the affirmative. Iron and steel will not corrode when embedded in good concrete but caustic lime is soluble in water, and poorly made concrete is not impervious to moisture. Therefore, if iron be embedded in concrete through which water is allowed at any time to percolate, this calcium hydrate will be slowly but surely dissolved. With it will disappear the inhibiting action of the concrete, and iron embedded therein will, in time, rust and become corroded. To ensure absolute protection of the reinforcing members of concrete construction, therefore such concrete must be of good quality and sufficiently dense and carefully made to render it waterproof.

Mr. S. J. Webb, secretary of the Gypsum Industries Association, New York, has investigated the subject of corrosion on metal lath by gypsum plasters, and gave the writer the following results of his investigations. Gypsum plaster to which has been added a small quantity of hydrated lime—enough to give an alkaline reaction, on test—will not corrode metal work of any kind. He maintains that it is not gypsum which corrodes or which creates corrosion, but the currents of damp air which are allowed to have access to the metal work—in other words, that where the metal work is entirely sealed from the action of the air, by having a sufficiently thick coat of plaster over and around it, there is not sufficient porosity in the ordinary wall plaster to allow damp air to reach the metal work, and therefore there will be no corrosion. He had occasion recently to cut into the floor and roof of Hammersteins' Theatre, in New York, which were of gypsum construction, and had been in some nine or ten years. The floor, which was finished with one inch of Portland cement concrete, had been washed with a hose daily for years. The water had not gone through the plaster, and therefore the steel work protected by the floor was in perfect condition.

He also cited another example: The National Fire Underwriters' Laboratories in Chicago had in their basement for two years a section of metal lath coated with gypsum hardwall plaster manufactured in the United States. This section had been subjected to dampness in the cellar for a sufficiently long period to give it a good test. Mr. Webb secured the section and had tests made. On removing the plaster it was found that where the metal lath had been covered with an ordinary thickness of plaster from one-quarter inch upwards there had been slight initial corrosion, but no progressive corrosion. In a few places where the plaster had been skinned very thin so that there was sufficient porosity to allow the air to pass through there had been progressive corrosion. He took a portion of this section with him to New York and exhibited it before a committee who had in charge a revision of the New York building laws. The demonstration was convincing to this body, composed of eminent scientists and men prominent in the building trades, with the result that they approved of the use of gypsum plaster over all metal surfaces.

A section of wall was taken from the King Edward Hotel, Toronto, recently, which had been plastered a number of years ago, with gypsum wall plaster on metal lath. The metal was very badly corroded. The plaster had been applied in a thin coat, and was manufactured at a time when the gypsum hardwall manufacturers had not begun to use hydrated lime to neutralize the slight amount of free acid in gypsum. It is due to examples of this kind, coupled with the fact that pure gypsum gives an acid reaction, that there is a prejudice against the use of hardwall plaster in connection with metal. Some metal lath manufacturers have gone to a great deal of trouble to adapt their materials for use of gypsum plasters.

While we believe that any improvement in the manufacture of metal lath that will make it less liable to corrosion is a distinct advance, we find that if gypsum plaster is applied to the thickness of one-half inch or more and well trowelled to a sufficient density to make an ordinary good wall there is no danger of gypsum hardwall plaster corroding ordinary steel metal lath or other metal surfaces. It will be found that there is always present an initial corrosion, but that where ordinary care is taken there will be no progressive corrosion, and that therefore the metal will be properly protected, and also that it is immaterial whether Portland cement plaster or a gypsum hardwall plaster is used. The ancient objection no longer obtains in regard to the use of gypsum hardwall plasters made by modern methods and formulae. A simple test can be carried out by any one to show whether there is any free acid present in the plaster. When you have your plaster mixed up, insert a strip of litmus paper in the mortar, and if it turns red you will know that there is free acid present, and the mortar should not be used on metal lath. If it turns blue, it means that the material is alkaline, and therefore suitable for metal.—"Stone Trade Journal."

QUALITY, NOT QUANTITY, BASIS OF TECHNICAL ADVERTISING.

As returns are coming in upon the years advertising campaign, it would be interesting to know the experience of some of those manufacturers who last January decided to abandon the use of technical press space for layouts in the popular magazines. Perhaps it was a most ingenious quality of business foresight which pictured that a million readers of stories by the best authors would bring more sales than a thousand directly interested in the thing advertised, but it certainly is not logical. Because a firm that manufactures knit underwear finds its market through the medium of a bromide magazine, it cannot be argued that this will warrant a hardware or a heating concern using the same medium when the purchase involves a technical knowledge in its selection only possessed by an architect or other expert. Yet, because the advertisers in the popular magazine establishes the price of space by its circulation and possibly its returns in one case, it cannot be taken for granted that the same rule will apply in the other. The knowledge of the value and properties of advertising is of slow growth. Even in this day of efficiency experts and publicity professors, the average business manager does not know that no man can write successful copy before he becomes intimately acquainted with the manufacture, the amount of stock on hand, the maximum output, the centers where it will be in best demand and the trade and domestic customs of those centers. Abandoning the former hit or miss policy of distributing advertising as most successful firms have, the art has reached that point with but a few concerns where the salesmanager is also the director of its advertising and from his experience in selling, judge the mediums through which his market can be best and most effectively reached. Already one fifth of the states require the registration and examination of architects before they are allowed to practice. Every progressive city in the country is remodeling and making more drastic its building code to meet these modern conditions. The architect and the building inspector, and not the ultimate consumer are the real distributors of building supplies. This should show the manufacturers that it is better to reach one architect with a convincing advertisement, than a thousand or ten thousand laymen who know nothing about the material and who depend upon the advice of those who do know. Then, not the least factor in favor of the selling value of the technical journal as compared with the popular magazine of wide general circulation is, that the first is subscribed for with a direct purpose of obtaining information. The second, to while away an hour on a train, or to induce a sleepy condition before retiring. When the manufacturer learns the first principle of advertising, which is direct publicity, he will realize that the architect and the contractor, and not the consumer is the real purchaser. He will then seek quality instead of quantity in his advertising circulation.—"Western Architect."

SIMPLICITY IN ARCHITECTURE.

To be straightforward in architectural expression is the most difficult thing on earth; it implies a force of character trained to grasp a multitude of diverse conditions; it demands a knowledge of men, of life, as well as of the crafts and the kindred arts; it calls for untiring activity, ceaseless comparison, and a flood of energy if the architect is ambitious to translate abstract qualities into fluent and distinguishable terms. Architecture, when it soars above the ordinary level, is akin to the finest literature; its purpose is analogous. Having once enjoyed purity of style, brilliancy of conception, and that easy scholarship which is never absent from inspired work, we entertain little affection for the products of mediocrity, no matter how attractive the latter may appear at first sight. But the very nature of the term "simplicity" is one needing careful inquiry, for it holds a subtle meaning, and, although the expression is used glibly every day, few pause to consider or analyse the elusive qualities the word connotes. We have a valid excuse to-day to direct attention to what should be understood by every architect, namely, the need for logical expression in the problems of design entrusted to his care and scholarship. For the age is curious in its uncertain tendencies, and what we are apt to decri as careless inefficiency on the part of the individual, viewed in a larger sense, is more often the product of a decadent and apathetic epoch. Simplicity in architecture is difficult to attain for many reasons, among which the demand for novelty is the chief deterrent. In addition, the lack of co-operation among artists, inability to fix a definite standard of taste, the love of complexity and vulgar display ruled by commercial instinct almost invariably act against real achievement, and, in consequence, a dead level vernacular passes muster as the real thing in the public estimation of what constitutes recent architecture. We are moved to condemn, in the strongest terms, those specimens of building enterprise which disfigure the chief centers of the metropolis; we indulge in melancholy retrospects of what past ages accomplished in architecture; we rage hysterically and utter invectives against those responsible for the perpetration of such monuments of incompetence; yet we fail to realize how the evil can be checked or the public enlightened on this issue of vital importance to art. To return to our discussion. Increased simplicity in the facial aspect of public and other buildings is the surest way to remedy the overweening brutality which is the only attribute possessed by many struc-

tures. We have said that the period militates against the chance of improvement, but it must not be forgotten that we are unfortunate in being at the juncture of two epochs. We are faced with eventualities of vast magnitude to the national life; the old order of things has been completely changed and our outlook broadened in a way which a few years previous we should have deemed impossible. The chief danger is that we should throw over our responsibilities, ignore scholarship, cast tradition to the limbo of things, and embark on a policy of adventure in architecture that could only have a chaotic ending. Those who view architectural evolution with optimism are better qualified to voice an opinion on the subject, and the consensus of limited opinion in that regard holds to the view that scholarship and tradition will eventually succeed, and that the existing lack of co-ordination will be replaced by a system of control and honest endeavor. We are firmly convinced that this view is the only acceptable one, and in its pursuance lies the real way out of the maze of uncertainty which at present clogs English architecture. Simplicity in architectural expression is thought by some to mean a bald statement of fact, an undue plainness in elevations, a sweeping away of ornament and unnecessary features, conformity to the stern discipline of economy, and a reversion to base materials. We are told in some quarters to expect a recrudescence of a columnar type of architecture applied to all sorts of facades without regard to convenience or beauty. If we thought such opinions were entertained with any seriousness, we should lose no time in exposing the fallacy and checking such manoeuvres. Others maintain that simplicity means a series of flat uninteresting buildings pierced with windows, so elementary in conception that the veriest tyro would mock at the result. Both parties are convinced that they are right in their outlook, and use every means within their range to decry attempts at scholarship. The real meaning of the term lies in deeper channels, it disowns baldness of treatment, it is not discovered in mere reproductions of well-tried models; it is concomitant with conception and style, and its principles are indistinguishable from composition and proportion. Complexity in design, if rightly handled, has its uses too; it is a sure weapon in the hand of a master and dangerous to the inexperienced; it is sometimes found side by side with simplicity, in which case it plays the part of a contrast or foil. Its chief function is to impart light and shade, but its interest should be manifest for all to read and understand, otherwise it fails of its purpose and confuses rather than relieves the whole. On the other hand, rich simplicity in the elevational expression of a building is the surest index of inspired work. It is inimitable in its explicit clarity, yet so slight is the barrier which separates the richly simple from baldness or complexity that only years of experience can determine where the one ends and the other begins.

Architects are inclined to misinterpret the works of the past, holding such types to be models of excellence and worthy of emulation, but overlooking the fact that whole periods of history went to the shaping of their attributes; and that the real meaning, elusive to many, inherent in these masterpieces is that the architect, perhaps subconsciously, imparted the very essence of his age to the shaping of the parts and the massing of the whole. It will be asked with pertinence, "How is it possible to impart that desirable rich expression to a plain building if we are to forego the usual features that make up our stock-in-trade?" The answer is pithy and to the point: "By the exercise of common sense in the proportion of parts; by a sound study of what elementary composition implies; by reticence in the selection of ornament and elimination of crude and ugly features which are characteristic of the prevalent fashion." In England especially architecture is too self-conscious, architects too obsessed with the importance of the problems they are engaged upon. There is too much paper architecture, and little if any aptitude is shown to design a building to look well in execution, and at the same time to meet any demands made upon it from a purely artistic and critical standpoint. In the majority of offices, from the time the small-scale drawings are finished and the full-size details compiled, the designer has no thought of the finished aspect of his work; more often than not he relies on an element of chance, and failure after failure is the result. An architect can only put into a building what he has assimilated; to the uninitiated the work may appear satisfactory, but to the scholar, or even the layman with a critical outlook, such works convey no cheering message. There is something in life which the true artist is always pursuing—it is the quest of the ideal. He can never attain his object; the chagrin he experiences is very poignant, the slight successes very sweet; yet all unknown to himself he imparts an element of sadness to his works which lifts them out of the common into the sphere of nobler things. We take this opportunity to censure the coarse tendencies of those architects who disfigure good Portland stone with insipid and meaningless carvings, innumerable Cupid's heads, and other dressings which shall be nameless. The platitudes showered upon contemporary architecture, the encomiums bestowed on buildings by reason of their material construction, the cheap insincerity of contemporary opinion among architects collectively, together with openly practised charlatanry, are among the evils which have dragged some aspects of English architecture down to the lowest depths it has ever reached.—"The Builder."

Civic Improvement League of Canada.

The conference of the new Civic Improvement League of Canada, to be held in Ottawa on the 20th inst., is likely to be one of the most important municipal gatherings that have ever been held in the Dominion. The conference will be held in the large Railway Committee room of the House of Commons, and representatives are likely to be present from all the nine Provinces, Montreal, Toronto, Winnipeg and other large cities will be officially represented. Among the principal speakers will be Sir John Willson (chairman) and the Hon. W. J. Hanna, Provincial Secretary of Ontario.

It is anticipated that municipal questions will be dealt with under three main heads, namely:

- Municipal Government and Finance.
- Immigration, Unemployment and Public Health.
- Housing, Town Planning and Local Improvements.

It is agreed that there is urgent need for discussion of the many civic problems that have already arisen and are likely to arise in the future as a result of the war. Great interest has been aroused in the new movement in all parts of the Dominion, and there is extraordinary unanimity with regard to the need for a national organization to study and discuss municipal problems.

Prosperity Paragraphs

Items of General Interest Reflecting Industrial and Financial Conditions in The Dominion

SHOWING STABILITY.

According to the last Canadian bank statement the total demand deposits in Canadian banks during November were greater than at any time in the previous history of Canada, having crossed the \$400,000,000 mark, standing at \$406,735,171, an increase of \$55,851,000 during the year. Notice deposits had also increased from \$701,000,000 to \$714,000,000; the gold reserve has increased from \$11,750,000 to \$15,100,000, and assets from \$1,657,000,000 to \$1,702,000,000.

MUNICIPAL EXPENDITURES.

An impetus to construction work for the year nineteen hundred and sixteen was launched, when over one hundred municipalities in Ontario passed by-laws to spend millions of dollars in civic construction work, and granted concessions to private companies to encourage them to erect factories and plants in their respective towns. Fully 95 per cent. of all by-laws which entailed the expenditure of moneys were passed, which is the answer to the financial conditions which prevail.

WAR NO DRAWBACK TO BUSINESS.

With bank clearings exceeding not only last year, but 1913 as well, in nearly every city, railway earnings away ahead, many industries working day and night, lumbermen scarce, mining active, farmers with money to spend after paying their debts, increased customs revenue, a brisk wholesale business, and reviving retail trade, it looks like prosperous times in Canada. The war is a depressing factor socially, but not commercially, so far as this continent is concerned.

HOPEFUL OUTLOOK.

When the Winter Fair at Guelph was opened by Hon. Martin Burrell, Minister of Agriculture, he pointed out the important part agriculture was playing in Canada's prosperity. Concluding, he said: "A country which over-subscribed the first loan in its history by twice the amount needed, whose granaries are overflowing despite the drain of the young manhood from the country; a country which is prosperous in time of war, will always be able to stand on its own feet."

MORE MONEY AVAILABLE.

The banks in Canada are in a stronger position than they ever have been before. In addition to an increase of nearly \$85,000,000 in savings deposits there has been during the past year a contraction of nearly \$30,000,000 in current loans. It would, therefore, appear that the banks have nearly \$120,000,000 more money than they had last year. The millions advanced by the banks for the crop movement, both at home and in New York, are commencing to return, and some investment must be found for them.

MONTREAL'S CLEARINGS UP 70 PER CENT.

Montreal bank clearings show another sharp increase for the week ended January 1st, the total for the period being \$23,745,438, or nearly 70 per cent. over the figures for the corresponding week last year, and \$13,567,614 in excess of that of 1913. The figures follow:

1915	\$58,045,779
1914	34,303,341
1913	44,481,165

The increase reported last week was \$22,500,294, for the previous week \$25,913,606, and for the week before that \$17,657,070.

HOW CANADA'S POSITION HAS STRENGTHENED.

When war broke out in August, 1914, there was a decided drop in all departments of commerce, and that war depression affected business materially for twelve months. About August last the Western harvest and the orders for munitions of war began to lift the gloom and allow the light to shine through. Our exports increased with such rapidity that now, at the end of nine months of the fiscal year, we have a trade balance in our favor of more than \$150,000,000. By the end of the fiscal year the indications are that this amount will have increased until it will much more than offset the nation's interest charges on borrowings outside of the Dominion.

TORONTO HAS MILLIONS OF WORK UNDER WAY.

"There are buildings now in course of construction in Toronto that aggregate a value of \$12,250,000," said Chief Inspector G. F. W. Price recently. "There is more building going on than is generally supposed."

"Much of it is being done on former permits, which have been renewed, and which are not listed with the newly-issued permits. People who a year or so ago began to build and stopped have begun again, and will finish the work, now that money is moving more freely."

There are only ten inspectors to look after all this work. One man is kept steadily on the Union Station job.

ALLY COUNTRIES GIVE DOMINION PREFERENCE.

Sir Geo. Perley, presiding at the Canadian Business Luncheon Club in London on December 17th, at which thirty leading Canadian firms and institutions were represented, said he had the assurance of the British Government's readiness to extend to Canada a preference over the United States and all other neutral countries in war supplies. He said not only British Ministers, but, what was even more important, high officials of the purchasing departments were heart and soul with Canadians in this principle of priority for Canadians over foreign productions. He also saw a great chance for "after war" export trade, which awaited Canadian enterprise in countries like France and Russia. The governments of these countries now accepted the principle of preference for Canada, as one of their allies.

TRADE REVIVAL IN WESTERN CANADA.

In the cities of the West the prosperity of the country is being reflected. Everywhere business is active. The wholesalers and the retailers and the implement dealers find business good. The banks and other collection houses find collections satisfactory, and financial men declare that Westerners are paying up their debts. In Winnipeg the bank clearings have been the largest in history, exceeding some weeks the figures of Montreal and Toronto. The grain shipments have been the biggest in the history of Winnipeg and in the history of the

twin ports, Fort William and Port Arthur. Industrially, Winnipeg has kept up to the pace. In the year there have been twenty new industries established in the city's manufacturing districts, and the pay-roll, output and general conditions of the industries show improvement, advancement, and no steps backward. In other ways also the people of Winnipeg, of Manitoba, and of Alberta and Saskatchewan have shown their prosperity. Record subscriptions have been given to the Patriotic, the Belgium and Poland Relief and the Red Cross Funds. Millions have been subscribed in the Provinces to the Canadian war loan.

BANKS OPTIMISTIC.

At the annual meeting of the Bank of Montreal on December 6th, Mr. H. V. Meredith, president, summarized the general trade and financial position in these phrases:

The lumber business generally throughout Canada, though suffering from inability to obtain tonnage to market the cut, shows some improvement.

"Farming, the backbone of the country, is prosperous.

"There is a greater demand for the products of the mines at higher prices.

"From the Atlantic to the Pacific good fisheries are reported; also at enhanced prices.

"The textile and allied interests are at the moment well employed, while the steel companies and those engaged in the manufacture of munitions of war are fully occupied."

PREPARING FOR THE FUTURE.

"This is one of the ways by which we are trying to make Canada economically independent of Germany," was the cogent remark of Sir Wm. Peterson, principal of McGill University, at the formal opening of the Forest Products Laboratories of Canada. Many prominent persons were guests at the opening ceremonies, which were performed by the Hon. Dr. Roche, Minister of the Interior. The laboratory consists of a paper mill, a complete paper-making plant, starting with the logs, and ending with all kinds of paper—news, glazed, wrapping, etc.—a system of machines for testing various woods, so as to show their strain-resisting capacity in various ways. Hon. Dr. Roche stated after the opening ceremonies that the purpose of the laboratories were especially to study and gather information as to the ways in which the products of the forests of Canada may be utilized, and also to utilize waste products.

POSSIBILITIES FOR FRANCE'S BUSINESS.

A French deputation of prominent men here have undertaken an investigation of purchases for the French Government in the Dominion. The commission will conduct its enquiries at three cities—Toronto, Ottawa and Montreal. It will go into the question of the cost of various materials required by the Government covering a wide range of articles, and taking into consideration cost of transportation, etc., added thereto. It is probable that the visit of the commission will result in further French orders being placed in the Dominion. The question of financing such orders in Canada will be considered also. The members of the commission are: M. D. Amour, member of the French Chamber of Deputies; M. Lesure, delegate of the Ministry of Agriculture; M. Choffeur, of the Banque Credit-Foncier; M. Vivien, director of the National Banque De Credit, and M. Thiriez, secretary of the Syndicate of Spinners.

INDUSTRIAL MINING BOOM.

"There is a boom on in the Porcupine region," said Mr. Thos. Gibson, Deputy Minister of Mines, in an interview the other day; "but it is an industrial, not a speculative boom. There are more men profitably employed there now than in the days of the excitement. The Porcupine mines were getting into shape to produce on a bigger scale before this war started. They went ahead with their preparations, and the war has increased the demand for gold. Shipments, instead of decreasing since the war, have increased. The price of silver has advanced sharply in the last few weeks also, and the Cobalt mines are turning out more silver now in consequence, and catching up on their production of a year ago."

"The war time demand upon Ontario's nickel has had a marked effect on conditions in Sudbury, while the demand of munitions upon copper production has had a similar effect."

EXPORTS INCREASE HUNDRED PER CENT.

What is in many respects the most satisfactory statement of Canadian trade ever issued is that just made public by the Minister of Customs, Hon. J. S. Reid. The statement shows an increase of nearly 100 per cent. in domestic exports for November, 1914. The total under this head was \$92,000,000; the imports for the month amounting in value to a little under half this sum, or \$45,000,000.

The exports of \$92,000,000 are made up principally of agricultural products, \$54,000,000; manufactured goods, \$13,000,000; animals and meats, \$12,000,000; minerals, \$6,500,000; lumber, etc., \$4,500,000, and fisheries, \$2,000,000. All these show a very substantial increase over the corresponding month for 1914, agricultural products jumping from \$18,000,000 to \$54,000,000; manufactured goods from \$6,000,000 to \$13,000,000, and animals, etc., from \$8,000,000 to \$12,000,000. The export of minerals is also exactly double that of November, 1914.

BANK CLEARINGS.

Bank clearings in Toronto for the week ending January 6th made a most remarkable showing, the total being \$53,554,882. The previous high point on record was \$51,304,250 in the first week of 1914.

	1916.	1915.	1914.
Toronto	\$53,554,882	\$37,167,667	\$.....
Montreal	63,886,321	41,690,530	56,512,398
Hamilton	4,277,558	2,829,213	3,909,046
Ottawa	5,120,968	3,980,655	3,980,655

CUSTOMS REVENUE DOUBLES.

For the month just closed customs receipts totalled \$9,432,654, an increase of \$4,513,856, or nearly 100 per cent. over December of last year. For the nine months of the fiscal year the customs revenue has totalled \$71,721,303, an increase of \$12,891,684, or about 23 per cent., as compared with the corresponding nine months of last year. For the full fiscal year the customs revenue should at the present rate show an increase of more than twenty millions as compared with the preceding fiscal year.

Construction News

The following information is obtained from our correspondents, from architects, engineers and local newspapers. These items are published in our Daily Report Service, and are herein compiled for the use of subscribers to the monthly issue of "Construction". Should any of our readers desire this information daily we will be pleased to submit prices upon request.

BUSINESS BUILDINGS.

HALIFAX, N.S.—The building of the Soules Typewriter Co., Granville street, was destroyed by fire; loss \$20,000.

QUEBEC CITY—La Banque d'Hochelaga is erecting a \$3,000 addition.

OTTAWA—Wm. Joynt will rebuild his building recently destroyed by fire on Wellington and Sherbourne streets.

SAULT STE. MARIE—Fire damaged the business block of S. W. Fawcett; loss \$10,000.

TORONTO—Thompson-Starrett, general contractors for the Imperial Oil building, have awarded W. J. McGuire, Toronto, the plumbing and heating; hardware to American Hardware Corporation, New York; electric work to Comstock Co., New York.

CIVIL ENGINEERING.

BELLEVILLE, ONT.—The County of Hastings, A. M. Chapman, clerk, Belleville, have plans for two bridges, cost \$20,000.

BROCKVILLE—Plans are being prepared for sewers to cost \$12,000, sidewalks to cost \$3,500, and pavements \$18,500.

CALGARY—Western Canadian Natural Gas Co. have completed plans for \$10,000,000 gas system.

COCHRANE—The town will spend \$5,000 on extension of water mains.

CORNWALL—The town will extend water mains and erect an addition to the pump house; cost \$25,000.

EDMONTON, ALTA.—By-law passed to instal a sewage disposal plant; engineer, A. J. Latonnell; cost \$275,000.

FORT FRANCIS, ONT.—Clerk, J. W. Walker. The city will spend \$6,000 on waterworks extensions and \$3,000 for sewers.

FREDERICTON, N.B.—Department of Public Works, Fredericton, are calling tenders for a steel bridge, two spans, 160 feet each; asphalt and reinforced concrete used.

FRONTENAC, P.Q.—The Quebec Streams Commission, Parliament Buildings, Quebec City, are calling tenders for a bridge.

GREENWOOD, B.C.—The B. C. Copper Co. contemplate installing nine miles of narrow gauge railroad or overhead conveyor and power plant.

GUELPH—The city will lay sewers on Galt and Fergus streets; T. J. Moore, city clerk.

HAMILTON—A new steel bridge will be erected on King street by the city.

MERRICKVILLE—Street lighting will be installed.

MIDLAND—A by-law to extend the waterworks system to cost \$13,000 has been passed.

MONTREAL—The new aqueduct for which plans are being prepared will cost \$680,000.

NEW WESTMINSTER, B.C.—Canadian Northern Railway, A. Angstrom, architect, have plans for a new dock.

NIAGARA FALLS—The Ontario Niagara Connecting Bridge Co. will erect a new steel bridge above Niagara Falls.

PORT MOODY, B.C.—Town of Port Moody, W. A. Duncan clerk, will spend \$80,000 on waterworks installation.

SARNIA—The city will extend water mains; engineer, John A. Beard; cost \$120,000.

STRATHROY—The town will extend water mains and electric lighting system.

ST. CATHARINES—A steel bridge will be erected on Ontario street, and waterworks extensions will be made.

TILLSONBURG—The town will erect a steel bridge to cost \$5,000 over Ottawa Creek.

VANCOUVER, B.C.—The city contemplates a five-mile waterworks intake being installed.

VICTORIA, B.C.—Engineer O. D. Lewis, of the C.N.P. Railroad, has prepared plans for a bridge over Selkirk water.

WALKERVILLE—Owen McKay, town engineer, is preparing plans for new pavements to be laid in the spring; cost \$21,000.

WARDSVILLE, ONT.—Engineer Talbot, of London, is preparing plans for two bridges for the county; cost \$25,000.

WINDSOR—Engineer M. E. Brian is calling tenders for a circular brick sewer on Parent avenue.

WINNIPEG—The city will erect a bridge at Point du Bois to cost \$130,000; Alderman Flower, chairman.

WOODSTOCK—The ratepayers passed a by-law to lay storm sewers; cost \$25,000.

CLUBS, HOSPITALS, THEATRES AND HOTELS.

BRANTFORD—Schultz Bros. are erecting an addition to the General Hospital.

BRIDGEWATER, N.S.—Fairview Hotel Co. had hotel destroyed by fire; loss \$16,000; insurance \$4,000.

COBOURG—The Waverley Curling Club will erect a new rink, 146x70 feet.

HALIFAX, N.S.—Rhodes-Curry Co. are contractors on the Casino Theatre being erected.

PETERBORO—J. Revoy has been awarded the contract to erect two frame cottages for the Isolation Hospital.

QUEBEC, P.Q.—Chateau Frontenac Hotel Co. have plans for an addition and alterations, cost \$52,000.

ST. CATHARINES—St. Catharines Lawn Bowling Club contemplate erecting a club house at Glen Ridge.

SYDNEY, N.S.—The King George Hotel was recently destroyed by fire; loss \$70,000.

WINNIPEG—Royal Templars of Temperance will erect a lodge building on Yonge street.

ELECTRICAL CONSTRUCTION.

BRANTFORD—T. H. Jones, city engineer, will furnish information on the new electric railway from Brantford to Galt.

COBDEN—The village passed a by-law to equip an electrical plant; cost \$20,000.

COMBER—The township of Rochester, M. N. Mousseau, clerk, contemplate installing a telephone system.

LONDON—The London and Port Stanley Railway will make extensions and improvements.

MUSKOKA RIVER, ONT.—Hydro-Electric Commissioners awarded contracts in connection with new power plant: Head-gate, penstock, turbine and valves to Wm. Hamilton, Peterboro'; generator and transformer, Canadian General Electric.

ST. THOMAS—The Commissioner of Works, City Hall, is calling tenders for a hydro-electric station; tenders close January 15th.

WEST LORNE—The town will instal a hydro-electric plant to cost \$8,000.

MISCELLANEOUS.

OTTAWA—Tenders open for cast iron pipe; R. L. Hancock, engineer.

TORONTO—J. C. Eaton is installing a swimming pool at 48^c Davenport road; cost \$5,000.

PLANTS, FACTORIES AND WAREHOUSES.

BUCKHORN, ONT.—The mill of W. N. Blewett was destroyed; loss \$4,000.

CHATHAM—The ratepayers have granted concessions to the Dominion Sugar Co., of Wallaceburg, and work has started on the new \$600,000 plant. F. W. Marks Construction Co., of Cleveland, are engineers and contractors.

COBOURG—Cobourg City Dairy will erect two additions to their plant, 20x30 and 26x18 feet.

COBOURG—Cobourg Steezy Co., Limited, George Thompson, president, will erect a factory for the manufacture of munitions to cost \$15,000.

COLLINGWOOD—Imperial Oil Company will erect three large steel storage tanks.

HAMILTON—H. G. Christman & Co. have been awarded the contract for the erection of a factory addition to the Burlington Steel Co., cost \$5,000; and factory addition to the Canadian Cartridge Co., cost \$40,000.

KINCARDINE—People's Salt and Sugar Co. have been loaned \$15,000 by the town to erect a new plant.

LISTOWEL—A by-law has been passed to aid Listowel Shoe Co. to erect a factory, cost \$15,000.

MAISONNEUVE, P.Q.—The city will erect a new incinerator in the spring.

MONTREAL—Williams Manufacturing Co., 1189 St. James street, will erect a one-storey factory on Rose de Lima street; cost \$26,000.

MONTREAL—Work has started on a \$5,000 addition to the Canadian Vickers Co. plant, brick construction.

OWEN SOUND—Owen Sound Shoe Co. will remodel the Pacific Hotel and make additions for a factory. Mr. Wilson, G.M.

PETERBORO—The Metal Products Co., J. C. Ellis interested, will erect a brick factory, 30x50 feet, to cost \$35,000.

PETERBORO—The Quaker Oats Co. contemplate erecting a large addition to their factory in the spring.

PETROLIA—Western Sugar Refinery Co. have been granted \$46,000 by the city to assist in erecting a new plant to cost \$600,000.

SCOTS GUARDS, SASK.—The elevator of Pioneer Elevator Co. was destroyed by fire; loss \$60,000.

PORT MOODY, B.C.—Mr. Jones, architect for the Port Moody Steel Co., will erect the new addition by day labor.

PRINCETON—The flour mill of Maycock & Harris was destroyed by fire; loss \$10,000.

QUEBEC CITY—Rocks Hoe Manufacturing Co. had a \$75,000 factory fire loss; insurance \$32,000.

REGINA, SASK.—H. G. Smith Co., Limited, contemplate erecting a warehouse, four storeys, 120x40.

RIDEAU, ONT.—The C.N.R. will erect car shops and round-houses on a new townsite six miles west of Ottawa.

RIDGETOWN—D. & N. McNorgan will instal new flour milling machinery in the present building at the corner of York and Water streets.

SANDWICH—The Caldwell Sand and Gravel Company, Limited, have been granted certain concessions by the town in return they will erect a plant to cost \$50,000.

SASKATOON, SASK.—H. G. Smith Co., Limited, of Regina, will erect a brick warehouse.

SASKATOON, SASK.—The warehouse of the Northern Storage Co. was totally destroyed by fire; loss \$60,000.

ST. CATHARINES—The Maple Leaf Milling Co., H. Shaw manager, contemplate erecting a new mill.

ST. THOMAS—The Wabash Railroad will erect an addition to their repair shop.

SUDBURY, ONT.—Sudbury Flour Mills Co. will erect a mill addition.

TORONTO—The Marathon Tire Co., St. Catharines, contemplate an addition to factory.

TORONTO—White & Thomas are erecting a two-storey addition to their factory to cost \$4,000.

WHITBY—Chas. Phillips is head of a syndicate which will erect a silk factory to cost \$50,000.

TORONTO—The Laura Secord Candy Co., 64 Princess street, will erect an addition to their factory.

WINNIPEG, MAN.—T. Eaton Co. will erect a five-storey factory adjoining their present building.

TORONTO—The H. B. Reine Building, Clifford street, which was destroyed by fire, will likely be rebuilt.

TORONTO—The Gold Medal Furniture Co. will erect a new factory in place of the one destroyed by fire.

TORONTO—Universal Tool Steel Co. are erecting a brick factory addition on Dufferin street; cost \$10,000.

TORONTO—The Toronto Carpet Co. are erecting a new boiler room building on Liberty street; cost \$2,500.

TORONTO—Wm. Davies Co., 521 Front street east, are erecting a \$15,000 icehouse at St. Lawrence Market.

TORONTO—L. E. Dowling, 167 Yonge street, is contractor for the warehouse being built on Richmond street for W. H. Harris; cost \$20,000.

TORONTO—Martin Corrugated Paper Box Co., Pape avenue, will erect a larger factory in place of that destroyed by fire; cost \$200,000.

TORONTO—Goodyear Tire and Rubber Co. contemplate erecting a quarter million dollar plant on Birmingham street, New Toronto.

TORONTO—Robert Simpson Co., Limited, will erect a warehouse to cost \$200,000, on Dalhousie street, eight storeys, reinforced concrete.

TORONTO—LePAGE & Beaumont are contractors for factory addition on Dundas street for Hunt & Woodburn, architects, Confederation Life Building.

TORONTO—Dominion Explosives Corporation, Vaudreuil, P.Q., and Col. Dimick, of Boston, Mass., are interested in a new explosive factory, to be erected near Toronto.

TORONTO—In connection with the new Canada Metal factory on Fraser avenue, Mr. F. S. Mallory, architect, has awarded the masonry and grided foundations to the Toms Contracting Co.

TORONTO—F. S. Mallory, architect, has awarded the following contracts in connection with the Canada Metal Co. building: Carpentry, J. D. Young & Son; steel, Hepburn & Disher; metal sash, Steel and Radiation.

PUBLIC BUILDINGS AND STATIONS.

BRANTFORD—The Brantford and Hamilton Railway will erect a new depot to cost \$30,000.

BRANTFORD—H. N. Taylor, architect, has completed plans for a new registry office for Brant County.

BRANTFORD—Lake Erie and Northern Railroad have plans completed for a new station at Lorne Bridge, cost \$40,000.

FREDERICTON, N.B.—Department of Public Works is calling tenders for interior fittings to Customs House.

GRAND MERE, P.Q.—The town will erect a hydro-electric plant.

KINGSTON—The city will erect a \$7,000 addition to Fort Garry, to be used as a soldiers' barracks.

LONDON—London and Port Stanley Electric Railroad will erect a new station and make general improvements to cost \$101,000.

LONDON—London Utilities Commission will erect a \$100,000 office building on their present site, three storeys, work to start in spring.

MONTREAL—The city will erect three comfort stations; architect, A. Chause, City Hall.

Montreal—Department of Militia and Defence have intimated that they will erect a radio-telegraph station on Cote St. Michel.

OTTAWA—The old market will be demolished and a new brick building erected.

OTTAWA—The city contemplate erecting an addition to the City Hall and the erection of two fire stations; F. C. Askwith, engineer.

RED DEER, ALTA.—D. E. McDonald, architect, Edmonton, is preparing plans for interior alterations to Court House on First avenue.

SAULT STE. MARIE—Mr. Ross Frederick, architect, has plans for an addition to the City Hall.

SHAWVILLE—Department of Public Works are calling tenders for post office interior fittings.

TARA, ONT.—A by-law has been passed to erect a new town hall, brick construction.

TORONTO—The city will build an addition to Montgomery avenue firehall and a cattle shed at the civic abattoir.

TORONTO—The Property Department is calling tenders for an extension to the cold storage plant at the civic abattoir.

VANCOUVER, B.C.—The Hudson Bay Co. have awarded the contract for a new addition to their store on Georgia street to Construction and Engineering Co., Limited, 40x120 feet; cost \$20,000.

VICTORIA, B.C.—The city will erect a \$6,000 building for soldiers' sleeping quarters.

RESIDENCES, STORES AND FLATS.

BRACEBRIDGE—Messrs. Hunt & Woodburn, architects, Confederation Life Building, Toronto, are preparing plans for a large residence.

BRANDON, MAN.—The store of E. Crawford was destroyed by fire; loss \$30,000, insurance \$20,000.

LISTOWEL, Mrs. Ezra Richin will erect a residence on Argyle street.

MONTREAL—J. A. Bray, 6375 Berri street, has plans for two residences; cost \$7,000.

MONTREAL—E. Gagnon is erecting two residences on Dan-durand street; cost \$6,000.

MONTREAL—Avila Desnoyers, 453 Beauvillien street, is erecting a residence on Boyer street.

MONTREAL—M. Mallette, 1063 Mount Royal, is erecting a residence on Abraham street west; cost \$3,000.

MONTREAL—Owen Roberts, 112 Addington avenue, is erecting four residences on Wilson avenue; cost \$8,000.

QUEBEC, P.Q.—A. Desnoyers, 168 Des Stigmates street, is building a flat to cost \$10,000.

QUEBEC, P.Q.—T. D. Dubuc suffered a \$45,000 fire loss to store on St. John street; insurance \$32,000.

QUEBEC, P.Q.—J. E. Myrant, 144½ Latourelle street, is erecting a residence on St. Foye road; cost \$4,000.

QUEBEC, P.Q.—Messrs. Boisvert & St. Laurent, Claire Fontaine street, are erecting an apartment; cost \$22,000.

TORONTO—Kerr & Martin are erecting a \$3,500 residence on Woodside avenue.

TORONTO—T. H. Hutson, 34 Victoria street, is erecting a \$3,000 residence on Spadina road.

TORONTO—J. A. Thatcher, 37 Cowan avenue, is preparing plans for a store and bakery; cost \$8,000.

TORONTO—J. A. Thatcher is preparing plans for two residences on Humber Bay avenue; cost \$9,000.

TORONTO—Wm. Lister, 1438a Dufferin street, is erecting two two-storey stores on Dufferin street.

TORONTO—J. W. Clare, 68 Ascot avenue, is erecting two residences on Dufferin street to cost \$5,000.

TORONTO—Hayward & Whitehorn, 6 Hallam avenue, is erecting a \$4,000 residence on Hallam avenue.

TORONTO—A 20x44 cement block store and residence is being erected by J. P. Lever, 20 Atlas avenue; cost \$3,500.

TORONTO—Wm. Hughes, 59 Amroth avenue, is building two pair of residences on Amroth avenue to cost \$9,000.

TORONTO—Two residences are being erected by B. W. Miller, Dufferin street, to cost \$5,000, on Lauder avenue.

TORONTO—The International Land Corporation have plans for four pairs of residences to cost \$15,000 on Poplar avenue.

TORONTO—H. B. Jackson Bracken will purchase all materials for a modern residence he is building on Bracken avenue.

TORONTO—C. H. Barnett, 66 Gloucester street, is erecting one pair residences on Park avenue; C. F. Wagner, architect; cost \$5,000.

TORONTO—H. S. Kaplan, 75 Macdonald avenue, has prepared plans for a store addition for L. Yolles, 363 Queen street east; cost \$10,000.

TORONTO—W. C. Charters Co., 828 Kingston road, will erect fifty residences and twenty-eight stores on the corner of Kingston road and Malvern avenue; H. C. Sewell, O.L.S., has been awarded the surveying contract, and P. H. Finney is the architect.

TORONTO—Wm. Rennie Seed Co. are erecting a brick addition to their store, 153 King street east H. A. Johnston, 63 Normandy boulevard, residence, Normandy boulevard, cost \$3,500; A. Edmonds, 105 Oakwood avenue, residence, 37 Thorne avenue, cost \$4,000; E. J. Rogers, 196 John street, residence, Glendale avenue, cost \$3,000; W. A. Scott, 123 Mutual street, residence, Beach avenue, cost \$3,500.

TORONTO—Residences being erected, cost \$3,500: S. Linley, 207 Rhodes avenue, one pair, Rhodes avenue; Lankin Bros., 14 Furness avenue, one pair, Fifth avenue; H. G. Mistele, Danforth and Dawes road, residence, Normandy boulevard; T. W. Robinson, 16 Evelyn crescent, two residences, Glendale and Woodside avenues; Mr. Richards, Westmount avenue, residence, Glenholme avenue; Robertson & Wells, 43 Berwick avenue, residence, Garden avenue; Wm. Richardson, 28 Arlington avenue, residence, 48 Ellesworth avenue; Salvation Army, Albert street, residence, Sherbourne street; C. Spiller, 364 Lauder avenue, one pair residences, Lauder avenue, cost \$5,000; W. H. Scott, 125 Mutual street, residence, Beach avenue, \$4,500; J. Wheatley, 99 Queen street east, residence, Woodycrest; Venn & Evans, 776 Concord avenue, residence, Palmerston street; A. M. Crawford is erecting a residence on Munro Park avenue.

VANCOUVER—The store of Wilson & Richmond, 34 Hastings street, was gutted by fire; loss \$20,000.

WINDSOR—Winter & Little, Pitt street west, are erecting seven frame residences.

WINDSOR—Messrs. Walker & McPhail, architects, are preparing plans for a large modern residence for S. E. Rigg.

SCHOOLS, COLLEGES AND CHURCHES.

ATHABASCA, ALTA.—The School Board, G. Watt, secretary, are calling tenders for frame school.

BEAMSVILLE—The by-law to erect a new High School on Fleming street was passed; cost \$20,000.

BIRCHCLIFFE, ONT.—Mr. Wm. Fraser, architect, 34 Victoria street, Toronto, has awarded the general contract on a new school to W. P. McGiffin, Limited, Toronto.

CALGARY—Mr. McNeill, Chairman Board of Education, will have Haultain and Central Schools fireproofed.

CARAQUET, N.B.—The College of the Sacred Heart, Rev. Father J. Merry, was destroyed by fire; loss \$250,000.

CHATHAM—The Board of Education will erect a new school on Inches avenue; F. D. Laurie, chairman.

ESTEVAN, SASK.—St. Matthew's Church has plans to erect a \$5,000 church; architect, Turner.

FREDERICTON, N.B.—Mr. G. E. Fairweather, St. John, N.B., is preparing plans for an addition to Charlotte street school, three rooms and auditorium; cost \$20,000.

GALT—The Board of Education will erect a new \$50,000 school.

HAMILTON—The Beach Commissioners have plans for a new school.

HAMILTON—Provincial Inspector Houston has ordered a new High School, or an addition to be made.

KINGSTON—Queen's University will have a new library erected, to cost \$150,000. Plans have been prepared.

LAMBTON MILLS—The School Board, secretary, T. Elliott, are calling tenders for a new school; plans and specifications from Ellis & Ellis, Manning Chambers, Toronto, and Molsons Bank, Lambton Mills.

LOW POINT, N.S.—The church of Rev. Father McAuloy was destroyed by fire; loss \$20,000, insurance \$9,000.

MONTREAL—The directors of the Montreal Protestant Home, Dorchester street, will erect a new training school on the corner of St. Catherine's and Dorchester streets; cost \$20,000.

MOUNT DENNIS—The Board of Education, D. Robertson, secretary, will erect a new school to cost \$30,000; architect to be appointed.

PETERBORO—The George Street Church will erect a new Sunday school.

PORTAGE LA PRAIRIE, MAN.—Public school destroyed by fire; loss \$30,000.

PORTAGE LA PRAIRIE, MAN.—The School Board, Dr. Mackinnon, chairman, has appointed Architect Frank Evans to prepare plans for a new school to replace that destroyed by fire recently; cost \$50,000.

PORT COLBORNE—St. James' Church congregation, Rev. D. Russell Smith, will erect a new modern brick church to cost \$15,000.

RENFREW—The School Board, Dr. Murphy, chairman, have plans for a new High school to be erected immediately.

SAANICH, B.C.—A new school will be erected; J. R. Carmichael, secretary.

SARNIA—The School Board, P. Gilbert, secretary, is calling for competitive designs for a new school.

SCARBORO'—Mr. Wm. Fraser, architect, has awarded W. G. Gayton the general contract on the new Scarboro' school, S.S. 12.

SIMCOE—The town will erect two schools of brick construction to cost \$50,000.

SHUNIAH—By-law passed to erect a frame school; cost \$2,000; clerk, H. A. McKibben, Port Arthur.

TORONTO—Morley Avenue Methodist Church, Rev. R. Hobbs, pastor, will erect a new church.

TORONTO—Calvary Church, Silverthorne, contemplate erecting a new church; Rev. A. J. Reid, 946 St. Clarens avenue, rector.

TORONTO—Messrs. Sproatt & Rolph, architects, 34 North street, are preparing plans for Upper Canada College (five buildings).

TORONTO—Mr. C. H. Reed, architect, Confederation Life Building, is calling tenders for one new school and three school additions for the Separate School Board.

TRENTON—The town will erect a new High school upon the recommendation of the Provincial Inspector.

VANCOUVER—The city has purchased a site to erect a school in South Hastings.

VANCOUVER, B.C.—St. Andrew's Church, a new frame church on Oak street, was destroyed by fire; loss \$16,000.

WESTBORO'—Messrs. Richards & Abram, Booth Building, Ottawa, are preparing plans for a new school to cost \$25,000.

WINDSOR—Architect J. C. Pennington, 35 Labelle Building, is calling tenders for a High School addition; tenders close January 31st.

WOLFE ISLAND—The Church of the Sacred Heart will erect a new church; Power & Sons, Merchants' Bank Chambers, are architects.

FIRE PROTECTION.

Upon the recommendation of City Architect Pearse, of Toronto, the council has passed a by-law compelling all lodge and other buildings where social entertainments are conducted to provide fire appliances as are used in buildings used exclusively for this purpose.

SECURES HUGE ORDER

The Canadian Car and Foundry Company closed an order for nearly two thousand freight cars, valued at about \$2,000,000, for the French Government. Work on the order is to be started at once. The order ranks as one of the largest equipment contracts yet entered into by a Canadian firm for export.

CLAY WORKERS' CONVENTION.

The fourteenth annual convention of the National Clay Workers' Association will be held in Toronto from January 18th to 20th. It is expected that three hundred delegates from Canada and the United States will be in session. The Board of Control has made a grant of three hundred dollars to help entertain the visiting delegates. Mr. G. C. Keith, 32 Colborne street, is secretary.

LARGE FACTORY TO BE REBUILT.

The factory of the Martin Corrugated Paper Box Co., on Pape avenue, Toronto, which was recently destroyed by fire, entailing a loss of approximately two hundred and fifty thousand dollars, is to be rebuilt at once. The company have decided to erect a new building to cost three hundred thousand dollars. This will increase the capacity of the plant twenty per cent., and take care of the future increase in business.

ARCHITECT UPHELD.

An interesting decision, both to contractors and architects, was recently given by Mr. Justice Middleton, at Port McNicol, Ontario. It appears that the architect in charge of the erection of a new school for the town of Port McNicol ordered a portion of a wall torn down, which did not comply with his specifications. The contractor insisted on the work being left as it was, and defied the architect, who immediately had the contractor removed by force, resulting in an action being brought against the town and architect for damages. The judge's decision was against the plaintiff.

NATIONAL TERRA COTTA SOCIETY CONVENTION.

The annual convention of the National Terra Cotta Society was held at Hotel LaSalle, Chicago, on December 9th, 10th and 11th. A number of new committees were appointed this year, for which considerable work was outlined to be accomplished during the coming year, along lines of general interest to the society and the development of co-operation among the members in the industry. The consensus of opinion of those present was that 1916 will be a very prosperous year in the industry. "The terra cotta trade has been greatly depressed," said one of the members, "but within the last month or so there has been rapidly growing evidence of returning activity. Building prospects are now excellent in all parts of the country."

The election of officers was held on Saturday afternoon, December 11, Fritz Wagner being re-elected president. Thomas Armstrong was chosen as vice-president; Harry Lucas, of the Northwestern Terra Cotta Company, Chicago, secretary; and E. V. Eskensen, of the New Jersey Terra Cotta Company, Perth Amboy, N.J., treasurer. From fifty to sixty delegates were present at the convention, representing twenty-seven different companies.

Contractors & Sub-Contractors

As Supplied by The Architects of the Buildings Featured in This Issue

THE QUEBEC UNION STATION.

Architect, Harry Edward Prindle, Montreal.
Brick exterior, The Citadel Brick and Paving Co.
Brick interior, Dartnell, Limited.
Boilers, Babcock & Wilcox.
Casements and window construction, also doors and window trim, Steel and Radiation, Limited.
Chimneys, Canadian Custodis Co.
Electric wiring and apparatus, L. K. Comstock & Co.
Expanded metal, McFarlane-Douglas Co., Limited.
Granite, Argenteuil Granite Co.
Limestone, Chateaufort Quarry Co.
Marble, Missisquoi Marble Co., Limited.
Mill work, R. McFarlane & Co., Limited.
Ornamental iron, L. H. Gaudry & Co.
Piling, McArthur Concrete Pile and Foundation Co.
Plumbing, James Ballantyne and Landry & Chatte.
Plaster work (ceiling), R. D. Clark & Sons, Limited.
Steel, Eastern Canada Steel and Iron Works.
Tile, Guastavino Tile Co.
General contractors, Downing-Cook Co.

METHODIST BOOK ROOM.

Architects, Burke, Horwood & White.
Awnings, The Robert Simpson Company.
Boilers, Goldie & McCulloch Co., Detroit Stokers; W. D. Beath supplied coal conveyors.
Brick, Don Valley Brick Co.
Concrete work, Crescent Concrete Co.
Electric fixtures, electric wiring and apparatus, Bennett & Wright.
Elevators and hoists, A. B. See Electric Elevator Company; sub-contractor, The Elevator Specialty Co., supplied the hydraulic ash hoist.
Excavation and foundations, Campbell-Latimer.
Fire escapes, Architectural Bronze Company.
Flooring, marble, mosaic and terrazo, Lautz-Dunham Co.
Furniture, The Office Specialty Co.
Glass, paint and varnish, The James Casey Co.
Granite, Thompson Granite Co.
Hardware, Alkenhead Hardware Co., Yale and Towne fittings.
Heating and ventilating, Bennett & Wright; sub-contractors, Sheldons Limited, installed ventilating system, and Keith's Limited supplied the fan.
Interior cabinet work, F. C. Banks.
Metal sash, Henry Hope & Sons.
Ornamental iron, iron stairs, grilles, Architectural Bronze Co.
Phone system, De Beau Telephone Co.
Plaster work, J. Hynes.
Plumbing, Bennett & Wright; fixtures supplied by Standard Ideal Co.
Refrigerating, piped, ————
Roofing, The Philip Carey Co.
Sheet metal and fire doors, A. B. Ormsby Co.
Steel, McGregor & McIntyre.
Store fronts, Kawneer Manufacturing Co.
Terra cotta, Atlantic Terra Cotta Co.
Vacuum cleaners, piped, ————
Vaults, Fairbanks-Morse Co. supplied; made by The Dominion Safe and Vault Co.
General contractor, John H. Parker Co.

ST. MICHAEL'S CHURCH.

Architect, A. B. Champagne, Montreal.
Brick (plain, fancy, enameled, fire), Webster & Sons, Limited.
Casements and window construction, also doors and window trim, Wm. Rutherford & Sons Co., Limited.
Electric wiring and apparatus, W. J. O'Leary & Co.
Glass (plate), W. J. Large.
Hardware (Brand), Russwin Durand Hardware Co.
Heating and ventilating engineers, P. J. Sullivan Co., Limited.
Marble, Lepage Marble Works.
Paints (interior and exterior), W. J. Large.
Plumbing, P. J. Sullivan Co., Limited.
Plaster work (ceiling), Peter B. Baxter.
Roofing, tar and gravel by Metal Shingle and Siding Co., Limited.
Terra cotta (ornamental), New Jersey Terra Cotta Co.
General contractors, Atlas Construction Co.

THE CARTY BUILDING.

Architect, F. S. Mallory, Toronto.
Brick, The Don Valley Brick Co.
Cabinet work, J. S. Scott.
Carpentering, J. D. Young.
Elevators, Otis-Fensom Co.
Grill and ornamental iron, Canadian Ornamental Iron Company.
Hardware, Alkenhead Hardware Co.
Marble, J. G. Gibson Marble Works.
Mason, James Wickett, Limited.
Painting and glazing, James Casey Co.
Plastering, Duckworth Bros.
Plumbing and heating and wiring and ventilating, Bennett & Wright.
Sheet metal and roofing, A. B. Ormsby.
Sprinkler system, W. J. McGuire.
Steel, Dominion Bridge Company.
Terra cotta (exterior), Atlantic Terra Cotta Co.
Tile work, Italian Mosaic and Tile Co.
Vacuum cleaning, Hydro Vacuum Cleaner Co.

PERSONALS.

Mr. J. M. Moore, architect and engineer, of London, Ontario, has been elected to the Board of Control of that city.

Mr. A. Charette has been appointed representative of the Plumbers' Association of Montreal on the Board of the Builders' Exchange.

Although both Col. Chadwick and Col. Beckett, of the firm of Chadwick & Beckett, Toronto, have enlisted for overseas service, and are now actively engaged in military affairs, their office has not been closed. It is being continued under the management of Bryan Chadwick, Col. Chadwick's brother, who has been connected with the firm for the past six years.

IMPORTANT DISCOVERY.

The discovery of mineral phosphate of lime in the Rocky Mountains by the Dominion Commission on Conservation, will prove economically important to Canada if large deposits are uncovered. By means of the substance the exhausted fertility of the Western growing districts may be restored and maintained. At the present time the only mineral fertilizer is apatite, found near Ottawa, which field is very small.

HYDRO RADIALS.

In connection with the hydro radials, upon which upwards of fifty municipalities have lately voted and approved of the scheme, it is interesting to analyze this undertaking from the point of view of the manufacturer and contractor. Almost every kind of material used in building and engineering construction will be in demand. In spending this \$35,000,000 a great market will be opened up to the manufacturer, as well as a large field for labor.

ANOTHER BIG INDUSTRIAL DEVELOPMENT.

Another big, new industrial development in Canada consequent upon war necessities and opportunities is likely to be the refining within the Dominion of the millions of dollars worth of nickel matte from Sudbury, which now goes to New Jersey for refining. It is stated on reliable authority that the Government is now considering arrangements for requiring refining in Canada, thus keeping control of the export of a commodity so largely used in armament manufacture, and at the same time taking advantage of present war conditions to establish permanently in Canada an industry that will prove immensely valuable when peace comes.

LARGE GAS LINE.

One of the largest, if not the largest, pipe line and gas undertakings of the continent has just been consummated and work begun, by the disposal in New York of \$10,000,000 worth of bonds. The proposition, as outlined by Engineer J. L. Kempher, will take in all towns along the line of the C.P.R. from the gas fields of Southern Alberta to Winnipeg, including Brandon, Regina and Moose Jaw. At the present time the cost to consumers has not been dealt with, but since the larger cities along the line of the project have accepted the offers made to them there should be no doubt as to the success of the scheme, and it should prove a great factor in eliminating much of the unemployment in the West and open up a large field for manufacturers.

CANADA GETTING GERMAN TRADE.

Ample proof that Canadian manufacturers in general are benefiting to a marked extent through the increased volume of trade resulting from enemy manufacturers being barred, through exigencies of war, from the world's markets, is furnished by enquiries made among manufacturers and producers. Manufacturers say that the chief benefit to accrue from German and Austrian products being kept at home is not so much that they are barred from Canadian markets as that Canadian manufacturers are now supplying the increased demand in other parts of the world. Instances of these are manufacturers of patent leather, sole leather, belting and similar leather goods, manufacturers of drugs, tapestries, incandescent light bulbs, electric shades, opal shades and ruby lenses for semaphores.

LONDON PALACE OF INDUSTRY.

Ground has just been broken for a huge new permanent exhibition building to be known as the Palace of Industry. The building is located at Willesden Green—about six miles distant from the centre of the city—will cover an area of 610,000 square feet, nearly four times the size of any similar building in London. It will be opened early in 1917 with an exhibition known as the "Industries of the Empire Fair," which is planned to be "the greatest trade exhibition ever organized." The Fair will be under the co-operative auspices of all the principal trade organizations of the British Empire, and over 3,000 exhibitors, representing seventy distinct lines of business, have already applied for space. The frontage of the stalls will aggregate twelve miles in length. It is to be solely a display of British goods, no foreign exhibits whatever being allowed.

BOOKLETS, CATALOGUES, ETC.

Achievements In Modern Heating and Ventilation, is the title of a twenty page catalogue, issued by The James Smart Mfg. Co., Brockville, describing the Kelsey System. It is well illustrated with view of buildings where Kelsey Systems are installed and illustrates and describes the principles and advantages of the warm air generators, manufactured by this firm.

Cement Gun.—A one hundred and eight page monograph compiled and edited by Arthur E. Lee embraces a description of the cement gun apparatus manufactured by The Cement-Gun Company, Incorporated, 30 Church Street, New York, and includes information on its principle and mechanical construction and its multiple application and adaptability to engineering and construction work.

Reducing and Regulating Valves.—The H. Mueller Mfg. Co., Ltd., Sarnia, Ont., are sending out a thirty-two page catalogue illustrating and describing in a clear and concise manner the Mueller Reducing and Regulating Valve and Pump Governors, manufactured by them. It contains also useful information for anyone using or requiring valves of this type.

Sanitary School Desks.—A folder illustrating and describing a new line of silent sanitary school desks being turned out by The James Smart Mfg. Co., of Brockville, a notable feature of which is the noiseless automatic seat hinge.

The Proper Place.—Referring to blueprints and drawings. A well designed and beautifully printed catalogue issued by Yawman & Erbe Manufacturing Co., Rochester, N. Y. It describes the handy filing system, manufactured by this firm which solves the problem of keeping track of architect's blueprints and drawings.

1916 Catalogue of the Reliance Ballbearing Door Hanger Company, 20 East 42nd Street, New York, illustrates their ballbearing door hangers, drawer slides and elevator door lock and would be a useful addition to the literature of any architect or builder.

NEWLY INCORPORATED COMPANIES.

Canadian Electrode Co.—Interested, Howard Murray and Stephen Hart, Montreal.

The Robert Simpson Co. Western, Limited—Capital \$4,000,000; headquarters, Regina, Sask. The company is affiliated with the Toronto company of same name.

St. Maurice Paper Co., Limited—Interested, Alexandre Chase Casgrain, Montreal.

The Manitoba-Ontario Railway—Line from Port William to Lake of the Woods.

The Canada Cement Co.—The company is entitled to manufacture shells.

Messrs. L. S. Yolles, H. Rottenberg, L. M. Singer and G. T. Walsh, all of Toronto, have been incorporated to carry on business as architects, contractors and building wreckers.

W. J. Galbraith & Co., contractors, Montreal.

Castonguay & Frere, contractors, Longue Point, Montreal.

Automatic Faucet Company, Limited, Vancouver.

Three-O-System Company, Limited, Toronto, will manufacture furnaces and boilers.

Central Engineering Co., Limited, Montreal.

Electric Welding Co., Toronto, engineering contractors.

COMING CONVENTIONS.

AMERICAN CERAMIC SOCIETY'S annual convention will be held at Cleveland, Ohio, February 21 to 24.

AMERICAN CONCRETE PIPE ASSOCIATION—Annual convention to be held in Chicago, February 17 and 18, 1916. Secretary, E. S. Hanson, 538 S. Clark street, Chicago, Ill.

AMERICAN WOOD PRESERVERS' ASSOCIATION—The twelfth annual convention to be held in Chicago, January 18, 19 and 20, 1916. Chas. C. Schnatterbeck, Chairman Committee on Publicity and Promotion, American Wood Preservers' Association, Baltimore, Maryland.

CANADIAN LUMBERMEN'S ASSOCIATION—At Ottawa, February 18, 19 and 20, 1916, annual convention. Frank Hawkins, secretary, Ottawa.

CANADIAN NATIONAL CLAY PRODUCTS ASSOCIATION—To be held at the King Edward Hotel, Toronto, on January 18, 19, 20.

CANADIAN SOCIETY OF CIVIL ENGINEERS—The thirtieth annual meeting to be held in Montreal, January 25, 26 and 27, 1916. Secretary, Prof. C. H. McLeod, 176 Mansfield street, Montreal.

HOLLOW BUILDING TILE MANUFACTURERS' ASSOCIATION OF AMERICA—Convention to be held in New York, N.Y., on January 26.

NATIONAL BRICK MANUFACTURERS' ASSOCIATION will hold its annual convention at Hotel Statler, Cleveland, Ohio, February 21 to 26.

NATIONAL BUILDERS' SUPPLY ASSOCIATION will hold its annual convention at Hotel Statler, Cleveland, Ohio, February 17, 18, 19.

THE COMPLETE BUILDING SHOW will be held for the first time from February 16 to 26, at the Colliseum, Cleveland, Ohio.

TECHNICAL SOCIETIES.

ALBERTA ASSOCIATION OF ARCHITECTS.—President, Jas. A. Henderson, F.R.I., B.A., Edmonton; Hon. Secretary, W. D. Cromarty, Edmonton.

ARCHITECTURAL INSTITUTE OF BRITISH COLUMBIA.—President, R. Mackay Frigg; Secretary, Fred L. Townley, 325 Homer St., Vancouver, B.C.

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Important Legal Decision

APPEAL from a decision of the Appellate Division of the Supreme Court of Ontario (1), reversing the judgment of a Divisional Court (2), in favor of the plaintiff.

The action was brought for an injunction to restrain the respondent from erecting an apartment house on lot 32 on the east side of Maynard avenue, in the city of Toronto, and which adjoins the lands upon which the appellant has erected a valuable private residence.

The lands now owned by the appellant and respondent respectively were formerly owned by the Reverend George Maynard.

The executors of the Reverend George Maynard conveyed lot 32 above mentioned to one John Williamson, by deed dated the 18th April, 1888, the material portion of which is as follows: "All and singular that certain parcel or tract of land and premises (describing them) to be used only as a site for a detached brick or stone dwelling house, to cost at least two thousand dollars, to be of fair architectural appearance, and to be built at the same distance from the street line as the houses on the adjoining lots."

The respondent's title is derived through this conveyance to Williamson.

When the appellant purchased the land now owned by him it was one of the few remaining vacant lots on Maynard avenue, and he did so with the knowledge that there were restrictions on that street governing the class of buildings to be erected thereon, and also knowing from his personal inspection that the houses on the street were all private dwellings and worth from \$7,000 to \$10,000. The appellant erected a first-class private dwelling house, costing approximately \$14,000, over and above the value of the land, which he would not have done had he not believed that there were building restrictions sufficient to prevent the erection of such a building as is proposed by the respondent.

The respondent proposes to construct what is called an apartment house upon lot 32, and the plans and specifications which he had prepared show that it is intended to include the construction of six separate and distinct suites, or sets of rooms, each cut off from the others by its own front door, and composed of a living room, four bedrooms, a bathroom, a dining-room and a kitchen.

The appellant, believing that his property would be very greatly depreciated and damaged if the respondent were permitted to construct the proposed building, commenced this action.

After the commencement of the action the appellant moved for an interlocutory injunction. The motion was by consent turned into a motion

for judgment, and on the 3rd May, 1912, judgment was pronounced by Mr. Justice Middleton dismissing the action with costs.

The learned judge considered that he was bound by the decision in *Re Robertson and Defoe* (1), and dismissed the action. This judgment was reversed by the Divisional Court (composed of Falconbridge, C.J., K.B., Britton and Riddell, JJ.), Britton, J., dissenting.

The judgment of the Divisional Court was reversed by the Appellate Division (R. M. Meredith, Garrow, Maclaren, Magee and Hodgins, JJ.A.), Maclaren and Magee, JJ.A.), dissenting.

From the judgment of the Court of Appeal for Ontario the appellant appealed to the Supreme Court of Canada.

Glyn Osler and J. H. Cooke for the appellant. The conveyance to Williamson contains a restrictive covenant limiting the use of the land by the grantee and his assigns. *Mackay v. Dick* (1), at page 263; *Rawson v. Inhabitants of School District* (2), *Brookes v. Drysdale* (3), at page 60.

The words used are to be interpreted in their ordinary and popular sense. *Rogers v. Hosegood* (4), at page 409; *Hext v. Gill* (5); *Ex parte Breull* (6).

J. M. Godfrey, for the respondent, referred to *Kimber v. Admans* (7); *Robertson v. Defoe* (8); *Neill v. Duke of Devonshire* (9), at page 149.

The Chief Justice (dissenting):—I am of opinion that this appeal should be dismissed with costs.

Idington, J.:—The respondent claims that he is entitled within the terms of a grant of certain lands conveyed to be used only as a site for a detached brick or stone dwelling house to cost at least two thousand dollars, to be of fair architectural appearance, and to be built at the same distance from the street line as the houses on the adjoining lots, to erect on said site half a dozen dwelling houses so attached together and covered in that they may wear the external appearance of one house.

If this is to be construed as a covenant I conceive and respectfully submit that respondent is simply attempting by a juggling use of the word "apartment" to seem to keep the promise to the ear yet break it to the hope.

It is part of the office of the law to defeat such like attempts and see that what was within the reasonable contemplation of the parties to a contract as expressed in their use of the words thereof, is so adhered to that neither the purpose nor the language is frittered away by over refinement.

It is the use of the site, and not the use or abuse of the detached dwelling when built, that

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GRAVEL and slag roofs laid along the lines of The Barrett Specification cover many of the first-class buildings of the Dominion, because the experience of more than 60 years has proven that—

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Gen. Contractors: *O. Filion & Fries*, Montreal

Roofers: *Wm. P. H. Lee*
Montreal

BARRETT SPECIFICATION ROOF ON THE
GIDEON GUINET SCHOOL,
POURTAIR STREET, MONTREAL.



Special Note

We advise incorporating in plans the full wording of The Barrett Specification in order to avoid any misunderstanding.

If any abbreviated form is desired, however, the following is suggested:

ROOFING—Shall be a Barrett Specification Roof laid as directed in printed Specification, revised August 15, 1911, using the materials specified and subject to the inspection requirement.

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TO reproduce through the medium of glass, and a restrained use of wood, stone and brick, that feeling of solidity and endurance essential in an Architect's rendering of the classic in design, you will agree is a difficult task.

That it has been successfully accom-

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Its location in intimate association with the owner's residence, prompted its treatment.

As evidence of our ability to meet the difficult to meet in glass enclosures, this would seem a convincing example.

Lord & Burnham Co.

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TORONTO
Royal Bank Building,

MONTREAL
Transportation Building,



is in question. The illustrations pressed in argument of what might be done in way of overcrowding even a detached dwelling, against which this stipulation is not aimed, are therefore of no avail.

We must look at the whole instrument, and doing so here I have no doubt the grantor and grantee intended the latter should be bound to use the land in the manner stipulated, and for this purpose I presume the grantee executed the deed.

I think the appeal should be allowed with costs throughout.

Duff, J. (dissenting):—The covenant in this case, in my judgment, has no application to the building in question. The building is, undoubtedly, a house. It is a dwelling house, because it is constructed solely for housing people as dwellers. The contention that because the house contains a certain number of apartments in which separate families might conveniently live, it is therefore not a “detached” dwelling house is a contention which, if not wholly irrelevant, must involve the proposition that the building is not a dwelling house, but an assemblage of dwelling houses. I think it is rather extravagant to affirm that a given house is not a “detached” house solely because it contains a number of apartments capable of separate occupation.

I think the considerations which ought to govern the determination of the case are set forth very satisfactorily in the judgment of Mr. Justice Meredith in the court below.

Anglin, J.:—It is common ground that the terms of the “covenant” in question should be given the meaning ordinarily attached to them when used in common parlance. *Rogers v. Hosegood* (1); *Hext v. Gill* (2), at page 719. It is urged by the appellant that the construction put by the respondent upon these terms is technical and refined; the respondent makes a similar complaint of the construction insisted upon by the appellant.

It would be a most extraordinary description of a modern apartment house, such as the defendant proposes to erect, to call it “a detached dwelling house”—a description that nobody would ever dream of using colloquially. No purchaser of a property, which he had not seen but had bought relying on the vendor’s description of it as “a detached dwelling house,” would expect to have foisted upon him, or be compelled to take, as answering that description, an apartment house such as the defendant’s plans provide for. If further evidence were required of the purview of the restriction intended to be imposed upon the user of the property in question as a building site, it is furnished by the fact that, his purpose being to ensure that Maynard avenue should maintain its character as a first-class residential street, the vendor stipulated that on the site now owned by the re-

spondent there should be erected nothing other than a dwelling house of brick or stone costing at least \$2,000. What sort of modern apartment house built of brick or stone could be constructed for \$2,000? The amount of this minimum price seems to show conclusively that the purpose was that nothing other than a single dwelling house in the ordinary acceptance of that term should be erected on the land.

I am, with respect, of the opinion that the decision in *Robertson v. Defoe* (1), relied on by the respondent, cannot be sustained. Each apartment in the modern residential apartment how such a building can be deemed in compliance with a covenant that “every residence erected on the land shall be a detached house.” “House” was the word considered in *Kimber v. Admans* (2). “Dwelling-house” was the term dealt with in *Rogers v. Hosegood* (3). See, too, *Ilford Park Estates v. Jacobs* (4).

For the reasons stated by Mr. Justice Riddell in the Divisional Court I agree with his conclusion that the provision in question should be deemed a covenant, and not a condition. The fact that, no right of re-entry for breach being reserved, the stipulation, treated as a condition, would be ineffectual, affords another reason for treating it as a covenant; *ut res magis valeat*. To the authorities cited by Riddell, J., I would merely add a reference to *Hodson v. Coppard* (4), and *Stevinson’s Case* (5).

I would, for the foregoing reasons, with respect, allow this appeal with costs in this court and the Court of Appeal, and would restore the judgment of the Divisional Court.

Brodeur, J.:—The appellant is the owner of a lot on Maynard street, in the city of Toronto, and the respondent is the owner of an adjoining lot on the same street. These lots were sold with the covenant that each of them “would be used only as a site for a detached brick or stone dwelling house to cost at least \$2,000, to be of fair architectural appearance, and to be built at the same distance from the street as the houses on the adjoining lots.”

The respondent proposes to erect an apartment house, and the appellant, as transferee of the rights of the original vendor, claims an injunction to restrain the respondent from building that apartment house. He claims that the apartment proposed to be erected is not a detached house, and is, in that respect, an infringement of the covenant above referred to.

I consider that apartment houses were not within the covenant, and that its construction is an infringement of that covenant. *Rogers v. Hosegood* (1).

I consider that the words in the covenant should be given their ordinary popular meaning. *Rogers v. Hosegood*, at page 409; *Ex parte Breull*; *In re Bowie* (2).

For these reasons I think that the injunction prayed for should be granted.



February, 1916

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BRANCH OFFICES

MONTREAL

NEW YORK



THE ATRIUM WITH MARBLE FLOOR, WALLS,
PILASTERS, COLUMNS, BALUSTRADING—
ONTARIO'S NEW GOVERNMENT HOUSE.

F. R. DEAKES, ARCHT. 1907.

Ontario's New Government House

Chorley Park, Rosedale, Toronto, The Site of The Lieutenant-Governor's
Palatial Residence



ELMSLEY HOUSE OCCUPIED AS A GOVERNMENT HOUSE
(1813-1862).



ONTARIO GOVERNMENT HOUSE (SIMCOE AND KING STREETS, TORONTO,
1867-1912).

DESIGNED after the French chateau style, the new official Government House of Ontario is a splendid example of the architecture of the period of Louis XVI. In it the architect has produced a gem which will stand as a durable monument to his skill. The touch of the master craftsman is everywhere in evidence, from the lodge at the main entrance, over the artistically planned grounds, throughout the harmoniously designed and equipped residence, to the green-houses and garage on the north side. Every feature betokens an inspired ideal, which from its inception to its creation has been closely and cleverly adhered to. This impression is gained from a visit to the grounds and is intensified by a glimpse at the interior of the residence. The citizens of Ontario have reason to be proud of the official home they have created for the King's representative.

This is the third Government House Ontario has had during the past hundred years. In the time of Governor Simcoe, who came to York to found the new Capital for the Province of Upper Canada, his home was first a canvas house, once the property of the famous Captain Cook. Later he decided to build a house on the west side of the Don River, two miles from the Bay. Into this building which was called Castle Frank, he moved in January 1794. It was a one-storey, clap-boarded house about thirty by fifty feet with a facade in front consisting of four large columns, the trunks of unbarked pine trees, reaching to the roof. This house contained but two rooms. Later during the regime of Sir Francis Gore who came in 1806 the Governor's residence consisted of a group of low one-storey cottages built of logs. These were burned in 1813.



VIEW FROM CENTRAL COURT—ONTARIO'S NEW GOVERNMENT HOUSE.



EASTERN ELEVATION—ONTARIO'S NEW GOVERNMENT HOUSE.

by a curious coincidence has been erected within a few hundred yards of the spot selected by Governor Simcoe nearly 120 years ago. Just before the New Year it was occupied by Sir John Hendrie, and will no doubt continue for generations to come be the official home of Ontario's Lieutenant-Governors.

The residence is built of fireproof construction throughout. The foundation walls are built of concrete to the ground line; above this of Credit Valley grey stone. The roofs are built of steel and concrete, faced with red tiles, the apices and ridges are of copper. The floors throughout are constructed with terra cotta arches supported on steel beams.

The main portion of the building has a frontage of one hundred and fifty-six feet by a depth of two hundred and three feet, with an extension wing forty-three feet by seventy-three feet, in which are located the kitchen, servery and pantries, cook's room, servants' dining and sitting rooms, bedrooms and bathrooms.

The main entrance is in the centre of the front facade, and is approached by a massive port cochere, leading to a stone vestibule, which is connected with a circular lobby finished in Caen stone and marble, with fluted pilasters and enriched capitols, the floor being of marble. The porter's room, cloak room and lavatories are located off this lobby. Adjoining to the west is the waiting room, secretary's office and the Lieutenant-Governor's office, all en suite. The latter is a particularly handsome room, finished in oak with richly carved doors. The main corridor is entered from the lobby and extends nearly the full width of the building; beyond this is the atrium, or grand hall, which is designed in Louis XVI. style, and finished in marble, with marble pilasters, columns and balustrading extending the full height of the three floors of the building, terminating in a groined ceiling with panelled skylight, which is brilliantly illuminated at night by electric light obscured from view. The floor of this hall and the main corridor is of marble.

The main staircase which is located at the end

of this hall, immediately opposite to the entrance is also of marble all the way up to the top floor, leading to the galleries on the two upper floors, extending all around the grand hall, with balconies overlooking the same, the entrances to the various rooms on the upper floors leading from these galleries.

The reception room and drawing room are to the right of the main entrance. These rooms are designed in Louis XVI., finished in old ivory, with furnishings to correspond. The

:: *NEW GOVERNMENT HOUSE* ::
 :: *ROSENACE TORONTO* ::



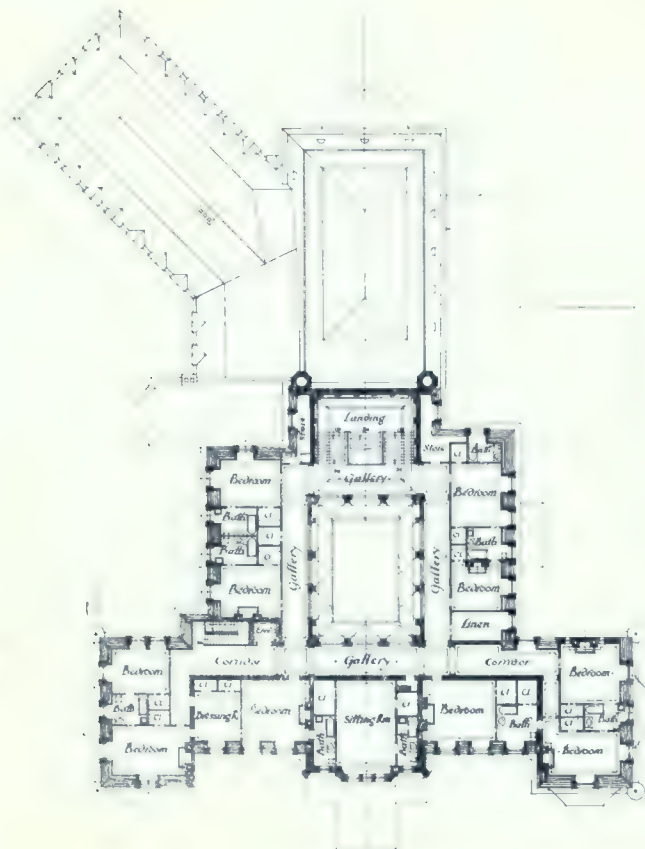
:: *FIRST FLOOR PLAN* ::



LODGE AND GENERAL VIEW—ONTARIO'S NEW GOVERNMENT HOUSE.

writing room and living room are located to the right of the grand hall. The latter is a particularly handsome room, with enriched beamed ceiling, the woodwork being in oak with carved panelling over the doors; French casements opening on a court paved with stone and brick, with fountain in the centre. Beyond this court

:: *NEW GOVERNMENT HOUSE* ::
 :: *: ROSEDALE TORONTO :* ::

:: *SECOND FLOOR PLAN* ::

is a terrace and lawn overlooking the beautiful ravine to the east. This room is also connected with the palm room, which also adjoins the ball room. On the west side of the grand hall is the state dining room, twenty-four by forty-eight feet, designed in the Jacobean style, the walls panelled in fumed oak, richly carved, the ceiling beamed and plastered, with corresponding enrichments. The outstanding feature of this room is the massive Caen stone mantelpiece on the south end, which extends from floor to ceiling, richly carved, with the Ontario Coat-of-Arms in the centre. Close by this room is the private dining room, which, by way of contrast, has been designed in the Adams style, has a beautiful outlook over the rose garden and pergola. Beyond this is the service wing, containing the servery, or butler's pantry, kitchen, scullery, pantries, etc.

The ballroom is situated immediately beyond the grand hall and stairway, and is separated therefrom by a lobby leading to the palm room on the east and to the private dining room on the west. This room is forty feet by sixty-five feet, designed in Louis XVI., about thirty-eight feet from the floor to glass dome ceiling. The wood and plaster work in dome are finished in old ivory, the walls being painted in imitation of silk. The room is lighted in the day time by the ceiling, which is all of glass, in white and amber tints in a simple geometrical design; at night it is brilliantly illuminated by four crystal and gold chandeliers and by gold brackets on the pilasters. Alcoves are provided at side for resting, and at the end of the room for a dias to be used on state occasions. The ballroom will also be used as a banqueting hall on state occasions.

The first floor, with the exception of a large sitting room over the main entrance, is divided into bedrooms, dressing rooms and bathrooms. The royal suite is located to the right of this sitting room, and the Lieutenant-Governor's



CONCRETE WALL AND BRIDGE—ONTARIO'S NEW GOVERNMENT HOUSE.

suite to the left of it, facing south, east and west, consisting of bedrooms, dressing rooms, bathrooms and boudoirs. Off the main hall there are two bedrooms on either side, connected with bathrooms. All these rooms are designed in the Adams style, the woodwork being finished in white enamel and furnished accordingly, including all the electrical fixtures, carpets and furniture generally.

The servants' wing is entered from the lobby of the landing on the main stairway, in which are located seven bedrooms for maids and five rooms for menservants, with separate staircase leading to each.

The billiard room is also very interesting, is entered from this lobby off the landing of the main stairway, is designed in the Jacobean style, with walls panelled in oak, the ceiling beamed to harmonize with the walls, and the mantelpiece being of Caen stone.

The upper floor of the main building is planned somewhat similar to the one below, and includes eleven bedrooms with bathrooms

en suite, and one sitting room, and is also designed in the Adams style. All the doors throughout the upper floors are of mahogany.

In planning the house the architect has been very successful in combining all the essentials of a home with the requirements of a place for entertaining and accommodating the guests of honor. No detail is wanting in the equipment to make the building up-to-date and self-contained in every way. To give an idea of the mechanical part of the equipment it might be mentioned that the heating is all by steam generated in two boilers in the basement, which also supply steam to heat the greenhouse, garage and stables and the living quarters. The ventilating plant, operated by electricity, works in conjunction with the heating apparatus. The fresh air is drawn through a large heating coil by an electric fan, through a water curtain which eliminates all impurities from the air, then through another heater, and is distributed by means of ducts to the various apartments in the building. The heating of the ground floor is



PERGOLA IN ROSE GARDEN—ONTARIO'S NEW GOVERNMENT HOUSE.

CONSTRUCTION



NEW GOVERNMENT HOUSE
 ROSENACE TORONTO
 BLOCK PLAN



GREENHOUSE AND GARAGE—ONTARIO'S NEW GOVERNMENT HOUSE.



A SPECIMEN OF PURE ARCHITECTURE, LOUIS XVI. PERIOD.

all indirect radiation, no radiators being seen. The rest of the building is by direct radiation. The foul air is exhausted by means of electrically driven fans and forced up through a large flue extending far beyond the roof. Both the heating and ventilating apparatus are operated by thermostatic control, so that the temperature can be regulated to any degree required in any of the apartments. A vacuum

system, electrically operated, for cleaning carpets, rugs, etc., has been installed in the basement, and tubes leading to the different floors. A cold storage plant, also electrically operated, is located in the basement with the ice-making machine, which is connected to refrigerator near by and the refrigerator in the pantry adjoining the kitchen. A water filter is provided, attached to the water supply, so that all water is filtered before reaching the faucets. Incinerators are provided to consume all garbage, and an electric passenger elevator located near the main entrance extends to the upper floors, and a hydraulic lift conveys the ashes from the boiler room. The buildings are lighted by electricity, the Hydro system supplying current for light and power. An auxiliary system of gas lighting is also provided, to be used in case the power is shut off at any time.

The building was designed by the Provincial Government architect, Mr. F. R. Heakes, and carried out under his supervision.

GROUND S

The property comprising the grounds consists of fourteen acres, bounded by Douglass Drive on the north and west, Roxborough Drive on the south, and Don Valley ravine on the east. The residence is located on the northeast angle of the site facing south; the main entrance to the grounds is from Roxborough Drive, the lodge being located at the southwest corner. A driveway twenty feet in width, with walk at side, leads to the outer circular court, in the centre of which it is intended to place at a future date a fountain. Beyond this is the fore court in front of the building, the two being connected by a handsome stone bridge over the gully leading to the lower flat. The fore court is connected with a broad terrace, extending the full depth of the residence on the east side. A handsome cement stone balustrade is continued alongside the main drive and around the courts,



TENNIS LAWN TERRACE—ONTARIO'S NEW GOVERNMENT HOUSE.

with electric light standards at intervals on the pedestals. The service drive and court is located at the north end of the property, with an entrance to Douglass Drive, with paths from same to the greenhouse, garage and stables, which are located to the north and east of the service court. The conservatory is an example of the modern greenhouse adapted for private residences. The type is known as the flat rafter curved eave type. In this house the maximum of light, and therefore the maximum of efficiency, is obtained by placing the gutter on the masonry wall. A special plate of cast iron is made to fit the masonry wall and to which the superstructure is bolted. This plate also contains the gutter for rain and a small gutter inside for the water of condensation. All the wood used is of the best grade of cypress, while the metal superstructure is of mild steel, angle iron being used for the purlins. Every member is designed for strength and lightness. All of the driveways and courts are laid in macadam, with top dressing of trap rock, the walks being laid in cement and bricks, this work being done un-



MAIN ENTRANCE, CENTRAL FACADE.



SOUTH-WEST FACADE.

der the supervision of the highway branch of the Public Works Department. The side entrance is from Douglass Drive by a curved road and walk, with a gentle incline leading to the fore court. A rose garden, with pergola at the north end, has been constructed to the north of this road, with a path leading from same to a flight of stone steps leading down and under the bridge to the ravine. On the east side a rock garden has been built at the foot of the steps, a fountain dripping down through the plants and rocks with a pool at the bottom. A beautiful park is located to the west of the main driveway from Roxborough drive extending from Roxborough drive to Douglas drive. The slopes at the sides of the driveways and to the west and north sides of the property will be planted in shrubbery with herbatia beds at intervals. The plateau, or lower level at the bottom of the ravine, will be laid out in gardens with small lake, or lily pond, fed from a creek which runs through this part of the premises. Rustic steps leading to same have been constructed from the upper plateau. The grounds when completed will be one of the finest in the city.

Heating, Ventilation and Mechanical Equipment of New Government House

By RICHARD RUPPEL

HEATING SYSTEM.

For the generation of steam required for the heating of the building and domestic steam usage there is installed in the basement two horizontal return tubular boilers and one vertical tubular boiler for domestic steam service during the non-heating period. This arrangement lending itself to the most economical method for the production of steam under varying demands.

The heating plant also furnishes steam to the greenhouses, stable and caretaker's quarters, by means of an underground conduit.

The heating system for the main building is what is known as a two-pipe up feed steam circulating system. Direct radiation being provided in the rooms, consisting of cast iron surfaces. In the master's quarters the direct radiation is supplemented by indirect re-heater stacks located in the basement, and thermostatically controlled from individual rooms. These indirect stacks acting as a supplementary measure, in the preheating of the air required for proper ventilation. (See description under sub-section entitled Ventilation).

The decorative scheme worked out by the Architect in connection with the radiators has made possible the elimination of much of the inornate effect usually produced by even the most carefully worked out pattern of radiators. In order to eliminate the unsightliness of valves

on the main floor, moreover, to localize the trouble and to eliminate the inconvenience of mechanics, the controlling valves are all located in the basement for the first floor radiation. In like manner the controlling valves for all rising lines are similarly located in the basement.

The piping arrangement has been laid out with the utmost regard for simplicity, combined with the most efficient method of distribution; and generally under the control of the operating force from the basement. All condensation from the heating system is carried back to an automatic pump and receiver, where it is delivered to the boiler for re-evaporation.

BOILERS.

Each of the two horizontal tubular boilers are 78 inches in diameter by 18 feet long and have a rated capacity of 160 H.P. each. The shells are suspended from a gallows frame consisting of 8-inch diameter cast iron columns 13-8 inch thick supporting a pair of 15 inch, 60 lb. I-beams, in the front and rear sections. By this method of support the entire weight of the boiler is thrust upon the columns; and the brick work merely acting as an enclosure for the setting. For uniformly distributing the load at the base of each of the four columns there is installed a re-enforced concrete grillage consisting of one-inch Ransome bars, set on 6 inch centres in both directions and located in the upper and lower



PORTE COCHERE.



FRONT VIEW FROM EAST.

sections of the slab for tension and compression respectively. The exposed walls are faced with white enameled front brick, the top being paved over with common hard burnt brick and finished with 2 inch, 85 per cent. magnesia blocks. The furnace and all parts acted upon by fire are lined with No. 1 fire brick set so as to be easily removable. The fronts are made of cast iron with two firing and two ash pit doors for each boiler. For the convenience and economical operation of the boilers the brick work is stayed by means of 6 inch cast iron buck-stays. The whole setting being made as compact as the limited space assigned for the boilers, made necessary.

be observed that the arrangement is such as to reduce the pressure of the live steam to that practical for domestic steam usage; through pressure reducing valves. In like manner the reduction of pressure is affected for the distribution of steam for the heating plant. By this arrangement it is possible under light load condition to function steam for heating purposes in mild weather at or below atmospheric pressure.

The exhaust steam from auxiliary apparatus, such as pumps, compressors, etc., is made available for heating purposes by the introduction of back pressure valves and oil extractors; so that there is no wastage of steam in any part of the



STATE DINING ROOM—ONTARIO'S NEW GOVERNMENT HOUSE

The horizontal return tubular boilers are equipped with the necessary fixtures including two safety valves for each boiler, one of the pop safety type, the other of the lever type; feed, drain, blow off, and other connections complete, and the necessary gauges, etc., for the satisfactory operation of the plant.

The arrangement of the coal bunker in relation to the firing space and the removal of ashes has been made most convenient for the operating force.

By referring to the basement plan and more particularly the piping in the boiler room, it will

plant, or of any condensation, which is all arranged to be brought back to the boilers. It is likewise possible to bring back all of the condensation used for domestic purposes as cooking, etc., during the non-heating period.

THERMOSTATIC SYSTEM.

This system essentially consists of diaphragmatic regulating valves controlling the steam supply to the radiators from a thermostat located in the various rooms. A metallic element capable of certain ranges of adjustment within predetermined temperature readings, controls the supply of air to the diaphragm

valves and by its contraction releases the pressure on the diaphragm and permits the additional supply of steam made necessary by the drop in temperature. By this arrangement it is possible to keep the temperature in the rooms within 1 deg. of the predetermined temperature.

A small electric driven compressor automatically maintains a pressure of 15-lbs. in a storage tank located in the basement for constantly controlling these various diaphragms' supply valves.

HEATING GREENHOUSES, CARETAKER, ETC.

These buildings are heated by means of live

(3) Exhaust ventilation independently operated for all of the bath and toilet rooms.

(4) Exhaust ventilation for the laundry, kitchen and serving pantries.

SUPPLY VENTILATION.

For furnishing an adequate supply of fresh air in the rooms enumerated under system No. I, there is installed in the basement a complete supply ventilating equipment consisting of air tempering stacks, air washer, heater stack, humidifier (under construction) and variable speed blower. From the discharge of the blower



A RECEPTION ROOM—ONTARIO'S NEW GOVERNMENT HOUSE.

steam connections run underground in a concrete conduit to a hot water converter from whence the hot water piping distributes hot water as a circulating medium to the various radiating surfaces, the condensation from the converter being returned back to the boiler room.

VENTILATING SYSTEM.

The ventilation is essentially sub-divided into four systems.

(1) Supply ventilation for all of the master's quarters excepting the bath rooms.

(2) Exhaust ventilation for all of the same rooms mentioned under system one.

and as more clearly shown on the basement plan, distributing ducts lead to the various vertical flues and from thence to the register outlets in the rooms.

TEMPERING STACK.

This apparatus is nothing more than a large heater which pre-heats the air as it comes from outdoors so as to maintain a temperature on the intake side of the air washer, so as to prevent freezing of the circulating water used in the washer. From the tempering stack the air is passed on, to the air washer.



ALCOVE IN BALL ROOM.

AIR WASHER.

The function of this apparatus is to eliminate the dust held in suspension and incidentally purifies and partially humidifies the air. A large receiving pan for holding water is located at the floor level. From this receiving pan through a system of strainers the water is recirculated by a centrifugal pump which discharges the water through a specially designed "rain curtain." Through this rain curtain all of the air drawn by the supply blower must pass on its way to the distributing system. In order to eliminate the saturated moisture from passing on, a system of baffle plates is encountered by the air, where most of the moisture is precipitated. In order to take care of the proper heating of this large volume of air, there is installed what is known as a heater stack.

HEATER STACK.

In this apparatus the air is heated automatically to that temperature required for satisfactory distribution and for maintaining the balanced temperature of 70 degs. indoors when the weather conditions on the outside are at zero.

HUMIDIFIER.

For maintaining a proper degree of humidity in the air delivered by the supply ventilating system, there is now under construction a humidifier which automatically vaporizes water located

in a pan on the suction side of the supply blower.

SUPPLY BLOWER.

For the convenience of compactness and securing the maximum economy in operation there has been installed in the basement, and as more clearly shown on the plan, a multi-vane (or what is sometimes termed a squirrel-cage wheel) design blower. This blower has a capacity of 31,000 cub. ft. of air per minute against a static pressure of 5-8 of an inch. For draining this fan there is provided a 15 h.p. belt-driven motor.

MAIN EXHAUST SYSTEM.

This equipment consists essentially of a system of ducts running from the main rooms and connected to an exhaust fan having a capacity of 32,000 cub. ft. of air per minute, against a static pressure of 5-8 of an inch. A 20 h.p. motor is provided for driving this fan. The discharge of this fan is carried above the roof so that it does not in any way interfere with the fresh air intake.

BATH AND TOILET ROOMS EXHAUST SYSTEM.

For exhausting the air from baths and toilet rooms there is provided in the attic space, an exhaust fan having a capacity of 8,800 cubic feet of air per minute against one-half of an inch static pressure, belt driven by a three horsepower motor. Discharge of this fan is likewise carried above the roof. This fan is mounted on



BALL ROOM.



MARBLE MANTEL IN DRAWING-ROOM.

a cork foundation for taking up the vibration. On the suction side of this fan a canvas bellows connection is made in order to absorb any vibration between the fan and the duct system.

LAUNDRY AND KITCHEN EXHAUST SYSTEM.

For removing disagreeable odors generated in the laundry, kitchen and serving pantries there is provided an independent duct system terminating in an exhaust fan located in the basement. This fan has a capacity of six thousand three hundred cubic feet of air per minute against 5-8 of an inch static pressure, and is belt-driven by a three horse-power motor.

MOTORS.

All of the motors are of the slip ring design, with short-circuiting secondary windings. The larger motors for the main supply and the main exhaust systems are provided with drum type variable speed, non-reversible controllers, the smaller units being provided with oil switches.

SEWERAGE EJECTOR SYSTEM.

On account of the elevation of the main sewer and the inability to flow by gravity to any satisfactory disposal basin, the problem of getting rid of this sewerage became an important factor in the design of the mechanical equipment, inasmuch as any mechanical contrivance demanded absolute reliability of operation without any intermission. Toward this end the engineer designed an apparatus wherein none of the moving parts came in contact with the sewerage. By referring to the detail plan the method

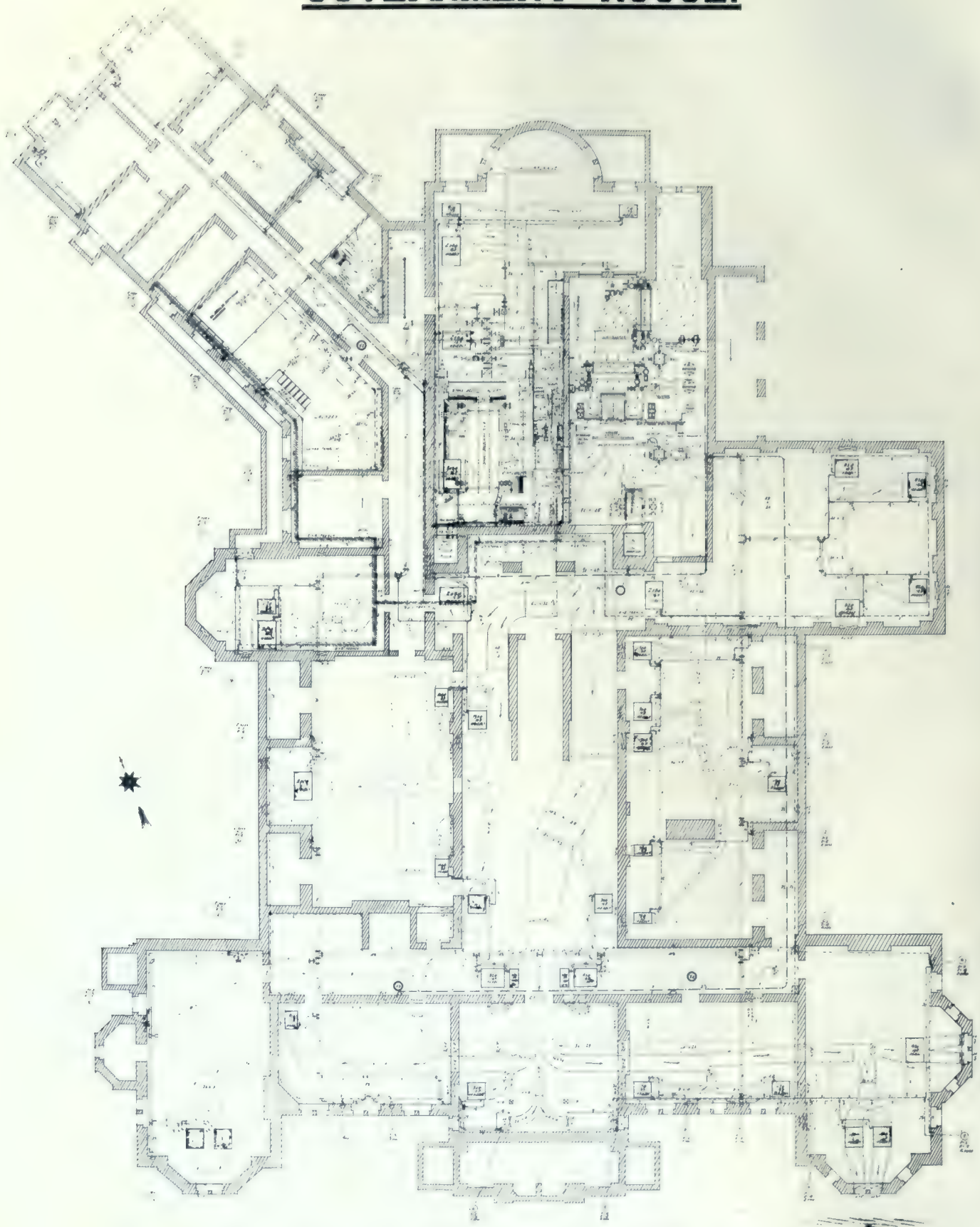
of handling this sewerage will no doubt become obvious to the reader.

Briefly, however, the method is as follows: The liquid and solid matter is ejected from the bell receivers by the expansive force of compressed air. Sewerage gravitates into the ejector through a check valve, and in doing so expels the air contents of the ejectors through the exhaust pipe to the atmosphere above the roof. When the sewerage has risen about twelve inches above the mouth of the air bell the pressure of the air in this bell is transmitted to the diaphragm of the pilot control valve, permitting a small quantity of air to pass from the air supply main into the base of the motor cylinder. This cylinder being of a greater diameter than the air admission valve, causes the piston to rise and closes the exhaust passageway, which admits air into the ejector. The air is admitted to the ejector cylinder for a predetermined interval of time, thereby insuring the highest efficiency in operation by securing the maximum utility of the expansive force of the compressed air. When the air has completely displaced the contents of sewerage, the pressure is reduced to less than that required to hold the exhaust valve to its seat. The exhaust valve thereupon opens, admitting the air exhaust and the ejector to refill.

The same cycle of operation is thereupon continued, excepting that the apparatus is arranged in such a manner that the pilot valve of No. 1 ejector will automatically step in in case of failure on the part of the other pilot to



CAEN STONE MANTEL PIECE IN STATE DRAWING-ROOM.

GOVERNMENT HOUSE.**BASEMENT HEATING AND VENTILATING PLAN.**



PALM ROOM

function. By referring to the detail plan it will be observed that the entire apparatus is completely enclosed in a steel tank, the general arrangement being such as to permit ready accessibility to all parts without coming in contact with the sewerage. Both steam and electric driven air compressors furnish the necessary compressed air automatically at all times. This system has been satisfactory in every way, there having been no interruption in the service.

The office of J. Beyers Holbrook was associated with Mr. Heakes, of the Department of Public Works, for the design and supervision of the mechanical equipments.

STUDYING CANADA'S FORESTS

The Norwegian Government will send out an expedition next spring to the Pacific coast for the purpose of studying the evergreen trees of the Pacific coast. The members of that expedition will travel up through Oregon, Washington and British Columbia. They will investigate the forests of the country with a view to compiling data enabling their government to carry out reforestation of the barren Norwegian coast line and the islands there. They will spend six months on the Pacific coast.

CANADA'S TIMBER SUPPLY

According to R. H. Campbell, Director of the Dominion Forestry Branch, Canada's present supply of commercial timber has been variously estimated to be between five hundred and seven hundred billion feet, board measure, and to cover an area of approximately 170,000,000 acres. This estimate of quantity and area refers only to timber of commercial value as saw-timber. It does not include pulpwood, firewood, tie and pole material nor small timber of any description, although this has undoubtedly a very large commercial value.

The Commission of Conservation is engaged

upon an investigation of the forest resources of Canada, which, when completed, will furnish the basis for a more accurate estimate of the amount of timber in the various sections of the country than has previously been practicable.—*Conservation.*

HOW SANDSTONES DIFFER

The products of rock decomposition may be reconsolidated either by great pressure or by the injection of cementing materials, or by both. Thus sands are formed into sandstone, clays become shales, and calcareous deposits yield limestone. Aside from their cementing materials, sandstones differ in composition exactly as did the sands of which they are composed. Sandstone, according to the United States Geological Survey, may be nearly pure quartz, or quartz and feldspar, or quartz, feldspar and mica, and it may vary in texture from the fine to the coarse.

Some sandstone is so coarse that it will hold 6 quarts of water to the cubic foot, and underground deposits of such sandstone form excellent reservoirs, which may yield a never failing supply of water. An arkose sandstone from the quicksilver region of California, made up of granite detritus, was found to contain quartz, orthoclase, oligoclase, biotite, muscovite, hornblende, titanite, rutile, tourmaline and apatite. In short, all the rock-forming minerals which can in any way survive the destruction or grinding up of a rock may be found in sands, and therefore in sandstones.



DOOR WAY DETAIL.



THE CANADIAN PARLIAMENT BUILDING DESTROYED BY FIRE ON FEBRUARY 3RD. IT WAS THE CENTRAL AND MOST IMPRESSIVE OF THE GOTHIC GROUP COMPRISING THE HOUSES OF PARLIAMENT AT OTTAWA. IT WAS DESIGNED BY THOMAS FULLER, R.C.A., AND CHILTON JONES AND WAS OPENED IN 1865.

Canadian Parliament Building Destroyed

Most Picturesque Public Building in North America in Ruins

ON the evening of February third, when Parliament was in session, a fire commenced in the centre of the building, to the rear of the entrance tower, sweeping westward through the Commons chamber, the lobby, the apartments occupied by members as recreation and smoking rooms, the press rooms and telegraph office and the offices of the Prime Minister and leader of the Opposition. Later, the flames spread eastward to the Senate wing, leaving the entire building a heap of ruins and unfortunately resulting in the loss of seven lives. It precipitated a dramatic ending to the Commons sitting, when great walls of smoke rolled into the Chamber, causing the members to flee for their lives, and in many instances escape being miraculous. Evidence since the fire seems to indicate that it was the result of an incendiary act on the part of alien foes.

The burned building was the Central, the largest and most impressive of the group of Gothic buildings comprising the Houses of Parliament at Ottawa. The Canadian Parliament buildings were remarkable examples of twelfth century Gothic architecture of unusual charm and beauty. The Central building was designed by Thomas Fuller, R.C.A., and Chilion Jones, and was opened in 1865. It had a front 472 feet long, with a depth of approximately 200 feet, and contained the Chambers, with their appendages of lobby, with telegraph and other public offices in front and corridor, with the reading, smoking and other private rooms for members at the back. The Chambers, each of which was 47 ft. x 88 ft., were set with the long dimensions running from front to back. They were two storeys high. The upper storey was a very graceful arcade of clustered marble shafts and pointed arches carrying a sky-lighted ceiling. Behind the arcade was a gallery all the way round, subdivided for the various classes of auditors, including the Press, whose gallery was located behind the Speaker. These galleries were represented on the ground floor by a corridor surrounding the Chamber. At the front of the Chamber, that is, on the side towards the facade, the corridor was extra wide because it included the width of both the galleries above and the passage which was between the gallery and the offices along the facade. On the ground floor this double-width corridor made the public lobby.

The length between the tower and the nearest pavilion on each side, as shown in illustrations.

represent the width (100 feet) devoted to each Chamber and its appendages. The pavilion blocks on the two ends contained the offices of the permanent staff connected with Parliament. On each side of the tower are to be seen the raking windows which represent a staircase. This is the external manifestation of a two or two-and-a-half storeyed entrance hall, with a great stone stair ascending on each side, on the right hand to the Senate and on the left hand to the Commons. These stairs landed at the lobbies of the respective Houses. People having business there entered by the small doors at the flight of steps on each side of the Victorian tower and ascended by an elevator, which was evidently not working when the occupants of the building attempted to escape. The main entrance was under the Victorian tower, which was, in fact, a *porte cochere*, as will be seen from the illustration.

The style of this building was no doubt decreed, and was the fruit of the Gothic revival in England and Sir Charles Barry's success with the Palace of Westminster, which was nearly completed at the time this building was commenced. The uniform and distinctive ma-



BASE OF VICTORIA TOWER WITH THE EASTERN BLOCK SEEN THROUGH THE PORTE COCHERE UNDER IT. PATENT OFFICE IN THE DISTANCE



BASE OF VICTORIA TOWER, GIVING ALSO A NEARER VIEW OF THE WINDOW FORMS AND DETAILS, AND OF THE RICH UPPER STOREY OF THE PAVILIONS WHICH BOUND THE END BLOCKS.

terial used throughout the group of buildings had much to do with their harmonious appearance.

The rubble walling was of sandstone from the Napean quarry near by, its general tone being buff varied by brighter tones, and the cut stone work was of Ohio sandstone, while the relieving arches were of red Potsdam sandstone. The spandrels were filled with bright-colored pieces fitted together in a patch-work Mosaic. There is no church window Gothic about the work of the designer, who worked freely in the

style that Mr. Fuller had studied and practiced in England when the Gothic revival was in its full tide of enthusiastic hope, and his career began by winning the competition for the Cathedral at Antigua. The English Church architect's models had little influence upon this building, which, if it is indebted to the old world at all, got its inspiration from the Gothic civic buildings of Italy and the Netherlands, where a feeling for the horizontal is a conspicuous characteristic of the design. The windows of the principal floor had a peculiarity in the low springing line about the middle of the total window height, which materially helped this horizontal effect. In a general way this building was remarkable, in spite of its numerous windows, with their coupling and tracery, for an effect of solid wall, which, particularly in view of the interesting character of the stone employed, seemed most appropriate.

Sir Robert Borden has appointed Architects Pearson of Toronto and Marchand of Montreal to make an investigation of the walls of the central building now standing, to determine whether or not they could be used for the new building. The architects are planning to use the shell of the old structure in the re-building of the new. The walls are of great thickness and strength. Practical builders say they are as



THE LIBRARY WHICH FORTUNATELY WAS SAVED. THE VENTILATING TOWERS MARK THE CHAMBERS OF THE COMMONS (NEAR) AND THE SENATE (FAR). RESIDENCE OF SPEAKER OF COMMONS AT END OF WING ON THE RIGHT.

good as ever and capable of carrying whatever weight would be likely to be placed on them in the reconstruction of the interior. This weight would not be too great in view of the fact that it is proposed to put up inside the old walls a new framework of steel and concrete, which would carry its own weight. In this way the Gothic beauty of the famous facade would be preserved.

COMPRESSIVE STRENGTHS OF MORTARS AND CONCRETES

Contractors, engineers and users of cement will be interested in a publication recently issued by the United States Bureau of Standards on the compressive strength of Portland cement mortars and concretes.

Concrete differs from most structural materials in that it is not manufactured at a mill or plant according to chemical formula under the observation of skilled specialists, subject to rigid inspection and test and such control as to produce a uniformly homogeneous product; nor is the process of manufacture completed in a few hours or days, as in the case of steel products. Furthermore, concrete is made from materials obtained from sources differing widely in characteristics which affect its quality. The proportions of the ingredients; the amount of water used in mixing; the thoroughness of mixing; the manner of placing; the atmospheric



THE CENTRAL OR PARLIAMENT BUILDINGS ON A WIDE TERRACE SHOWING THE NUMEROUS AND PARTLY CONTINUOUS WINDOWS WITH DEEP MOULDED JAMBS, AND EFFECT OF SOLID WALL WITH RICH HORIZONTAL DECORATION.

temperature and humidity; exposure to sun, rain and wind; immersion in fresh water, sea water, or other natural solutions—all affect the quality of the concrete.

This paper contains the results of some 20,000 tests. It shows the general effect of variation in the methods of preparing the concrete and suggests the proper methods to follow in order to obtain the best quality.

Copies of this publication, Technologie Paper No. 58, may be obtained by application to the Bureau of Standards, Washington, D.C.



THE BURNED PARLIAMENT BUILDING AT OTTAWA AS IT APPEARED ON THE AFTERNOON OF FEB. 4, ABOUT SIXTEEN HOURS AFTER THE FIRE.

Thirtieth Convention of Civil Engineers

THE Thirtieth Annual Convention of the Canadian Society of Civil Engineers was held at the headquarters of the Society in Montreal from January 25th to the 28th. The chair was occupied by Mr. F. C. Gamble, President. After the reading of the minutes a resolution was proposed by G. R. G. Conway and enthusiastically carried:

"That this meeting extends to Sir John Kennedy, past president; Sir Collingwood Schreiber, honorary member, and Sir Alexander Bertram, member, its heartiest congratulations upon the Order of Knighthood recently conferred upon them by His Majesty the King. The Society also wishes to place upon record its appreciation of the Royal and public recognition the engineering profession has received by the honors placed upon our distinguished members, who have always maintained the highest ideals of our profession. We recognize in the bestowal of these honors the growing public recognition of the engineers' influence not only in the arts of peace but also in the great ordeal the Empire is passing through at the present time."

This was acknowledged by Sir John Kennedy, who stated that the honor was a recognition of the engineering profession.

The report of the Council showed that 14 members, 66 associate members, 2 associates, 23 juniors and 42 students had been added to the roll during the year, bringing the total membership to 3,076. There had been killed in France 12 members of the Society. Branches had been opened at Regina and at Vancouver. It is proposed during the approaching session of Parliament to have a Bill introduced defining the term Civil Engineer. Recently the Society has become more alert to the fact that publicity for the profession is worthy of consideration and this has been given some attention. The financial statement showed a revenue of \$22,079, annual expenditure \$19,774, leaving a balance of \$2,304 on hand.

This was followed by a report giving a comparative statement of the cost of maintaining the Society, which showed a low cost, satisfactory to the members.

One of the outstanding features of the convention was the discussion on the amendments to the by-laws. In this connection Sir John Kennedy made some notable remarks. He emphasized the fact that the main intention of the Society was educational. It could not be a trade union; could not secure positions for its members and could not hold them in positions. Continuing, he said: "In many other ways the activities of the Society cannot be exerted with dignity. The revision of by-laws is a perennial subject in all societies, and so is the question of

smaller unity within societies. Engineers are specializing to-day, and each specialty has its own subjects to discuss, and this has at times led to the formation of separate specialized societies in which to discuss them. Such units are more practical than the dividing of a national organization into provincial or district organizations. In Canada, it is better to have one broad national society at present, divided neither by geographical lines nor by specialties, although a certain amount of splitting up of the activities within the Society is inevitable and desirable. The machinery for this exists to-day, in the various sections within the Society. At the Montreal meetings, the electrical section has a paper one time on electrical subjects, the mining section another time on mining subjects, etc. This has really kept the Society together, by enabling each to follow out its specialty, yet all meetings have been attended by all members in general, with the result that it has broadened all of our views. It has resulted in a certain amount of overlapping, but even that is good, as it is desirable to interchange ideas. The railroad man, for example, should have some idea of the problems encountered by the waterworks engineer, and vice versa. The Society is a centre of information, and while none can expect to be advanced individually by it without his own efforts and worth, yet all can derive much benefit from it." Sir John said he had in his lifetime received a carload of books from the various societies to which he belongs, and that he had obtained a wonderful lot of information of value from them. He said that he hoped the provincial idea will not grow too strong. The Society's efforts should not be localized too much. For instance, while proud of membership in a national institution like the I.C.E. of Great Britain, he would not care about belonging to a localized society of Irish engineers, or Welsh engineers.

In view of the importance of this subject it was decided to elect a committee to study the organization and by-laws and to advise concerning any necessary changes in same.

The Portland cement specifications committee handed in their report which was adopted as the official specifications of the Society. They were ordered printed and distributed to the members.

In the evening an interesting smoker was held at headquarters. The plant of Vickers Ltd., was visited on the morning of the 26th and in the afternoon the meeting continued. The report of the Committee on Conservation was given by James White in which he pointed out that the yearly fire loss in Canada was \$35,000,000, of which \$10,000,000 represented forest fires. In part he said;

"Conservation means national efficiency, and perhaps the Commission of Conservation should have been called the Commission of National Efficiency.

"Substantial progress has been made by the various organizations of the Dominion and Provincial Governments in investigating the water resources of the Dominion. The only province that is not now provided with some form of water resources investigation is New Brunswick, but negotiations, now under way, will probably lead to some satisfactory arrangement in the near future. Manitoba, Saskatchewan, Alberta and British Columbia have permanent systematic hydrographic organizations under the direction of the Minister of the Interior. Ontario is gradually being covered by the hydraulic division of the Ontario Hydro-Electric Power Commission. Quebec is being looked after by the Quebec Streams Commission and the chief engineer of Hydraulic Forces. In Nova Scotia there is a co-operative agreement between the Dominion Water Power Branch of the Department of the Interior and the Nova Scotia Water Power Commission. The field investigations are being published in a very satisfactory form, although there has been some delay in publishing the data promptly, following the

completion of the calendar or water year, as the case may be. The chief engineers of the above organizations have had several informal conferences with a view to co-ordinating, systematizing and standardizing their work, and also to facilitate the publication of the data in a uniform way and promptly. The net result of these informal discussions will be that, in the near future, Canada will be completely covered by efficient and effective organizations charged with the responsibility for investigating, in the most complete and comprehensive manner consistent with the dictates of economy, the water resources of the Dominion."

The reports of the Electro-Chemical Committee and that of the Steel Bridge Specification Committee were received and the committees continued.

President F. C. Gamble then delivered his retiring address in which he said in the preface:

"The past year has been one of stress and anxiety. The British Empire has been engaged for eighteen months in the greatest struggle in the history of the world with a nation which for over forty years has been unsparing in preparation for imposing upon the world by force its system of civilization and "Kultur." Notwithstanding the serious handicap of unprepared-



A DINING-ROOM IN THE ITALIAN STYLE, PANELED THROUGHOUT IN CIRCASSIAN WALNUT.

An unusual feature of this room is the caisson ceiling, in the central panel of which a family crest is worked into the design.

ness under which the Empire entered upon this war, the British Army under the unsurpassed guardianship of the Grand Fleet, and supported by contingents from the Overseas Dominions, has withstood the violent attacks of the enemy in Flanders and France with courage and valour. It is not too optimistic to say that the ultimate end shall be the triumph of British principles of liberty and justice. To assist loyally in the task thus imposed upon the Empire three hundred and sixty-three members of our Society (ten per cent. of the total membership) have given their services freely, of which number thirteen have so far made the supreme sacrifice. We honor those who have died that the Empire may live, and extend to their relatives an expression of our admiration and deepest sympathy. While the memory of their deeds will remain in our hearts as long as we live, it is but fit and proper to commemorate by a tangible token their noble patriotism and unselfish surrender of their lives.

"In one way the Society has already marked its appreciation of this by remitting the annual dues of members actively engaged at the front. This should meet with the unanimous approval of members.

"We have to mourn the loss by death during the past year of sixteen members, including juniors and students. Of these thirteen were killed in action, to which a previous reference has been made. Of the others special mention should be made of the late Mr. T. C. Keefer, C.M.G., first and tenth president of the Society and afterwards Honorary Member, and of Sir Sandford Fleming, who became a member in 1896, and was made an Honorary Member in 1908. These gentlemen conferred a marked distinction upon the Society, having acquired by probity, eminent ability and usefulness, world-wide reputations. Their careers must be an inspiration to the younger generation.

"There are many Civil Engineers living in the Dominion of marked ability who still hold aloof from us. These can only be induced to join by raising the Society to its proper plane of usefulness, and increasing its sphere of influence. Solicitation to join us must be avoided as an undignified and weak expedient. It is quality not quantity that is desirable. A most essential factor in bringing about the increase in our membership, attracting to us the most accomplished Civil Engineers, is the firm and courageous carrying out of "The Code of Ethics" adopted by the Society.

"The profession of Civil Engineering, owing to its somewhat uncertain position, having no legal standing, differs from other professions which enjoy the law's protection, and, therefore, there is the greatest necessity for members to practise the virtue of loyalty to each other and to the profession. If each member realizes his responsibility in this respect public esteem and confidence will increase.

"The Council during the past year has been active in bringing to the attention of governing bodies, Federal, Provincial and Municipal, matters of importance and intense interest to the profession of Civil Engineers practising within the bounds of the Empire. Although no direct beneficial results have been achieved so far, we have no reason to be discouraged. In the coming year, if the past representations are firmly and fearlessly persisted in, some measure of success will without doubt attend our efforts. We are not demanding anything unreasonable or beyond our rights as citizens. We should resent firmly any adverse inference to be drawn from the continued indifferent treatment meted out to the profession by public bodies in Canada. The amelioration of the disabilities under which we labor at present is one of our just demands.

"The Society, through the Council, might well direct its energies towards securing the adoption by governments, for Civil Engineers in the public service, of a standard of qualifications not short of that required by the Society for Associate Members. The Institution of Civil Engineers took this question up with the Imperial Government, meeting with a sympathetic response, and this Society should not hesitate to move in the same direction. It is unfortunately a fact that many positions requiring proper engineering qualifications have been filled by men who have never had either engineering education or experience.

"It would be well also to follow the example of the Institution in another direction. A Civil Engineers Appointment Board, while in no sense to be part of or associated officially with the Society, might be established with the full sympathy of the Council. The Board established in London on these lines has proved useful to engineering employees and younger members of the profession.

"The speaker is of the opinion that this Society, through the Council, should make strong recommendations to the Government of Canada with regard to such of our members who are eminently fitted by age, attainments and experience for commissions in the Corps of Canadian Engineers. There are many whose professional knowledge is more or less wasted in infantry battalions as officers and privates at the present time. In England the Imperial Government has consulted with the Institute of Civil Engineers with regard to members eligible for commissions in the Royal Engineers, and the recommendations of the Institute have been successful. Why should not this Society and the Government of Canada work together in the same most desirable manner?"

After hearing the president's address the meeting adjourned until 10 a.m., Thursday, January 27th.

In the evening a dinner was given at the Engineer's Club, the visiting members being the

guests of the Montreal members. Informal speeches reflected the brotherly feeling underlying the relations between all members regardless of occasional differences of opinion.

The amendments proposed by the Western members were defeated in a decisive manner as was shown by the scrutineers' report on Thursday.

The officers elected for the coming year were: President, G. H. Duggan, vice-president and general manager, Dominion Bridge Company, Montreal; Vice-president, T. H. White, chief engineer, C.N.R., Vancouver; Councillors, J. R. W. Ambrose, chief engineer, Toronto Terminals Railway Company, Toronto; H. Donkin, deputy minister, Department of Works and Mines, Halifax; A. E. Doucet, Quebec; W. J. Francis, consulting engineer, Montreal; E. D. Lafleur, chief engineer, Department of Public Works of Canada, Ottawa; D. O. Lewis, district engineer, C.N.R., Victoria; D. A. Ross, consulting engineer, Winnipeg; H. R. Safford, chief engineer, G.T.R., Montreal.

G. R. G. Conway presented the following resolution which was seconded by G. A. Mountain and unanimously adopted:

"That the Canadian Society of Civil Engineers, assembled at their annual meeting, and including representatives from all parts of

Canada, realizing that the work of the trained engineer is becoming more and more of vital importance for the successful termination of the present war, desires to place at the disposal of the Dominion Government its organization for the purpose of assisting and co-operating, by every means in its power, in properly training competent officers for the engineering branches of the service.

"This meeting believes that by the hearty and loyal co-operation of the Society, which its members are anxious to give, the Dominion Government would have available for advice and assistance at all times, the organized services of the best and most highly-trained engineers in Canada.

"The Society would draw attention to the fact that already about twelve per cent. of its membership have volunteered for the defence of the Empire, but feels that the services of these men have not been used to the best advantage, as many of them have been drafted into other branches of service than the engineers. The Society would impress upon the government the importance of requiring that all engineer officers should have had practical engineering training before receiving commissions."

There were two hundred and eighteen members in attendance, which was less than usual.



A LIVINGROOM, EXTENDING ACROSS THE WESTERN END OF THE HOUSE, FINISHED IN BUTTERNUT.

The oak bookcases are reproductions of the famous ones of Samuel Pepys which are now carefully treasured at Cambridge.

CONSTRUCTION

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ENGINEERING AND CONTRACTING
INTERESTS OF CANADA



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FRASER S. KEITH - - - EDITOR AND MANAGER

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UNFAIRNESS OF ARCHITECTURAL COMPETITIONS

In the last issue of CONSTRUCTION reference was made on the editorial page to the ridiculous circular issued by an Ontario school board, calling upon architects to compete for a possible prize. In this connection a letter was received from Mr. F. S. Baker, architect, of Toronto, in which he says:

Your editorial in the current number of "Construction" headed "A Rich Prize," and referring to the advertisement of a school committee in an Ontario town, for designs for a new school building, which you call a joke, is really a very serious matter for the architects of Ontario, and should not be lightly passed over. On the same page you report the very simple and dignified legislation by which the architects of the State of New York have succeeded in protecting themselves against such attempts at belittling of the ancient and noble art of architecture.

If the architects of Ontario wish to present to the Legislature of Ontario absolute evidence of the real necessity of proper protection for the title "architect" in Ontario, and the

natural and proper method of obtaining this protection, they could not do better than present to the Government page 25 of the current issue of your Journal "Construction." The whole matter is there set out in a nutshell, and for my part, personally, I again urge, as I have urged on numerous occasions, the desirability of the Ontario Association of Architects taking immediate and definite steps to place the profession in Ontario at least on a par with surrounding Provinces and States, nearly all of which have now obtained protection for the title of our honorable profession.

In this country we are in the habit of accepting the rulings of majesties, and with all due respect to the no doubt good intentions and genuine arguments from their point of view, put forward by those members of the profession who object to any form of government control, I submit that the time has come when common sense and the safeguarding of our inherent rights demand that immediate action be taken to place ourselves in the position that we have undoubtedly earned through the years of hard work, involving many sacrifices, which has brought the architecture of Ontario up to the standard which to-day exists.

I am taking the liberty of sending a copy of this letter to the President of the Ontario Association of Architects.

The architects have it in their own hands to make it impossible for a competition to take place under the circumstances referred to, by absolutely refusing to have anything to do with anything of that nature. There is evidently not the greatest co-operation nor the closest spirit of unanimity among the members of the architectural profession. This accounts, to some extent at least, for the fact that advantage is taken of the individual architect who is not in sympathy and harmony with his confreres.

A suggestion was made regarding competitions by a Fellow of the Royal Institute of British Architects, who proposed that members should be free to submit designs in competition where regulations are drawn up by a professional adviser of standing—who shall also act as assessor—when the amount to be expended is not less than one hundred and twenty-five thousand dollars. The number of competitors should be narrowed down to say six, each of whom should receive a premium of not less than say five hundred dollars (to be increased on a sliding scale in proportion to the amount to be expended). This reduction might be arrived at through some such means as (1) a preliminary competition with only rough pencil sketches to a small scale (one plan of each floor, one section and one perspective sketch); (2) an inspection of existing buildings or photographs of buildings by intending competitors; or (3) by ballot. Then each of the six competitors, being guaranteed a premium, should develop his design more elaborately for the final competition. It was further suggested that if a competition were called for involving a smaller sum it be ignored by all architects, unless say not more than three named architects be invited to compete and a premium paid to each.

There never was a better time for the architects of Canada to obtain recognition than at the present. The popular mind is filled with the idea of public safety in building requirements, and it is obvious that a proper recognition of the architects and the establishment of a proper status will have an effect for good in this direction. It will require, however, a united effort calling for closer co-operation by the architects than they have apparently been willing to adopt in the past.

OUR NATIONAL LOSS

There are two redeeming features to the calamity which overtook this country when the classic central building of the Canadian Parliament group at Ottawa was destroyed by fire on the evening of February the third with its tragic loss of life. One is the safety of the architecturally unique library, with its priceless historic volumes. The other is that a similar loss will not occur again. The new building will be made absolutely fireproof in every detail. If the lesson has been learned—and there is every reason to believe it has—there will be nothing inflammable about the building to be erected to take the place of the one now in ruins, except perhaps some of the equipment, so that a fire started would be confined to the room of its origin. Advantage should be taken of the occasion to make the other buildings, and particularly the library, as nearly fireproof as possible, even if it means tearing out a large part of the interior, and the further precaution of installing complete sprinkler systems would do much to prevent the eastern and western buildings from sharing a like fate.

It takes just such a sledge-hammer blow as this to awaken the consciousness of those in responsible places to a realization of the necessity of safeguarding the lives of those who work or congregate in public buildings. That the blow should come by the destruction, accompanied by loss of life of the most important public building in Canada, makes the lesson all the more severe, yet all the more likely to produce beneficial results.

By a strange evolution of circumstances the Commission of Conservation, created by the Dominion Parliament, and working under its jurisdiction, with headquarters at Ottawa, is at present engaged on the problem of drafting a standard building law for the whole of Canada. It is little short of criminal that the enormous fire losses in this country have reached such enormous proportions. The economic waste is appalling. During the past five years the fire loss has averaged twenty-three million seven hundred and twenty-two thousand two hundred and forty-six dollars a year, of which at least seventy-five per cent. is the result of personal carelessness. The total charges attributable to fire losses and maintenance of fire protection amount to forty-five million dollars per annum, which is six dollars for every man, woman and child in this country, or thirty dollars for every family. There is ample food for serious reflection for Canadians in the fact that Canada's fire loss per capita is five times greater than that of any European country. This is a tremendous handicap in our competing in the world's markets for world business. Canada cannot afford to continue on in this way, burning up her resources, great though they are, when by the exercise of

proper precaution the loss could be largely avoided. Particularly at this time should the lesson be brought home with striking force to everyone.

Heretofore the Commission of Conservation has proven itself to be, as Mr. White, its deputy head, stated at the recent convention of the Canadian Society of Civil Engineers, a "Commission of Efficiency." In the drawing up of standard building laws for the Dominion the Commission has an opportunity of performing a public service greater than any it has yet achieved. Obviously one standard cannot meet all requirements, but a high standard, with the predominant idea in view of safety, will meet with universal support. The opinion of the best architects in the country should be secured; in fact, a Commission composed of eminent architects should be chosen to collaborate with the present Commission towards this end. If such were done, and the standard recommended by the Commission adopted by the enactment of a Dominion statute compelling Municipal Governments to maintain the standard, or standards, as outlined, human life would be better safeguarded, with the resultant possibility of a large part of the enormous fire loss done away with.

CANADA PAYS THE PENALTY

An analysis of the fire losses in Canada during 1914 discloses some interesting conditions. This statement substantiates and verifies the charge that carelessness is the cause of seventy-five per cent. of Canada's fire loss.

It would naturally be expected that the greater number of fires would be in factories using power or fires for manufacturing processes, and where accumulations of shavings and other waste are exposed to fire from friction, spontaneous combustion, or other causes.

Such is not the case. By far the greater number of fires were in buildings in which none of these risks occur. Factories contributed only 59 fires; various mills only 12; laundries, 5; engine houses, 1; machine shops, 3; sawmills, 12; foundries, 2; while power-houses, blacksmith shops, canneries and others had a clean record.

Against this and constituting a record which should be a disgrace to any country, were 676 fires in dwellings, 138 barns and stables, 384 stores, 46 hotels, 44 business sections and blocks, 26 warehouses, 18 offices, 11 schools and colleges and 29 sheds.

Some of the causes of the fires were: Electrical defects, 55; lamps and lanterns, 20; defective and overheated stoves, furnaces and chimneys, 113; sparks from chimneys, 41; candles, etc., 6; ashes, 8; matches, 69; cigar and cigarette stubs, 15; defective gas appliances, 21; oil stoves upset and exploded, 13; spontaneous combustion, 18.

Architectural Digest

Articles of More Than Passing Interest From Our Contemporaries

THE AMERICAN BUILDER.

It is a great pleasure to be with you and have an opportunity to speak to the builders who are gathered here, and it is a privilege and an honor to represent the American Institute of Architects on this occasion. From the derivation of this word the architect is a master builder, and you also have been called master builders, and yet neither of us can really lay claims to-day to that title. It is possible, though not probable, that in the past, when the building operations were simpler than they are to-day, there may have been, here and there, individuals who were justified in calling themselves master builders; men of imagination to design and plan, and knowledge to construct and execute, but to-day no one man can perform all this. Co-operation is the keynote of the work which jointly we bring to completion. Competition and strife there will be also; these have their places and must always exist; but it is co-operation, the unselfish working together, not competition and strife, the selfish struggle, which should control and harmonize our work.

We are members of one great organization. Labor, the strength and the skill of hand which realizes our visions; administration, the executive ability which organizes all the intricate machinery; vision which, with quickened imagination, conceives the whole. These three are all essential to building, and unless all play their part and do their share no work will be even approximately perfect.

The architect stands in a peculiar position of responsibility and trust. He is employed and paid by the one who provides the capital for the undertaking, but his duties and responsibilities toward the builder are equally exacting. There was a time, not so long ago either, when the architect contented himself with making a few drawings and a sketchy specification, and relied on a builder in whom he had confidence and who was familiar with the office, to supply what was lacking in plans and specifications. If an owner desired competitive bids, none was invited to bid but those who knew the office and what it expected, and would figure accordingly. Occasionally an owner might insist that a builder outside this favored group should figure, and possibly he might be sufficiently simple-minded to figure only what was shown on plans and called for in the specifications. Thus he might win the contract. When the work was finished and his losses counted, he would wisely forget them, and make friends profitable for the future. You all know these things as well as I. You all know those comfortable blanket clauses under which the architect, generally ignorant or incompetent, sought to protect himself. The city of Boston, in this case the owner, not the architect, had at one time in its contract not only the usual provision, so that anything that appeared either in the plans or in the specifications was included, but also a provision that everything necessary to carry out the full intent and meaning of the building, whether or not it was called for, was included. The owner and the architect were the sole judges to decide what was covered under this clause, and the contractor's only chance was that the city would not enforce such an agreement.

In all such matters of right and of wrong, of justice and of fair play, the architect has had a very serious duty to perform, and it is only of recent years that the profession generally has realized its responsibility. Toward the owner the architect necessarily assumes a position of trust. He is on his honor to see that the money put in his hands is expended wisely. It is no easy task, for economical building is difficult. Toward the builder the architect has still graver duties, because less clearly defined, and because he is here performing a service paid for, not by the builder, but by the owner. Yet he must many times, in holding the balance true, give his opinion against the owner and for the builder. There are times, too, when he ought to give his judgment for the builder and against himself. How often the architect has failed in those grave duties you know as well as I. If to-day architects are more fully alive to their responsibilities, it is the first step toward discharging them, and they will turn to the builders for help. Not one of us can work well without the help of others. It is builders, not other architects who will help us to make our drawings complete and accurate, our specifications correct and in accord with the best modern methods and practice. Half our troubles are eliminated by complete and accurate documents on which to base the contract.

Co-operation, then, is the plea which the Institute makes to the builders. Trust in each other and an earnest desire to work together for the good of all. For the past six years the Institute has been working on a form of agreement and the general conditions of the contract to replace that which was issued some twenty-five years ago, and has now outlived its usefulness. A first attempt was made three years ago, and an edition published. The old organization which joined with the Institute in the first agreement, the National Association of Master Builders, was no longer active, and this first edition was put on the market with very little help or advice on the part of the building trades. The new "Standard Documents" met with very little success and with a great deal of adverse criticism. Some of this was merited, but much was merely the result of misunderstanding. The Institute at once began a revision, and this time made definite agreements for consultation with builders in various parts of the country. The result is the agreement and general conditions now published which bears the endorsement of many strong organizations representing the building trades. I earnestly urge you to adopt and use these forms, put them to the test, study and constructively criticize them. They are not complete, are not perfect, but they are far better than anything we have had before. Here again let me urge co-operation.

After all co-operation means consideration of others and the recognition of the work of others. Understanding and appreciation are at the root of any effective work. The whole is greater than any part, artist, engineer, builder, skilled mechanic and unskilled laborer, all have their part to play in the complete building. All are interested and interdependent. I almost hesitate to touch upon one, almost the gravest of our responsibilities, that toward organized labor. So long as the labor unions stand only for their best ideals, good service for good pay, shorter hours and more efficient work; things which make life more pleasant for the citizens, more fit to assume and bear their share in the common burden of government, just so long will they have the full support and encouragement of every

right-minded citizen. But the moment this or any other organization, whether of labor or of capital, works for selfish aims and against the good of the community, then it is evil, not good, a curse and not a blessing. You know as well as I that the great bulk of the men who belong to the unions in the building trades are competent, reliable and honest, and that the danger lies in those indifferent mechanics fatally gifted with fluent tongues, whose one stock-in-trade is trouble, and whose one object is to stir up strife. Help them to see that it is not strife but co-operation that will most surely give labor the honorable position to which it is entitled.

The architect's position in all these relations is a peculiar one of responsibility and trust. His is a difficult position to fill. Without the help of the builders, it is impossible to fill it. On behalf of the American Institute of Architects I ask your help and your co-operation in the great work which both of us have at heart.—Address before American Builders' Week Congress, San Francisco, by R. C. Sturgis, President A.I.A.

THE PROPER USE OF MATERIALS.

In the same way that no color can be said to be impossible, so no material is really unsuitable if treated in the proper manner and used in the right place. But there is no choice upon which an architect has to deliberate which makes greater call upon his sense of fitness and appreciation of the meaning and significance of inanimate things. It involves a sense of color and texture, and, when choosing materials which are made in standard sizes, a very precise feeling for scale.

The rage for variety has produced a flood of new materials, mostly artificial, some of which establish themselves permanently, while the majority disappear.

Meanwhile the genius is finding for himself new ways of using old materials. In recent years he has discovered that it is possible by using selected or mixed clays to obtain tiles and bricks of colors and textures more harmonious than the heavy tile or the terra-cotta brick, that by a promiscuous interspersing of tiles with the brickwork either in bands or for arches, or to level up courses, he can obtain a more interesting wall, especially if at the same time he eliminates the series of hard parallel lines produced by the struck cut joints of the pointing, and merely wipes the mortar off flush. He knows now how to get the most value out of the grain even of pine, by eschewing paint, using either stain or rubbing the wood with lime and varnishing with flat varnish to give it the pearly grey tone which is so pleasing. He has called into his service such materials as chalk rock, quartz flint, white tiles, and bricks made by dipping in white sand before the last burning, and many other neglected natural materials. He finds uses for all kinds of rejected or disused objects, such as millstones, cobbles, bedposts, lead cisterns, etc., and even incorporates with his fabric parts of ancient buildings, such as panelling, staircases, beams, doors and carvings, to such an extent that dealers in these wares have sprung up all round us.

The rage for the antique is due to the excellence of the workmanship, for everything made in the Augustan age of England, the sixteenth, the seventeenth and the eighteenth centuries, when time was no consideration and perfection "the only wear," bears the hallmark of genuine craft upon it, and the material was always of the finest and selected with great skill for the purpose intended. To-day it is difficult to get even faithful copies made of these objects; our wood is not usually so fine or so well seasoned, and the number of artificers who take a pride in their work for its own sake is so few, for the methods of Curtain-road, with the ubiquitous glue-pot and screw, have pervaded the whole trade.

We have only ourselves to thank for all this, for price governs these things entirely, and for the man who will pay there is still the patient worker, with all his great tradition behind him and a careful hoard of selected wood. These are the men who should be encouraged to do their best, and to school others to work as well, so that in spite of other influences we may continue to hold our lead the world over.

But, however that may be, it is certain that an intuitive feeling for the medium in which one works is essential to the attainment of fine architecture.

Be the proportions or details ever so fine, they lose their charm if executed in cold, unsympathetic material, or in other material too restless, perhaps. Sometimes there is no choice, though normally we are fortunate in this country in having a very wide range to choose from; our geological formation gives us every conceivable variety of stone, clay, etc., and our central position every possible timber and metal, so no excuse can be found for the incongruities or violent contrasts which so often show themselves.

The ancients understood all this, but to-day we are faced with different problems. The French have taught us many lessons in modern expression through new materials, as in their inimitable way of designing steel girders and framework, their use of ornamental lead and zinc work, etc., but they seem nevertheless to have failed to keep their hold on the old problem of harmonizing materials with their surroundings, and we find surprising instances in which through want of this, as in many of their modern country houses, they have produced effects far from sympathetic.

This is the sphere in which our English domestic architects have shown their superiority. They have adopted the principle of harmony instead of that of contrast, with the result that their work is sought for by enlightened housemakers, not only at home but in almost every country where quiet and restful buildings, without violent effects or jarring notes, are sought after.

There is range enough of new material here at our feet to please the most fastidious, though frequently we hear of great exercise of ingenuity to avoid anything new and draw from outside sources such coveted relics as old tiles, old Horsham slates, old oak, and old stone.

Although this country is rich in natural building materials, invention has been busy in devising new ones, some of which are of considerable merit owing to the fact that they are more impervious to atmospheric influence than are natural materials. Among these we may mention terra-cotta, Carrara ware, falence, and a number of serviceable roofing materials, one advantage of which is their extreme lightness.

Now, apart from the axiom which dictates the use of local materials wherever possible, we think the climate of this country is so versatile that, to get good effects, materials should be used which reflect these changes and show evidence of weather while retaining their structural integrity. That involves, for the most part, the use of natural products and a close study of their properties. Nature's colors are never garish, but must be rightly used, and the texture of each will determine the way in which they shall be worked. It is painful to see the sturdy English oak with its large fibre reduced by machines to delicate mouldings more suited to crystalline substances like marble; the same applies to a coarse-grained stone. It is equally painful to see a metal run into moulds as cast-iron or lead, as if it were ductile, and vice versa; also to see highly-glazed, unresponsive surfaces, with no absorption or breathing power, as it were, except where necessary in exposed positions, or for radiating light or other special purpose; also for a plastic material like plaster to be treated like soap or wax by pressing it into moulds; also the practice of enamelling slate and iron.

The great exception to this general principle is for buildings in cities. While smoke still refuses to abate itself, impervious materials must be considered for their brightness and cleanliness, and such materials as Carrara ware are likely to be used. It is an unresponsive material, and its aspect never changes; and in that respect it is inhuman; incidentally also these materials bring opportunities to Philistines to do things they could not do without, such as the perpetration of a canary yellow or chocolate brown front on our streets. Such materials necessarily require the greatest care in design if they are to be used to full advantage and effect, but in the right hands they give the architect exceptional opportunities.

The Nature School will no doubt agree with all this, and possibly even protest against the final reservation, pointing out the peculiar bleaching properties of Portland stone in support of their objection, but highly conventional buildings, such as railway stations, hospitals, markets, etc., require special treatment as the hygienic considerations predominate, and the artificial material fulfils necessities which the natural materials fail to meet.

A sense of the "fitness of things"—the old qualification for a gentleman, by the way—settles everything. Climate, position and purpose will, if well thought out, give the key to a wise selection, but if ignored will ruin the finest design ever conceived.—"The Builder."

THE WORLD'S LOVE OF STONE.

When the wires flashed the news that the cathedral at Rheims was destroyed, a protest of pain and disapproval swept the art-loving world. A short time ago, Maurice Maeterlinck issued a round robin, signed by a multitude of artists and architects in both Europe and America, pleading for the storied monuments in stone; and to this appeal a vast number of people—not only scholars, but simple working folks, even as you and I—responded in sentiment.

We love these noble monuments in stone, because they represent the best work of heads, hands and hearts now stilled for ever. The unknown barbarian who fired the Alexandrian Library won the lasting execration of mankind. And the soldier who gave the order to bombard the Parthenon lives disgraced for this alone.

History is written in stone; and well did Hugh Miller, that stonecutter who became a great geologist, write his immortal book, "The Testimony of the Rocks."

Stone is Nature's own building material. For it there is no satisfactory substitute. Wood, concrete, brick, terra-cotta—all are building materials of worth and merit, but each represents a certain use in itself. Peary and Cook found ice a satisfactory building material up to a certain point, but for continual use it had its limitations.

Herbert Spencer speaks of there being in history a very small and select class of educated men who in knowledge, efficiency and insight are beyond the rest of mankind. All education is comparative.

There is no end to education. But in the very high and select class of educated men Herbert Spencer named the following: Socrates, Pericles, Aristotle, Pliny, Michelangelo, Leonardo da Vinci, Alexander Humboldt.

It is no mere coincidence that each, all, and every one of these men were workers in stone and all studied the testimony of the rocks. Socrates was a stonecutter by occupation. He evolved in a sculptor, and only quitted the hammer and chisel to become the schoolmaster of Athens.

Pericles built the city of Athens, the most beautiful city the world has ever seen, and he built it of stone with the help of Praxiteles, Phidias and Ictinus, who were all artists in the use and manipulation of stone. Pliny, the Roman soldier, was a deal more interested in geology and in cataloguing the different kinds of stone than he was in hunting out and destroying the enemy. And this fact was a taunt levelled at his good name.

But while the world has had a vast number of soldiers, it has only had a few men who ranked in the class with Pliny as lovers of Nature. Aristotle wrote a hundred essays on natural history, and several of these books were on the subject of stone.

Aristotle was the world's first geologist. He made lists of the various kinds of stone, and named them, and some of the names he supplied still endure.

Michelangelo was apprenticed to a stonecutter when he was fourteen years of age. When nineteen his nose was flattened by his face by the mallet of a rival. He carried with him to the day of his death the marks of the hammer of hate. The hammer had its vogue with artists, even then.

Every great man who does anything for the world carries with him evidence of the world's inappreciation and ingratitude. These are his credentials.

Nevertheless, in the long run the hammer is not wholly bad. It trims, embellishes, strengthens—when it does not kill.

Saint Peter's, Rome, was designed by Bramante. The building had been going on for many years, and different architects had successively changed the design. Arrived at the point where it became necessary to roof the central mass, Michelangelo took up the work, and the famous dome of cut-stone which resulted is a monument to his skill.

Of course, he didn't risk his reputation on any single performance. The "Moses" in marble in the church of St. Pietro in Vincoli in Rome is an enduring monument to the genius of this wonderful stonecutter.

Then there is the "David," housed in the Chapel of the Medici in Florence. The noble youth of colossal proportions stood and challenged the seasons for a century out of doors.

When you see the chapel of the Medici, the attendant will allow you to climb upon a ladder to look at the top of the head of "David," and you will discover that the statue is not finished.

The head is flattened and shows the sure signs of the natural stratum. Michelangelo was too great an artist to obliterate this mark of the natural stone, as it once existed in the quarry.

Michelangelo once said, "In every block of stone there is an angel, and the work of the artist is to liberate it."

His "Night" and "Morning" and "Il Penseroso" have been an inspiration to hundreds and thousands of artists. More especially have these heroic figures inspired Rodin, that master stonecutter of modern times. No man has done more for the lovers of stone than Rodin. Many of his finest pieces carry the idea of incompleteness. They are suggestions rather than finished products. Rodin leaves something for the imagination. Out of the rough broken block emerges a face, a form, a hand, a foot, and you get a poem in stone. No other medium but marble would suffice.

The inspiration that fired the brain of Michelangelo was the marble of Italy. And the inspiration of Auguste Rodin was Michelangelo.

Well could the mountain say to mankind, "Before you were, I was." The basis of the soil from which man gets his food is the disintegrated rock. Unlike wood, stone is comparatively without limit. The forests have been devastated, and the trees, to a degree, obliterated. But the mountains have not yet really been sampled.

Man leaves the history of his race engraven on the quarried blocks that form his home, his palaces and his temples.

Our minds naturally revert to the Jewish Temple par excellence—Solomon's. Conceived by David, it was put into operation by Solomon and took seven years to build. Hiram, King of Tyre, supplied the craftsmen, the cedar wood, and the stone, and Solomon furnished some of the laborers and the cost of construction.

It was a noble structure, occupying the summit of a hill, and rising like a pyramid from the plateau—strong, stable, and secure—a fitting sanctuary for Israel's God. In material and craftsmanship Solomon's Temple will ever be associated with the noblest and best.

At the corner of Wall and Broad streets, in New York City, is a new building recently erected by J. J. Morgan & Co. It seems like a simple little building compared with those around it. It is only three storeys high. It is built of stone, carved and cut by the hand of artists. The artificial and the substitute played no part in the construction of this building. It was the intent of the owners and builders to erect a building that would endure long after every man now living has turned to dust.

The building must typify honesty, solidity, genuineness; also, it must symbol beauty. One material only could be used—stone. In the finest residences now being built, stone and marble are the materials. They token leisure, endurance, and all that makes for permanency and worth.

Athens was a little city, a city of only one hundred and fifty thousand people, but Athens will be reproduced again and again in stone, a lasting monument and memorial to the good taste and lofty ideals of the nations.

As the world's protest against war and waste increases, so will grow the search for beauty and the appreciation of the materials in the untouched quarries of the everlasting hills.

The difficulties of handling stone and carving it into shapes of use and beauty are too great for the average dabster in art. Marble can never be cheap and commonplace. It will always be a luxury—it is the aristocrat of stone—and it will ever be a chosen medium for the bodying forth of the ideals of the sculptor and architect.

Isolated monumental efforts, while appealing to the people in degree, do not have the same hold upon them as beautiful architecture. Stone has ever been recognized as the ideal material with which to build. It is durable and dignified, and lends itself to its subject in a manner that imitation stone or concrete never can.

The Egyptians built for eternity. Their belief was that the present life was but a moment in comparison with eternity—that the body must be preserved for the soul to inhabit. And this was responsible for the architecture of their tombs, the massive pyramids and temples of stone.

While many many think that these huge stone structures are not architecture in its aesthetic sense, one thing at least is certain: the technical perfection with which these huge blocks of stone—squared and polished and inscribed with complications—have been used, has never been surpassed.

The Chaldeans, Assyrians and Phoenicians had the same idea, and their structures were of carved stone.

The Greeks developed an architecture of noble simplicity and dignity, in part derived from the Egyptians. Their earliest efforts were rough and coarse—huge boulders piled on top of one another.

But in the Age of Pericles Greek architecture attained its greatest perfection, with Phidias, Ictinus and Callicrates as its great master stonecutters and designers. The Parthenon at Athens was one of the most remarkable edifices ever built, characterizing beauty, grace, harmony and simplicity in the highest degree.

The Romans under Caesar Augustus reached a high point in architecture. "I found Rome mud and left it marble," was his proud boast.

Stone and marble were used in all its great buildings—temples, aqueducts, amphitheatres, baths, villas, arches and monumental pillars.

The mighty ruin of the Colosseum gives us an idea of the bold and comprehensive spirit that permeated the stonecutters of that period. With the decline of the Roman Empire came the destruction of much of this noble work. But above the ruins of empire the ideal was preserved; as witness the magnificent piles of St. Sophia, Constantinople; Santa Maria, Cologne; the Duomo, Milan; and the Cathedral of Mainz.

At this time the Byzantine period began. The Church of Sophia at Constantinople built by Justinian, and St. Mark's in Venice are striking examples—beautiful examples—of the adaptability and suitability of stone as an ideal building material.

Then came the Gothic style—than which no other art has so beautifully reproduced flowers and foliage in stone. Hence Gothic architecture found its highest development in churches and cathedrals. The Cathedrals of Amiens, Cologne, Rheims and Notre Dame de Paris excel as examples.

The Renaissance superseded the Gothic. It was a revival of the Classic style of Rome and had as its votaries Michelangelo, Raphael and Bramante. St. Peter's in Rome, St. Paul's in London, the Louvre in France and the White House, Washington, are in this style.

Since the Renaissance period there has been no special architectural development. The practice has been to modify or develop one of the prevailing styles, according to taste. And the result of this mingling of styles and clashing of different tastes and fancies has been very curious. Grecian, Roman and Gothic all had their votaries.—Elbert Hubbard.

Construction News

The following information is obtained from our correspondents, from architects, engineers and local newspapers. These items are published in our Daily Report Service, and are herein compiled for the use of subscribers to the monthly issue of "Construction". Should any of our readers desire this information daily we will be pleased to submit prices upon request.

BUSINESS BUILDINGS.

ELMHURST, ONT.—Wm. Moser is calling tenders on a brick business block, 50 x 38.

TORONTO—The Canadian Bank of Commerce are remodeling their offices at 35 King street west; cost \$12,000.

TORONTO—Clinton and Russell have awarded the following additional contracts in connection with the new Imperial Oil building on Court street: Glass, Joseph B. Freeland Co., Brooklyn, N.Y.; marble, Mississquoi Marble Co.; iron and bronze, Architectural Bronze and Iron Works.

CIVIL ENGINEERING.

CHILLIWACK, B.C.—Tenders will be called shortly for sewer work, to cost \$20,000; clerk, P. J. Brown.

LACHUTE, P.Q.—Tenders open for steel bridge over North River, secretary, J. H. Rice.

MINNEBOSA, MAN.—Tenders are open for the erection of a steel bridge; clerk, Herbert Thompson.

NANALAO, B.C.—The city propose erecting a new steel bridge.

NEW GLASGOW, N.S.—The Dominion Government are calling tenders for a new lock gate; plans and specifications from resident engineers at Toronto and Montreal.

NIAGARA FALLS—The city will repair and install new water mains.

PORT DOVER—The Department of Public Works will spend \$50,000 on harbor improvements.

QUEBEC, P.Q.—The Provincial Government will spend five millions on road improvements.

SACKVILLE, N.B.—The town propose laying new pavements; cost \$20,000; Thomas Murray, clerk.

ST. JOHN, N.B.—The Provincial Government has awarded Power & Brewer the contract to erect a steel bridge over the Wawelg River.

ST. MARY'S, N.B.—Department of Public Works, Fredericton, N.B., is calling tenders for steel bridge over Nashwaak River.

SUDBURY—A by-law has been passed to instal sewers, waterworks and electric extensions; cost \$45,000.

TORONTO—C. S. Townsend has been awarded the contract for the erection of Mount Pleasant road bridge in concrete; cost \$40,000.

WINDSOR—Merlo & Ray have received the contract to build the new storm sewer; cost \$35,190.20.

CLUBS, HOSPITALS, THEATRES AND HOTELS.

FERGUS, ONT.—T. D. Hume, of Milton, will remodel the Argo Block into a picture theatre.

HAMILTON—T. H. Pratt, chairman of the Mount Hamilton Hospital Board, has recommended an addition to cost \$25,000.

HAMILTON, ONT.—McPhie, Kelley & Darling have prepared plans for a new clubhouse to be built at the beach; cost \$20,000.

MONTREAL—U. Lajeunesse, C.P.R. Building, will erect a new theatre, for which he has plans, on Ontario and Orleans streets; cost \$100,000.

ST. JOHN, N.B.—The Dominion Government propose erecting a detention hospital and warehouse; cost \$180,000.

TORONTO—E. L. Ruddy, new owner of the Majestic Theatre, will spend \$75,000 on improvements.

TORONTO—Eden Smith & Sons, 199 Yonge street, Toronto, have prepared plans for a theatrical studio.

TORONTO—C. H. Reid, architect, Confederation Life Bldg., who is associated with H. Crane, of Detroit, as architect on the new Princess Theatre, is calling tenders for the steel work. The building will cost \$125,000.

VANCOUVER—Alex. Pantages has plans prepared for a new theatre to be erected on Hastings street; cost, \$250,000.

WINNIPEG, MAN.—L. F. Allard, Strand Theatre, will erect a new theatre with seating capacity of 2,000.

WINNIPEG, MAN.—Commissioner Swinton, of Grace Hospital, has proposed an addition to cost \$30,000.

ELECTRICAL CONSTRUCTION.

OTTAWA, ONT.—Chas. MacNab, secretary of the County Council, is calling tenders for lavatory equipment, electric wiring, etc., for the jail.

SEAFORTH—Tenders are open for extensions and repairs to the McKellop Telephone System.

PLANTS, FACTORIES AND WAREHOUSES.

ESQUIMALT, B.C.—The Esquimalt Brewery was destroyed by fire, loss \$20,000.

HAMILTON—Kent-Garvin Co., 18 Catherine street, will rebuild their factory recently destroyed by fire.

KINGSVILLE—Brown-Wigle Woollen Mills Co. have received concessions from the town to erect a factory; cost \$10,000.

LANIGAN, SASK.—Lanigan Creamery Co., Limited, secretary, W. Chubb, is calling tenders for a brick factory.

MONTREAL—Work has started on the five-storey factory for Williams Mfg. Co.; cost \$60,000.

MONTREAL—Bourassa Bros., 1495 Notre Dame street, are erecting a \$3,000 factory addition.

MONTREAL—Heptwin Bros., Long Point, are erecting a factory, 50 Notre Dame street; cost, \$12,000.

MONTREAL—The Imperial Munitions Committee will erect a time fuse factory, to cost \$15,000, in Notre Dame de Grace Ward.

MONTREAL—The Imperial Munition Board, Mr. Decarey interested, will erect a time fuse factory in Notre Dame de Grace, to employ 3,000 men.

MONTREAL—The Imperial Munition Board have completed plans for a time fuse factory to be erected at Verdun, 1,000 x 250 feet; cost \$500,000.

OTTAWA—Grant, Holden & Graham will rebuild their factory recently destroyed by fire.

PORT DOVER, ONT.—James Loudon & Hertzburg, 79 Adelaide street east, Toronto, have prepared plans for a waterworks system; cost \$50,000.

QUEBEC—Quebec Abattoir Co. have started work on new plant; cost \$35,000.

REGINA, SASK.—The Imperial Oil Co. have commenced work on their new million-dollar refinery.

SUDBURY—Sudbury Construction Machinery Co., Limited, have plans for large plant.

SUDBURY, ONT.—Ellis & Ellis, architects, Manning Chambers, Toronto, are preparing plans for a large factory, to cost \$70,000.

THOROLD—The Ontario Paper Co., Ltd., have awarded the contract for a new sulphite mill to the Chicago Bridge and Iron Works, of Bridgeburg.

TORONTO—C. Goldberg, 46 Berkeley street, has plans for a factory; cost \$3,000.

WELLAND, Ont.—Canada Steel Foundries will erect new foundry; cost \$100,000.

WINDSOR—The Maxwell Motor Co., of Detroit, propose erecting a large factory in Windsor.

TORONTO—The city is calling tenders for a cattle shed at the abattoir; W. W. Pearce, city architect.

WESTPORT, ONT.—Electric Light and Milling Co. will erect a new plant to replace that destroyed by fire.

TORONTO—National Equipment Co., 1 Wabash avenue, are erecting a galvanized iron building; cost \$16,000.

VANCOUVER, B.C.—The American Can Co. have plans for a brick addition to their factory, 125x150, to cost \$75,000.

TORONTO—The Canada Pipe and Steel Co., 28 Atlantic avenue, are erecting a galvanized iron factory; cost \$4,000.

WINDSOR—The newly incorporated Canadian Chalmers Auto Co. will erect a large factory in Windsor or Ford City.

TORONTO—W. Long & Co. have awarded the contract on their new factory, at 721 King street west, to W. Essery, Elliott House.

TORONTO—The Canada Metal Co., Fraser avenue, have awarded the Ontario Wind Engine Co. a contract to erect a steel shot tower.

TORONTO—The Overland Automobile Co. contemplate erecting an addition to the Russell Motor Co. building, which is calculated to be three times the size of the present building; cost \$500,000.

TORONTO—F. S. Baker, architect, has awarded the following contracts on the new factory for the Martin Corrugated Paper Co., Pape avenue: Masonry, H. W. Dancy; carpentering, A. Weller; roofing, Feather & Roadhouse.

TORONTO—Max Dunning, architect, 35 Dearborn street, Chicago, has awarded the contract for the new Robert Simpson building on Mutual street, to Wells Bros., who in turn will sublet all trades except the masonry and reinforced concrete skeleton.

PUBLIC BUILDINGS AND STATIONS.

BURFORD—A new drill hall costing \$10,000 is proposed.

BEVERLEY, ALTA.—A by-law to erect a public library will be voted upon February 16th.

BRANTFORD—The Department of Militia and Defence will erect a new drill hall to cost \$75,000.

DAUPHIN, MAN.—The Provincial Government will erect a new stone jail, to cost \$80,000.

DUNDAS—R. W. Karch, chairman of the Building Committee, is calling tenders for a civic storehouse.

HALIFAX, N.S.—Architect S. P. Dumaresq is calling tenders for all trades to complete the market building.

HARRISTON, ONT.—The town hall, which was destroyed by fire, will be rebuilt.

MONTREAL—Tenders are open for a civic pumping station and pump, to be erected on Connaught avenue.

MONTREAL—Montreal Jockey Club are building a concrete addition to grand stand, with ornamental ironwork used.

NEW WESTMINSTER, B.C.—Competitive plans are being called for a new market building.

ORILLIA—Burk, Horwood & White, Ryrie Building, Toronto, are revising plans for the municipal buildings.

OWEN SOUND—Foster & Foster, 887 Second avenue, are calling tenders for a new county registry office.

OTTAWA—The Department of Public Works will erect a new addition to the customs house, to be used as a Senate and Commons chamber.

PORT ARTHUR—The Walsh Land Co. will re-erect the office building recently destroyed by fire.

RENFREW—South Renfrew Agricultural Society, W. E. Small field, secretary, propose erecting a brick machinery hall to cost \$4,000.

STANSTEAD PLAIN, P.Q.—Loomis & Dakin have the contract to erect the new registry office; cost \$10,000.

TORONTO—The Dominion Government propose erecting a post office in Earls Court.

TORONTO—A new bathing station will be erected by the Harbor Board at Sunnyside in the spring.

TORONTO—W. Williams, 137 Beach avenue, has been awarded the contract on the temporary post office on Front street; cost \$20,000.

VANCOUVER, B.C.—The G. N. Railroad is calling tenders on the concrete foundation and pile-driving for the new station; architect, F. L. Townley.

RESIDENCES, STORES AND FLATS.

AMHERSTBURGH—Charles Hackett is having plans prepared by J. C. Pennington, architect, of Windsor, for a new \$6,000 residence.

BRANDON—Doig, Rankin & Robertson will start work immediately on the erection of a new store building to cost \$75,000.

FERGUS, ONT.—John Paton, R.R. 4, Fergus P.O., is calling tenders for a new residence.

EDMONTON, ALTA.—G. Race, Indian agent, Edmonton, Alta., is calling tenders on twenty houses.

LONDON—J. H. Wilkey, 537 Ontario street, has plans for a residence; cost \$3,500.

LONDON—A. Dickenson, Duchess street, has plans for a brick veneer residence to cost \$2,500.

LONDON—D. C. McNaughton McCormick Manufacturing Co. is having plans prepared by Watt & Blackwell, architects, for a residence to cost \$4,500.

MONTREAL—R. McKay, 681 Sherbrooke street, has plans for a new residence.

MONTREAL—O. Roberts, 112 Addington street, is erecting four residences; cost \$7,000.

MONTREAL—J. A. Polement, 1396 St. Laurent boulevard, is erecting three brick veneer residences; cost \$4,500.

MONTREAL—A. Germain, 76 St. Catherine street, is erecting two residences on St. Catherine street; cost \$5,000.

QUEBEC—J. Julien, La Montagne avenue, has started work on a \$6,000 residence.

QUEBEC—L. Marcoux, Marie Louise street, is erecting a residence; cost \$3,500.

TORONTO—R. Doherty has plans for a \$3,000 residence on Summerhill avenue.

TORONTO—The Health Department is calling tenders for plumbing work on several houses.

TORONTO—V. Arnold, 159 Kingston road, is erecting a two-storey brick residence; cost, \$2,500.

TORONTO—A. L. Sanagan, 134 Balsam avenue, has plans for a residence on Balsam avenue; cost \$4,000.

TORONTO—J. F. Moore, 30 Bertmount avenue, is erecting a \$3,000 residence on Silver Birch avenue.

TORONTO—J. H. McKnight, 88 St. David street, is erecting a residence on Aberdeen avenue; cost \$3,000.

TORONTO—Ellis & Ellis, Manning Chambers, Toronto, are preparing plans for two residences; cost \$7,000.

TORONTO—H. B. Jackson, Bracken avenue, has plans for a \$3,000 brick residence to be erected on Beech avenue.

TORONTO—W. Radcliffe, 94 Leuty avenue, has plans for a new store front for Hobberlins, Limited, Yonge street.

TORONTO—A. R. Richards, 33 Westminster avenue, is erecting a brick residence on Glenholme avenue; cost \$3,500.

TORONTO—The Reliance Building Corporation, Royal Park Building, is erecting a brick residence on Glenmount Park road; cost \$4,000.

TORONTO—A. Lamantea, 894 Queen street east, has awarded J. Allin, 119 Riverdale avenue, the contract to erect a store and residence at 722 Queen street.

SAULT STE. MARIE—F. M. Stafford will erect a new store on Cedar street.

SAULT STE. MARIE—C. R. Parker is having plans prepared for a two-storey store, 28 x 100 feet, to be erected in the spring.

WINDSOR—A. R. Bowlby has plans for a new bicycle and motor cycle store, with a white tile front.

WINDSOR—Leybourne & Sewell, architects, are calling tenders for the erection of a residence for William Weir.

SCHOOLS, COLLEGES AND CHURCHES.

BETHANY, MAN.—The Ewins and Hulker Memorial Church will be erected in the spring.

BIRCHCLIFFE, ONT.—The congregation of St. Nicholas' Church will erect a new and larger building; chairman, A. E. Harries.

CAVAN TOWNSHIP—Secretary T. Newman, Omeme, Ont., is receiving tenders for a new school.

CHARLOTTETOWN, P.E.I.—The Valley City Seating Co., Dundas, have been awarded the contract for furniture in the Methodist Church.

EAST TORONTO—Greenwood avenue Presbyterian Church will erect a frame Sunday school; D. M. Ramsay, pastor.

GALT, ONT.—The Central Presbyterian Church, R. G. Struthers, chairman of Building Committee, will erect an addition to the church; cost \$2,500.

HALDIMAND TWP.—A by-law has been passed to erect a new school for S.S. No. 2; clerk, J. Blacklock, Cobourg; cost \$3,000.

HALIFAX, N.S.—W. J. Bush has been appointed architect on new school to be built on Young street; cost \$70,000; chairman of School Board, Ackhurst.

HAMILTON—Gordon Hutton, architect, has been appointed to prepare plans for a four-room addition to the Robert Land School.

HAMILTON—Architect Wardrop is preparing plans for a new Sunday school for St. Luke's Church, Macauley street; C. E. Riley, rector.

LAMBTON MILLS—Ellis & Ellis, architects, Manning Chambers, Toronto, have awarded the general contract to R. Midgall, C.P.R. Hotel, Yonge street, for the erection of the Lambton school.

LONDON—The Salvation Army propose new interior fixtures and alterations to their temple.

MELVILLE, SASK.—The Union Church, which was destroyed by fire, will be rebuilt.

MOUNT DENNIS—S. B. Coon & Son, architects, Ryrie Building, Toronto, will call tenders shortly for the new school; cost \$15,000.

PEMBROKE, ONT.—A new school will be erected in the West Ward.

PORTAGE LA PRAIRIE, MAN.—Architect Frank Evans, of Winnipeg, has prepared plans for a new school; cost \$50,000.

PORT COLBORNE—C. M. Borter, architect, Niagara Falls, is calling tenders for a new church to be erected at Port Colborne; cost \$15,000.

QUEBEC, P.Q.—The Provincial Government propose erecting a normal school.

SARNIA—Separate School Board have awarded W. D. Shaw the general contract on the new school; Watt & Blackwell, architects, London; cost \$20,000.

STRATFORD—St. Andrew's congregation, Rev. Finlay Matheson, pastor, will remodel the old church, to be used as a Sunday school.

SYDNEY, C.B.—The School Board will erect a new school on Argyle street to cost \$30,000.

TIMMINS, ONT.—The School Board, A. Allard, secretary, will erect a four-room school.

TORONTO—Morley Avenue Methodist Church, Rev. R. Hobbs, pastor, contemplate erecting a new church.

TORONTO—S. H. Locke, chief librarian of College street library, has recommended a \$40,000 addition to the present College street building.

TORONTO—C. J. Reid, architect, Confederation Life Building, has awarded the following contracts on schools for the R. C. School Board:

St. Clare's School—S. Young, Jr., mason work; D. & M. J. Madden, carpentering; Wm. Brimblecombe, concrete; G. E. Wilkes, roofing; A. Richards, painting; Hepburn & Dister, structural steel; Fred Armstrong Co., heating and plumbing; E. F. W. Salisbury, electric work.

St. Anthony's (two-room addition)—M. Manley, mason work; D. & M. J. Madden, carpentering; Wm. Brimblecombe, concrete; A. Matthews, roofing; A. Richards, painting; Hepburn & Dister, structural steel; D. Glynn & Son, plumbing; Thos. E. Regan, heating; Toronto Electrical Co., electric work.

St. Joseph's (two-room addition)—W. Weale & Son, mason work; D. & M. J. Madden, carpentering; Douglas Bros., roofing; T. J. O'Connor, painting; W. J. Ryan, plastering; Hepburn & Dister, structural steel; Fred Armstrong Co., plumbing and heating; Geo. Beattie, electrical work.

WALKERVILLE—The First Presbyterian Church, J. M. Young, chairman, will build a Sunday school.

WEST FLAMBORO TWP.—J. A. Armes, architect, 68 Federal Life Bldg., is calling for tenders on a brick school.

WINNIPEG—Point Douglas Presbyterian Church has been destroyed by fire; loss \$25,000.

MISCELLANEOUS.

DAVIDSON, SASK.—Wilkie will erect a garage in the spring, brick construction; cost \$6,000.

HAMILTON—The city is calling for the supplies for the year 1916, including rubber boots and hose, stone, asphalt, hardware, etc.

MERRITT, B.C.—The Middleboro Collieries, Limited, suffered a \$10,000 fire loss.

MONTREAL—The city is calling tenders for refined asphalt; L. N. Senecal, secretary.

OTTAWA—Engineer R. I. Haycock is calling tenders for supplies of lead pipe, pig lead, oils, grease, castings and valves.

TORONTO—J. J. Taylor have received the contract for safe door in connection with the Imperial Oil building, Court street.

VICTORIA, B.C.—C. C. Worsford, engineer of dredging fleet, is calling tenders for supplies, including chains, hardware, paints, valves, pipe, etc.

WINGHAM—O. M. Crawford will erect a brick garage work, to start immediately.

Architects, engineers and contractors are invited to contribute information on construction work, whether it be proposed or in progress, and such information will be published in these columns.

INCREASED B.C. EXPORTS TO UNITED STATES.

The annual report of Mr. R. E. Mansfield, American Consul-General at Vancouver, showing big gains in exports from that Province to the United States during 1915, and indicates a much improved business situation at the Pacific Coast. The exports during 1915 exceeded by \$14,083,922 in value those of the corresponding twelve months of the previous year. The territory over which Mr. Mansfield has jurisdiction includes Victoria, Fernie, Nanaimo, Cumberland, Prince Rupert and Whitehorse.

CLAY PRODUCTS ASSOCIATION CONVENTION.

Annual Meeting of Canadian National Clay Products Association
Held at Toronto.

Over one hundred delegates from various parts of the Dominion assembled at the fourteenth annual convention of the Canadian National Clay Products Association, held at the King Edward Hotel, Toronto, on January 18th, 19th and 20th. The chair was occupied by President J. E. Frid, of the Geo. Frid Brick Company, Limited, Hamilton, who gave an address of welcome which was followed by an official welcome on behalf of the city from Mayor Church. Hamilton was chosen as the place for the convention next year. Officers elected for the coming year were: President, J. E. Frid, Hamilton; First Vice-President, A. F. Greaves-Walker; superintendent Sun Brick Company, Toronto; Second Vice-President, Thomas Kennedy, Dominion Sewer Pipe Company; Third Vice-President, Wm. Burgess, Don Valley Brick Company; Secretary-Treasurer, G. C. Keith, Toronto; Councillors, C. B. Lewis, A. Graham, W. Clark, R. N. New, H. Desjardins, A. Neall, D. A. Lochrie and J. S. McCannell.

At the Wednesday morning session instructive papers were delivered by Wm. Burgess on "Operating Clay and Shale Pits in Canada"; J. P. Hynes, of Hynes, Feldman & Watson, on "Brick," and Jos. Keele on the "Application of Salt and Quick Lime in Drying Clay Products."

In the afternoon, W. W. Pearce, city architect of Toronto, gave an address in which he thanked the clay workers for the information supplied to him in compiling data on bricks to be used in connection with Toronto's building by-laws. Mr. Pearce asserted that it was extremely difficult to obtain necessary information on building materials in Canada based on tests, asserting that the aid of the Government was needed in this respect. He pointed out that as a result of tests made he learned that the brick manufacturers in Toronto were as good, if not better, than those made in the States. Following Mr. Pearce's suggestion, and showing the interest the association took in the matter a resolution was passed as follows:

"Resolved, That we, the Canadian National Clay Products Association, urge that the Dominion Government, through the Commission of Conservation or other branch of the public service, extend the work they are carrying on at McGill University, Clay Testing Laboratories at Ottawa, etc., so that they can establish a central bureau and supply accurate information on Canadian building materials to all municipalities requiring same."

"Hollow Ware Dies, Troubles, How to Correct Them," was the subject of an interesting paper by E. F. Greaves-Walker.

In the evening a banquet was held at the Prince George Hotel, when Mr. John McCannell, of Milton, acted as toastmaster. The toast, "Canada and the Empire," was proposed by Mr. Joseph Russell, M.P.P., and replied to by Mr. D. O. McKinnon and City Architect W. W. Pearce; that of "Toronto" was introduced by Mr. D. A. Lochrie and Walter Clark, of Sarnia, and was replied to by Alderman Maguire; that of "Our Sister Cities," which was proposed by Mr. T. Kennedy, was very ably responded to by Mayor Walters, of Hamilton, who assured the delegates that they would be welcomed to Hamilton, where the next convention will be held; and that of "Our U. S. Cousins" was proposed by Inspector Millar, and replied to by F. W. Donahoe, the editor of the "Canadian Clay Worker." Trustee Dr. Steele, of the Toronto Board of Education, gave a short, interesting address on "Technical Education."

On Thursday morning, Chas. A. Miller, inspector of clay products plants under the Workmen's Compensation Act, gave an address on "Safety in Clay Products Plants," in which he gave statistics on accidents during the year 1915. A lively discussion followed, dealing with the companies' relations to the Act.

"The Future of the Face Brick Industry in Canada," by E. R. McCannell, managing director Milton Pressed Brick Company, Milton, was a paper of great importance to brick manufacturers. The future of face brick depends on how good a product can be manufactured at as low a cost as possible. Manufacturers should keep an accurate cost system in the plant to see that they are getting the proper amount of work in the different departments for the given expenditure, establish standard methods wherever possible and form a central bureau, employing a competent man to look after credits and collections. The discussion hinged largely on the relative merits of rough and smooth-face brick. Rough-cut brick, which has been in popular favor for some time, composes about 75 per cent. of the United States face brick. But the death knell of rough-cut brick in the east has been sounded. The fact that it collects dirt overcomes its advantages in color range, and it is not a brick for down-town sections. The trouble in the brick business, especially in the States, is the hobby for something new, different from the last type used. The salesmen advocate a change, the owner calls for something different, and the manufacturer loses money because he cannot use standard methods and manufacture one kind straight ahead.

The paper on "The Clay deposits of Southern Saskatchewan," was a report on the valuable clays of that district, their occurrence, uses and exploitation, by N. B. Davis, of the Mines Branch, Ottawa. With the decreasing supply of clays in Ontario and Quebec, attention naturally turns to the Western Provinces. Have they a supply to fall back on? It is quite evident from Mr. Davis' paper that they have. There is an abundance of refractory clays for stone wares and white wares, as well as for burned clay products, in Saskatchewan.

The afternoon session on Thursday was given over principally to a discussion of the business end of clay-working plants. Professor Wiggins, inspector of boilers, gave the delegates an instructive address on the steam end of a clay-working plant; how to overcome waste, increase the efficiency, and lower overhead charges.

Mr. Greaves-Walker read an instructive paper on "Clay Preparations for Stiff Mud Products," prepared by Prof. Roy T. Stull, ex-director of Ceramics, University of Illinois. A product is no better than the material it is manufactured from. Of course, a poor man may spoil good material, or an expert may make a fairly creditable product from a poor material. In the clay industry, following this idea, great care should be taken from the time the clay is mined till it goes into the machine, to get a uniform grade of texture. Prof. Stull advocates storage.

On Thursday afternoon the delegates as guests of Dr. A. C. MacKay, principal of Toronto Technical School, visited the new clay products and construction laboratories, where the machinery used was inspected. A theatre party at Shea's Theatre arranged by the Entertainment Committee, concluded a very successful convention.

NICKEL REFINERY.

The establishment of a nickel refining industry in Canada will be undertaken by the International Nickel Company on the suggestion of the Government. This will make Canada independent of the United States, which up to the present has refined all the Sudbury mineral.

WORKING BACK TO A SOUND FOOTING.

G. F. Benson, retiring president of the Montreal Board of Trade, at the annual meeting of the board, said:

"My personal experience, in several lines of business that have received no benefit from the so-called war orders, is that commercial and manufacturing business generally has worked back to a sound footing, due, undoubtedly, to the improved business situation generally."

C.P.R. MAKES FINE SHOWING IN DECEMBER.

Canadian Pacific Railway statement shows the remarkable increase in net earnings of \$3,502,797, or 159 per cent., over the corresponding period a year ago, total net being \$5,702,321. Gross earnings were \$12,705,673; working expenses, \$7,003,352. For six months ended December 31 figures are: Gross earnings, \$66,470,164; working expenses, \$36,845,977; net profits, \$29,624,187. In December, 1914, net profits were \$2,199,524, and for the six months ended December 31, 1914, \$19,673,576.

QUEBEC ARCHITECTS MEET.

The annual meeting of the Quebec Association of Architects was held at Quebec City on January 15th. The chair was taken by Mr. Hugh Vallance, in the absence of President J. Perrault. The secretary, Mr. J. Emile Vanier, in his report, stated that the year had not been a propitious one on account of the war, and that the lack of new buildings had adversely affected the profession. In Quebec, however, the annual report of the Quebec section stated, the depression had not been felt to any extent. The association had lost three members by death—Mr. R. P. Lemay, Mr. David Ouellet and Mr. A. I. Richardson, the last-named being killed at Langemarck, and the association passed a special vote of condolence with Mr. Richardson's family. On motion of Mr. J. Lebon, seconded by Mr. J. P. Ouellet, it was decided to write the Department of Public Works, Ottawa, asking that members of the association be employed on Government buildings in the Province of Quebec, and that the legal fees be paid. It was also decided that the association should not apply to the Quebec Legislature for charter amendments. The usual banquet was not held owing to the war, and the members further decided not to celebrate the twenty-fifth year of the association's existence. The following officers were elected: President, Mr. E. B. Staveley, Quebec; First Vice-President, Mr. Hugh Vallance, Montreal; Second Vice-President, Mr. G. A. Monette, Montreal; Treasurer, Mr. N. Mac-Vicar, Montreal; Secretary, Mr. J. Emile Vanier, Montreal; Council, Messrs. M. Eug. Payette, Frank Peden, Alph. Piche, H. J. Asselin, J. Lebon; Delegates to the Royal Architectural Institute of Canada, Messrs. Joseph Perrault, Alcide Chausse, D. R. Brown, Jos. P. Ouellet, A. Beaugrand-Champagne.

TORONTO BRANCH CAN. SOCIETY C. E.'S ANNUAL.

That the Toronto branch of the Canadian Society of Civil Engineers is in a flourishing condition was shown by the secretary's report at the annual meeting. The membership is now 344, an increase of 40 over the year 1914. During 1915 contributions by way of papers presented were made by a number of civil engineers, including Mr. W. McNab, Mr. T. T. Black, Dr. J. A. Amyot, Mr. H. S. Van Scoyoc and Mr. J. A. D. McCurdy. The annual excursion of the branch consisted of an inspection tour of the construction work of the new Welland Ship Canal. Various reports were presented by the different committees which had been appointed earlier in the year for this purpose, and these reports were forwarded to Montreal for incorporation in the general report to be presented at the annual meeting of the Canadian Society of Civil Engineers in Montreal on January 25, 26 and 27.

The following officers were elected for the coming year: President, Mr. G. A. McCarthy, engineer of railways and bridges of the city of Toronto; Secretary-Treasurer, Prof. Arkley, department of applied science and engineering of the University of Toronto. Executive Committee—Messrs. E. W. Oliver, assistant engineer C.N.R.; A. H. Harkness, consulting engineer; A. L. Mudge, consulting engineer, and H. G. Acres, hydraulic engineer Hydro-Electric Power Commission of Ontario. During the past year the Toronto branch of this society has shown very effective evidence of a determination to make the operations of this branch an essential part of the proceedings of the parent society.

RED PINE DEALS REQUIRED IN SOUTH AFRICA.

A Durban firm, who are the largest lumber importers in South Africa, are desirous of making a small trial purchase of Canadian red pine deals, so states Mr. H. R. MacMillan, Special Trade Commissioner, in a communication to the department. The object of this purchase is to determine if these deals will be as satisfactory in the Durban market as Swedish deals. The shipment received about ten years ago was unsatisfactory, and since that time this company has purchased no red Canadian deals. Red Canadian deals are, however, now readily accepted at Cape Town, and should be quite as saleable in the Durban market.

This company wish to secure from a very reputable Canadian exporter, ten standards of red deals, 3-inch by 9-inch, in the usual Canadian assortment of length, and equal in grade to Swedish No. 3. They also wish to secure ten standards of red deal, 3-inch by 9-inch, assorted lengths, 20 feet and up. For this small shipment they are willing to pay £20 per standard c.i.f. Durban, and will accept up to the end of March loading. The shipper may draw at sight upon the company for payment in full.

This trial order, though small, is of great importance in opening up the Durban and Johannesburg market, and the firm exporting should write to this company, giving information as to the possibility of developing an export in red deals.

Canadians interested may obtain the name of the firm in question on application to the Department of Trade and Commerce, Ottawa.

IMPROVED CONDITIONS IN BRITISH COLUMBIA.

In British Columbia there are evidences of improved conditions in business. Shipbuilding is the latest development under way at the Pacific Coast. This week a despatch from Vancouver stated that at a meeting of manufacturers held recently it was decided to form a company immediately for the purpose of building sailing vessels, to be operated solely in the lumber trade of British Columbia. Steamships are also to be purchased if they are available, with a view to assisting the exportation of lumber. Capital to cover the initial expenses was subscribed at the meeting, and an effort probably will be made to get some Provincial Government support for the enterprise by the guarantee of bonds.

BILLION DOLLAR GRAIN CROP.

The total value of the field crops of Canada is given as eight hundred millions of dollars. In a statement issued by the census and statistics branch of the Department of Trade and Commerce. Revised figures of the grain crops place the wheat yield at 376,303,600 bushels, as compared with 161,280,000 in 1914. The average yield for all wheat was 28.98 bushels to the acre, compared with 15.67.

The reports speak of the yield as the most abundant grain crop in the history of Canada. The quality was higher than any in the last five years, and the price was ten cents above the quinquennial average. The wheat crop amounted in money to \$312,569,400, and the oat crop to \$176,894,700. The three Prairie Provinces produced 342,948,600 bushels of wheat.

LARGE BOND SALES.

Reviewing the bond market of last year, Mr. E. R. Wood, of the Dominion Securities Corporation, finds that Canada's total bond sales for 1915 amounted to the sum of \$342,000,000, distributed as follows:

Canada	\$150,000,000
United States	144,000,000
Great Britain	48,000,000

He states: Canadians may well feel a pardonable pride in having in 1915 furnished \$150,000,000 out of a total of \$342,000,000 borrowed by the Dominion, or nearly 44 per cent. Thanks to our abundant harvests and industrial activity, we were able to respond to the appeal of the Finance Minister last November and provide him with over double the \$50,000,000 asked for as a domestic war loan. Apart, however, from this display of practical patriotism, the response to our ordinary bond offerings by Canadians has been very gratifying, and indicates to what extent the country generally is saving and economizing.

ANNUAL MEETING OF TORONTO BUILDERS' EXCHANGE.

The annual meeting of the Toronto Builders' Exchange was held in their offices in the Goodyear building, January 17, 1916.

The retiring president in his address outlined the work of the past year, which included the securing of amendments to the 'Companies' Act. Regarding the Board of Education's tenders, where in the past all parties submitting tenders were required to have a surety company sign same, at a cost of \$5.00, for which there was no return, arrangements have been made so that this will only be necessary in the case of the successful bidder.

Reference to the contribution of over \$7,500.00 by the Toronto members to the recent campaign for patriotic purposes was made.

The uniform form of contract arranged by the Exchange in co-operation with the architects is now in use throughout the Dominion.

The honor roll of those members now on active service was read.

A satisfactory financial report was given by the treasurer. Delegates from the Exchange will attend the annual convention of the Provincial Association in Hamilton, February 22 and 23.

A vote of thanks was tendered to Secretary A. E. Flower for his services during the past year.

The following officers were elected: President S. R. Hughes; First Vice-President, W. E. Dillon; Second Vice-President, W. Davidson; Treasurer, J. Aldridge; Secretary, A. E. Flower; Directors, F. Armstrong, E. Gearing, G. Gander, C. Bulley, A. D. Grant; Auditors, J. Munro and J. Barnes.

Five additional directors, representing each section of the Exchange, will be elected at a future meeting.

THE IMPORTANCE OF PUBLICITY FOR THE ENGINEER.

Why should we engineers be interested in publicity? Is there good reasons for departing from the time-honored precept that our achievements are sufficient witnesses to their creator's ability?

The country is burdened with wastefulness where engineering skill might save vast sums. For instance, it is planned to spend a hundred million dollars on highways in New York State without adequate provision for maintenance. It is hardly possible that such a proposition would have been seriously entertained if the public had waited for the opinion of the engineering profession before making a decision. Again: Recently a proposition to spend fifty million dollars on good roads in Ohio was voted upon without any preliminary studies or surveys as to how the money was to be spent. Had the proposition been approved, the money would have been largely wasted under the direction of jockeying politicians.

There is a vast national field for furnishing engineering information to the public, which can be taken care of only by a permanent national information bureau conducted by engineers. We have technical and research societies without number—so many that the public can hardly be blamed for believing that we are interested in material things only. Perhaps we need a national bureau to conduct and cultivate business relations with the public, including inter-society relations, publicity, employment and legislation.

All over the country there is a growing protest against the direction of municipal affairs by the lawyer and the politician. The administration of municipal business is largely a function of engineering. Why not enable the public to see this situation in its true light and thereby perform a public benefaction, as well as advance our own interests? Positions for engineers would increase in number, and compensation likewise.—C. E. Drayer, before the Engineering Section of the Chicago Association of Commerce.

Contractors & Sub-Contractors

As Supplied by The Architect of the Building Featured in This Issue

THE GOVERNMENT HOUSE.

Brick, the Don Valley Brick Company.
Boilers, Purdy-Mansell, Polson Iron Works.
Carpets and rugs, T. Eaton Co.
Concrete work, Thompson Bros.
Electric fixtures, Robt. Simpson Co.
Electric wiring and apparatus, Department of Public Works.
Elevators and hoists, Otis-Fensom Elevator Co., Ash-Turnbull Elevator.
Flooring, Hoidge Marble Co., L. S. Lindsay, Italian Mosaic and Marble.
Furniture, T. Eaton Co.
Glass, ornamental, Consolidated Plate Glass Co.; stained, R. McCausland.
Greenhouses, Glass Garden Builders.
Hardware (brand), Springer Lock Manfg. Co., Belleville, Ont.
Heat regulating system, Johnston-Templeton, Toronto.
Interior fittings, cabinet, woodwork and decoration, W. J. Trick, Oshawa, Ont.
Inter-phone system, Bell Telephone Co.
Kitchen utensils, Geo. Sparrow Co.
Marble, The Ontario Marble Co., Bancroft, Ont.
Ornamental iron, Canadian Ornamental Iron Co.
Plumbing, The Purdy-Mansell Co.
Plaster work (ceiling), Hoidge Marble Co., W. J. Hynes.
Refrigeration equipment, Griscom-Russell Co.
Power machinery, The Purdy-Mansell Co.
Radiators, The Dominion Radiator Co.
Roofing (tile), Douglas Bros.
Stone, Fred Holmes & Sons.
Stone (Credit Valley), Britnell Co.
Structural iron and steel, Canada Foundry Co.
Terra cotta (porous), Don Valley Brick Co.
Tile, The T. Eaton Co.
Vacuum cleaners, "Tuec," 159 Richmond street west.
Vaults, J. J. Taylor.
Ventilating system, Purdy-Mansell Co.
Contractors, Fred Holmes & Sons, Limited.

COMING CONVENTIONS.

AMERICAN CERAMIC SOCIETY'S annual convention will be held at Cleveland, Ohio, February 21 to 24.

AMERICAN CONCRETE PIPE ASSOCIATION—Annual convention to be held in Chicago, February 17 and 18, 1916. Secretary, E. S. Hanson, 538 S. Clark street, Chicago, Ill.

CANADIAN LUMBERMEN'S ASSOCIATION—At Ottawa, February 18, 19 and 20, 1916, annual convention. Frank Hawkins, secretary, Ottawa.

NATIONAL BRICK MANUFACTURERS' ASSOCIATION will hold its annual convention at Hotel Statler, Cleveland, Ohio, February 21 to 26.

NATIONAL BUILDERS' SUPPLY ASSOCIATION will hold its annual convention at Hotel Statler, Cleveland, Ohio, February 17, 18, 19.

THE COMPLETE BUILDING SHOW will be held for the first time from February 16 to 26, at the Coliseum, Cleveland, Ohio.

WESTERN ONTARIO CLAY WORKERS' ASSOCIATION will be held at London, Ont., February 23 and 24.

BUILDERS' EXCHANGE MEETING.

On January 24th the Montreal Builders' Exchange held the annual meeting in their quarters, 52 Victoria square, with Mr. John Quinlan in the chair.

Mr. Quinlan referred to the difficulties experienced during the past year in the building trade, and the energy and ability which have been required to enable a contractor to maintain even the least degree of successful business. He predicted a successful manufacturing future for Montreal and spoke of the city's need for more public buildings, such as a central library, a museum, and a public hall suitable for great political meetings. He concluded with a reference to the need for the extension of industrial education along the line of technical schools.

The secretary, Mr. D. K. Trotter, gave the annual statement, which was satisfactory. He suggested that means be taken to strengthen the Exchange by the addition of new members and the affiliation of various organized trades. The following officers were elected: President, Mr. John Quinlan (re-elected); First Vice-President, Mr. E. W. Sayer; Second Vice-President, Mr. J. P. Anglin; Directors, Messrs. Walter Bonnell, representing general contractors; Alex. W. Bremner, suppliers of building materials; Alex. Charette, master plumbers; Robt. F. Dykes, cut stone contractors; J. W. Graham, mantle and tile dealers; John H. Hand, Wm. Irving and W. C. Munn, general contractors; W. E. Potter, master painters; W. E. Ramsay, suppliers of roofing materials; J. J. Roberts, carpenters and millmen; and J. E. Walsh, master plumbers. The trade representatives in the above are Mr. Alex. Charette, representative director appointed by Master Plumbers' Association, and Mr. J. W. Graham, representative director appointed by Mantle and Tile Dealers' Association.

TORONTO BUILDING OUTLOOK GOOD.

The coming spring will witness the inception of the largest building year that Toronto has enjoyed for some time. There are a dozen buildings promised for the spring, upon which work will start within two months, and whose aggregate cost will approach \$12,000,000. These include the Union Station, Robert Simpson warehouse, Upper Canada College, Overland Auto factory, St. Andrew's College, Trinity College, Goodyear factory and Imperial oil building.

When it is taken into consideration that the total permits for 1915 were about \$6,000,000, and that building activities are indicative of financial conditions, everyone should feel optimistic.

TO REFINES COPPER IN BRITISH COLUMBIA.

The newly appointed Minister of Mines of British Columbia has announced that the Government propose erecting a copper refining plant at an early date in the vicinity of Vancouver to smelt and refine the coast ores. When it is realized that at the present time nearly all the copper produced in the Province is shipped to refineries in New Jersey, it will be seen what a boom this will be to the Province. It is believed that such a refinery could handle the Province's business and ship refined copper direct to the East and to Old Country manufacturing plants.

PHENOMENAL EARNINGS OF C.P.R.

The report of the net earnings of the Canadian Pacific Railway Company for December showed that in the first six months of its 1915-16 fiscal year net figures were \$29,624,000. Fixed charges, figured on the same basis as the preceding year, would be \$7,646,469, leaving for dividends on common stock \$21,977,708. This is equal to 8.4 per cent. on the outstanding issue. On this basis the road in the six months earned the full year's 7 per cent. dividend out of the railway account. These figures are of course only approximate, as they are subject to revision for the special income amount. It is quite evident, however, that the half-year's result was nothing short of spectacular.

TECHNICAL SOCIETIES.

ALBERTA ASSOCIATION OF ARCHITECTS.—President, Jas. A. Henderson, F.R.I., B.A., Edmonton; Hon. Secretary, W. D. Cromarty, Edmonton.

ARCHITECTURAL INSTITUTE OF BRITISH COLUMBIA.—President, R. Mackay Fripp; Secretary, Fred L. Townley, 325 Homer St., Vancouver, B.C.

CANADIAN CEMENT AND CONCRETE ASSOCIATION.—President, Peter Gillespie, Toronto, Ont.; Secretary-Treasurer, Wm. Snaith, The Thor Iron Works, Toronto, Ont.

CANADIAN CLAY PRODUCTS' MANUFACTURERS' ASSOCIATION.—President, J. E. Frid, Hamilton; Secretary-Treasurer, G. C. Keith, Toronto.

CANADIAN ELECTRICAL ASSOCIATION.—President, Col. D. R. Street, Ottawa, Secretary, Alan Sullivan, Confederation Life Building, Toronto.

CANADIAN FORESTRY ASSOCIATION.—President, William Power, M.P., Secretary, James Lawler, Journal Building, Ottawa.

CANADIAN GAS ASSOCIATION.—President, Arthur Hewitt, General Manager Consumers' Gas Company, Toronto; John Kellor, Secretary-Treasurer, Hamilton, Ont.

CANADIAN INDEPENDENT TELEPHONE ASSOCIATION.—President, W. Dean, M.D., Harrietsville, Ont.; Secretary-Treasurer, Francis Dagger, 21 Richmond street West, Toronto.

CANADIAN INSTITUTE.—198 College Street, Toronto. President, J. B. Tyrrell; Secretary, Mr. J. Patterson.

CANADIAN NATIONAL ASSOCIATION OF BUILDERS' EXCHANGES. Western Section: President, C. R. Frost, 609 Second St., Edmonton, Alta.; Secretary-Treasurer, A. M. Frith, 224 McDougall Ave., Winnipeg. Eastern Section: President, Geo. Gander, Toronto; Secretary-Treasurer, P. L. Fraser, Builders' Exchange, Toronto.

CANADIAN SOCIETY OF CIVIL ENGINEERS. President, G. H. Duggan, Montreal; Secretary, Prof. C. H. McLeod, Montreal.

LONDON BUILDERS' EXCHANGE.—President, A. C. Nobbs; Secretary-Treasurer, F. S. Barclay.

MANITOBA ASSOCIATION OF ARCHITECTS.—President, Col. J. B. Mitchell, Winnipeg; Secretary-Treasurer, R. G. Hanford.

MONTREAL BUILDERS' EXCHANGE.—President, John Quinlan; Secretary, D. K. Trotter.

ONTARIO ASSOCIATION OF ARCHITECTS.—President, C. H. Acton Bond, Toronto; Treasurer, J. P. Hynes, Toronto; Secretary, R. L. Wolsey, Toronto.

PROVINCE OF QUEBEC ASSOCIATION OF ARCHITECTS. President, E. B. Staveley, Quebec; Treasurer, N. MacVicar, Montreal; Secretary, J. Emile Vanier, 5 Beaver Hall Square, Montreal.

QUEBEC BUILDERS' EXCHANGE.—President, J. A. Marier; Secretary-Treasurer, Alf. Cote.

ROYAL ARCHITECTURAL INSTITUTE OF CANADA.—President, H. C. Russell, Winnipeg, Man.; Hon. Secretary, Alcide Chausse, No. 5, Beaver Hall Square, Montreal Que.

SOCIETY OF CHEMICAL INDUSTRY.—Wallace P. Cohoe, Chairman; Alfred Burton, Toronto, Secretary.

TECHNICAL SOCIETY OF PETERBORO.—Bank of Commerce Building, Peterboro. President, N. C. Mills, P.O. Box 995, Peterboro, Ont.

TORONTO BUILDERS' EXCHANGE. President, S. R. Hughes, Secretary, A. E. Flower.

UNION OF CANADIAN MUNICIPALITIES.—President, T. L. Church, Mayor of Toronto, Ont.; Hon. Secretary-Treasurer, W. D. Lightbail, K.C., Ex-Mayor of Westmount; Asst. Secretary, G. S. Wilson, 102 Constance Bldg., Montreal.

BRITISH COLUMBIA FOREST SERVICE.

The British Columbia Government made a wise decision when they decided to bring the Eastern part of Canada into closer touch with the matchless forest products of the Pacific Coast Province.

Along the line of the newly adopted policy of the British Columbia Forest Service, an office has been opened in the Excelsior Life Building, Toronto, managed by L. B. Beale, of the B.C. Forest Service. Here, architects and builders have an opportunity of seeing and studying the excellent effects produced by the use of the superb woods exhibited. An illustration is shown of part of the exhibit, in which the wall panelling comes in for particular attention. This is in Douglas fir, the beautiful effects produced being a revelation to those not already acquainted with the adaptability of this wood for high-class interior decoration. Different finishes are shown, from the natural wood to the highly finished product. Further examples are shown, in the nature of Douglas fir doors; Western red cedar and Douglas fir base trim framing and mouldings; Douglas fir flooring; dimension stock of B.C. spruce, Western hemlock, red cedar and Douglas fir; B.C. red cedar shingles and shingle bolts. This exhibit is attracting much attention, and has already done much towards educating the people in Toronto and Ontario regarding the forest products of British Columbia.



BRITISH COLUMBIA FOREST SERVICE.
PERMANENT EXHIBIT, EXCELSIOR LIFE BUILDING, TORONTO.

Additional Service

Along the line of "CONSTRUCTION's" policy, to be of the greatest possible service to its readers, we have included, starting with the December issue, and will continue to publish the principal items of our Report Service dealing with new construction throughout the Dominion. These news items give the reader a good idea of what is going on in the building field, and from the expression of approval received since its inauguration, we feel that the decision to include it will meet with the hearty approval of all our readers. Another feature adopted with the January issue, and which will be continued, is an Architectural Digest in which other articles of interest, both to the architect, contractor and the engineer, will be published each month. These are taken from our exchanges, and will give our readers a service such as they could only get by taking a large number of similar publications.

It is further intended to improve the value of "CONSTRUCTION" by embodying departments dealing with fire-proofing, heating and ventilating. Arrangements have also been made for a number of special articles to be published during the year dealing with such subjects as lighting, sanitary equipment and power-house features of large modern buildings, as well as articles on the various materials and equipment, being embodied in all structures from houses to skyscrapers.



March, 1916

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H. GAGNIER, Limited, Publishers

GRAPHIC ARTS BLDG., TORONTO, CANADA

MONTREAL BRANCH OFFICES NEW YORK



A MAJESTIC COLONIAL MANSION WHICH OVERLOOKS THE BROAD EXPANSE OF LAKE ERIE.

THE FACADE, WITH ITS NOBLY PROPORTIONED PORTICO AND ITS IMPRESSIVE BACKGROUND OF TOWERING FOLIAGE, HAS A MOST COMMANDING APPEARANCE.

The Excelsior Life Building

One of The Finest of Toronto's Many High-Class Office Buildings

THE latest addition to the group of modern office buildings erected in Toronto is the Excelsior Life Insurance Company's new structure, which was designed and erected under the supervision of E. J. Lennox, architect.

In considering the proposition for a new building, the company was desirous of having a building that would be planned in such a manner that it would be adaptable for the accommodation of their large insurance business, and at the same time so planned and arranged that every foot of available space not occupied by the company would be revenue-producing.

The building has a frontage on Toronto street of 134 feet, and a frontage on Adelaide street of about 64 feet. The first two storeys of the facade of the building are built of granite, and the remaining upper storeys of white enamelled terra cotta.

The main facades of the building has been designed in plain modern classic architecture, with a view of good proportion and handsome appearance.

The building has been designed in the form of a pedestal shaft and frieze appearance, the upper storeys being brought out in the form of a colonade, formed with columns and pilasters, which gives a rich appearance to the building.

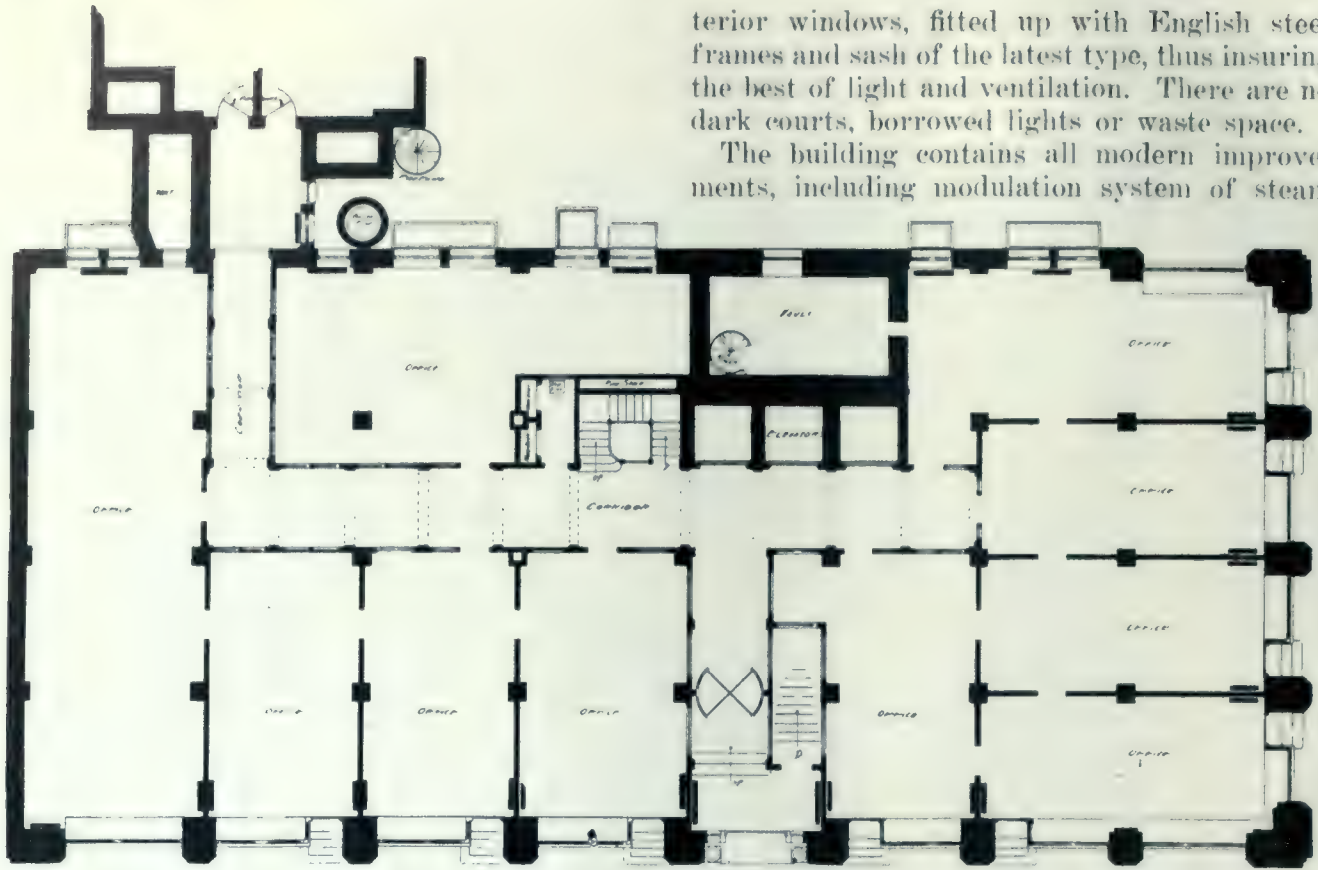
The general construction, arrangement and equipment of the building are the most modern and best. It is constructed of steel and fireproof material throughout, and as far as modern skill and science can make it, it is absolutely fireproof. All interior partitions are

of sound-proof and fire-proof construction.

The interior has in every way been well planned throughout; one of the most attractive features is the handsome and spacious entrance on Toronto street, arranged to permit easy ac-



EXCELSIOR LIFE BUILDING. E. J. LENNOX, ARCHITECT.



FIRST FLOOR PLAN, EXCELSIOR LIFE BUILDING. E. J. LENNON, ARCHITECT.

cess to splendid accommodation to all floors, the importance of providing an efficient and quick service being fully realized. Three of the latest and up-to-date elevators are installed, so as to give quick access to all parts of the building.

The building throughout is lighted by ex-

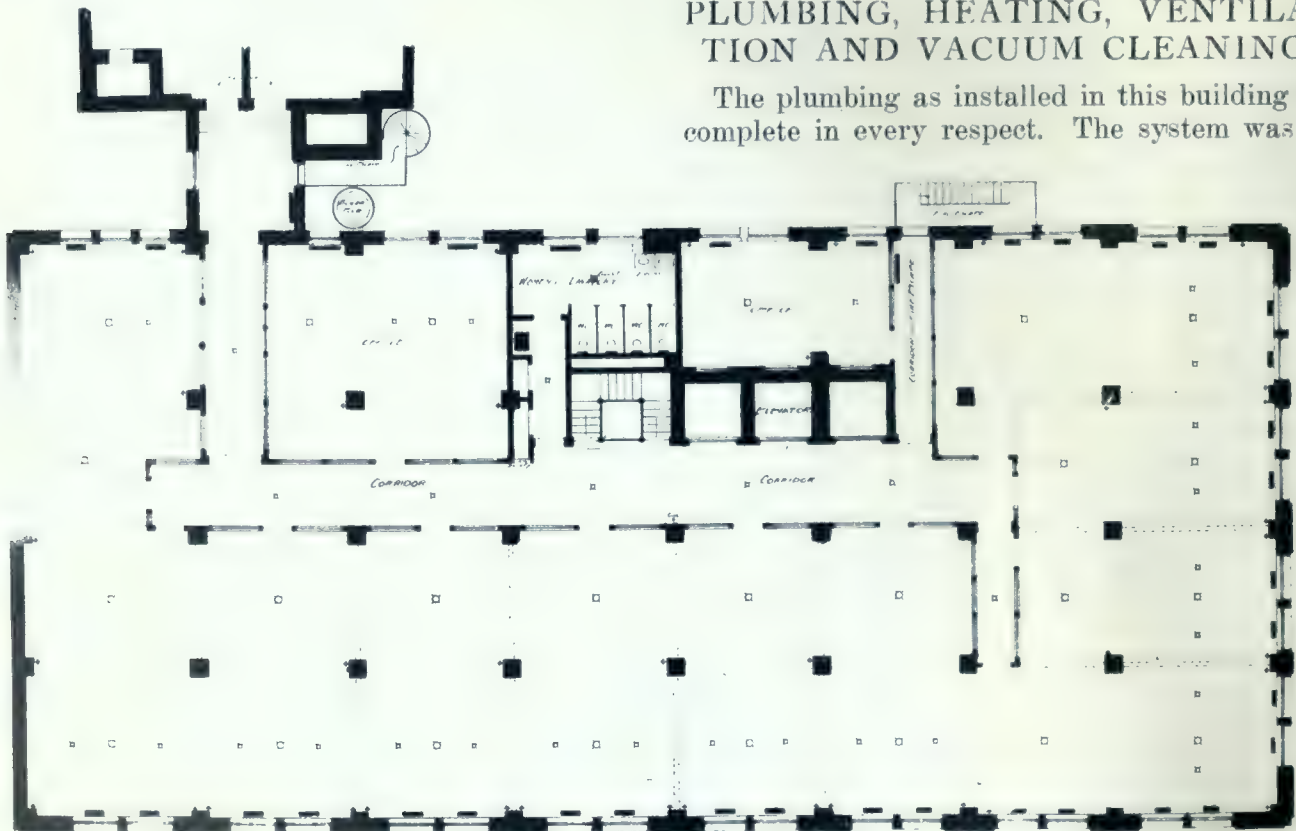
terior windows, fitted up with English steel frames and sash of the latest type, thus insuring the best of light and ventilation. There are no dark courts, borrowed lights or waste space.

The building contains all modern improvements, including modulation system of steam

heating (thus obviating all noise in pipes), vacuum cleaners, mail chutes, connections for telephone, telegraph, ticker and messenger call service wires, and the latest and most modern system of plumbing and conduit electric wiring.

PLUMBING, HEATING, VENTILATION AND VACUUM CLEANING

The plumbing as installed in this building is complete in every respect. The system was a



TYPICAL FLOOR PLAN, EXCELSIOR LIFE BUILDING. E. J. LENNON, ARCHITECT.



MAIN CORRIDOR, EXCELSIOR LIFE BUILDING.

standard type, with porcelain, vitreous china and enameled fixtures.

The lavatories are specially ventilated by means of ventilating shaft, which was run from the basement to the roof space. A multivane fan was installed in the pent house, this fan being full housed, top horizontal, operated at six hundred and ninety r.p.m., direct connected to one-half horse-power motor.

In the boiler room there was installed in connection with the sump which is used to drain the surface water which is carried to same by means of weeping tile, and also the blow-off from the boiler, an electrically driven sump pump, the pump having a capacity of twenty-five gallons per minute against a twenty-five foot head. The pump is automatic, being governed by an automatic float control switch, which is installed in the sump.

All the different lavatories throughout the building have Italian marble divisions and stalls, complete with hinges, locks and bumpers.

The building was completely equipped with a

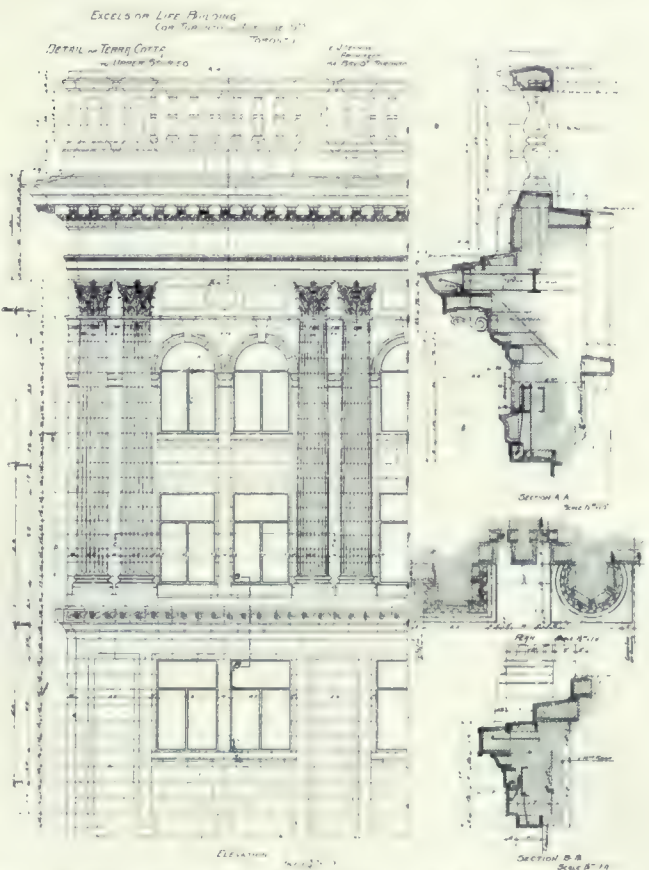


TYPICAL CORRIDOR, EXCELSIOR LIFE BUILDING.

vacuum cleaning system, the system adopted being Spencer large volume low vacuum type machine, being five horse-power two-sweeper machine. The entire building was piped so that any portion of the building might be cleaned with fifty feet of one and one-half inch hose. The machine produces a vacuum of five inches at the machine, and gives a vacuum of from two to three inches at the cleaning tool.

The type of heating installed was an atmospheric modulation system, and is the only building of this height to have a system of this kind installed.

The boilers were three down-draft smokeless standard boilers, set in standard brick setting. There was a total of approximately twelve thousand five hundred square feet of radiation



DETAIL OF TERRA COTTA EXTERIOR, EXCELSIOR LIFE BUILDING, TORONTO

installed through the building. Each radiator has a modulation valve on the supply and a thermostatic valve on the return. All the radiators installed in the building were one column, being considered more efficient than the two, three or four-column. Both supply and return connection to the radiators are carried in the wall to the position of radiator in a chase, which was left for same, no piping being taken below the floor, which very much improved the appearance of the finished work.

An electrically driven centrifugal pump was installed for returning the condensation from the drips from the mains, this being the only portion of the returns that does not return to the boiler by gravity.

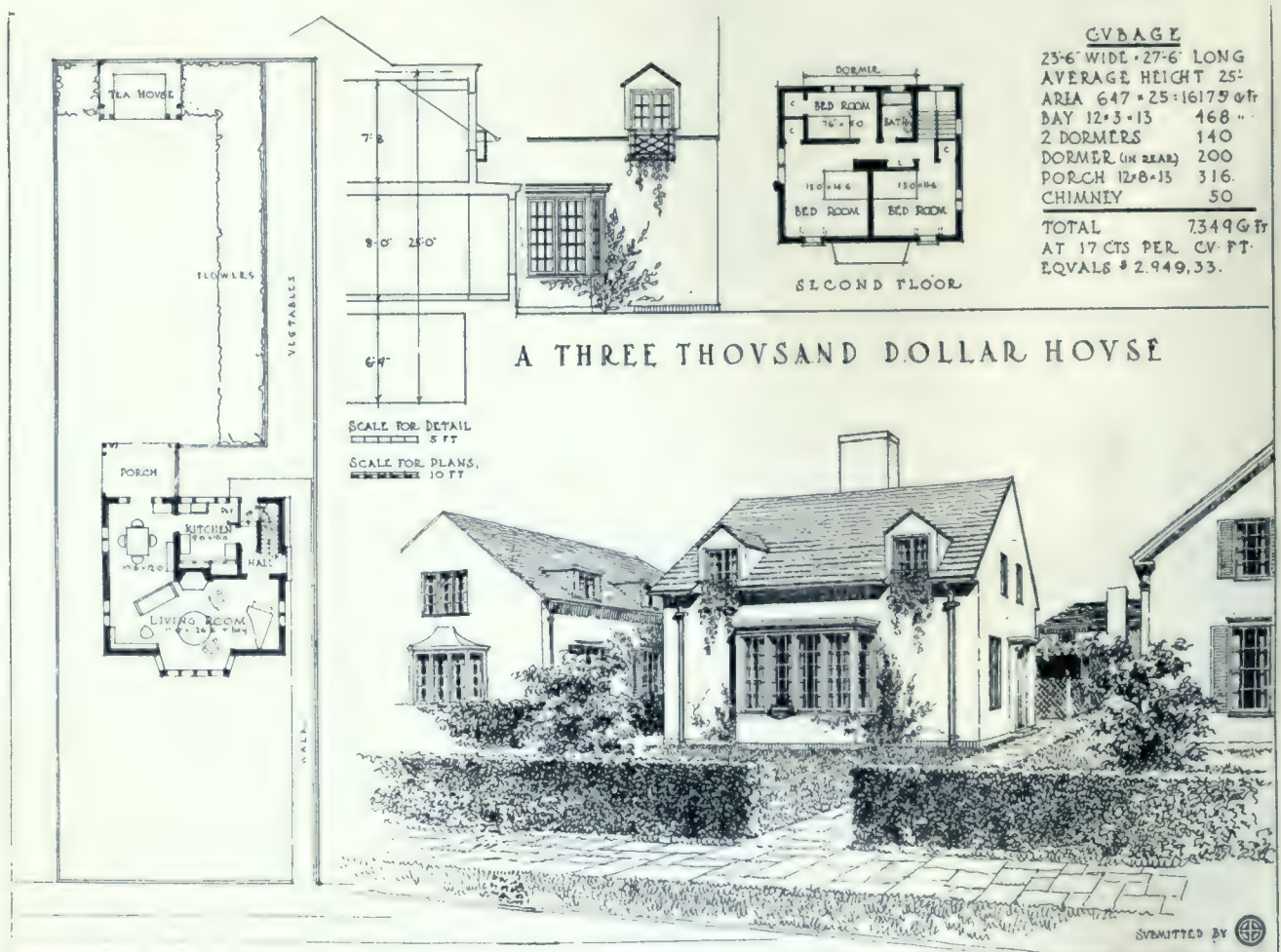
Cleveland Art Association Competition

Winning Designs in Competition Held by the Cleveland Art Association in Connection With The Complete Building Show at Cleveland, Ohio, February 16 to 26, 1916

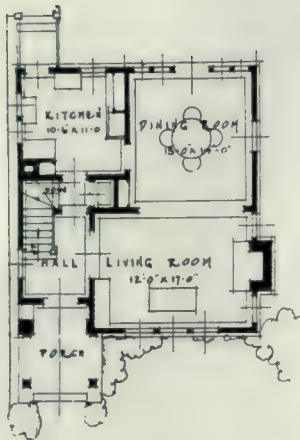
IN connection with the recent Complete Building Show, held in Cleveland, Ohio, a competition of house designs at \$3,000 was held under the auspices of the Cleveland Art Association, which offered prizes to the extent of five hundred dollars. Over three hundred designs were submitted, all of merit, of which are reproduced seven selected by the judges as being worthy of the prizes offered. First prize was awarded to the design of Olaf William Shelgren, a member of the Buffalo Architectural Club, and connected with the office of Robert North, 1314 Prudential Building. Mr. Shelgren is also president of the Sketch Club, composed of architects of that city, and has many fine buildings in Buffalo to his credit. Chairman C. S. Schneider, of the Selection Committee, stated the choice of this plan for first prize was due to the opinion of the committee that same "best met the requirements of the contest from every point

of view." This design is the essence of compactness, yet every essential requirement of the home is provided for. The dining-room is readily made a part of the living-room, and yet is separated, as reference to the diagram will show. A large living-room is secured by placing the main entrance and hall to the side of the house. Bedrooms of good size are allowed for with necessary closet room. The suggested exterior is in stucco, with roof of green slate, frame work around doors and windows painted green to harmonize with roof and foliage.

Second prize was awarded to design submitted by Messrs. S. C. Merrell and C. H. Dittmer, of Cleveland, who are on the staff of Chas. S. Schneider. Stucco was used as an exterior surface for the artistic home shown, the recessed porch, stairs, large dining-room and well planned kitchen are features worthy of mention.

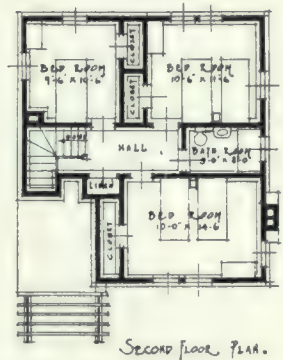


FIRST PRIZE—BY OLAF WILLIAM SHELGREN, BUFFALO, N.Y.



SECOND PRIZE

BY

S. C. MERRILL AND C. H. DITTMER,
CLEVELAND, OHIO.

SECOND FLOOR PLAN.

Third prize drawings are the work of Messrs. H. W. Peebles and R. W. Hazlewood, 82 N. Elizabeth street, Detroit, Mich., and depicts a quaint exterior with a very modern interior arrangement well proportioned.

Fourth prize was given to F. J. Harburg, 94 West 162nd street, New York City, for a house of Colonial design, in exterior finish of wide lap siding, a material growing in popularity. Large and commodious living-room and kitchen are provided, with a good stairway to upper floor, where large bedrooms well lighted by ample windows provides abundance of ventilation. The grounds surrounding are a good study, and are worthy of notice.

Fifth prize is for home designed by C. C. Tellman, 17 Dill street, Auburn, N.Y., which shows originality. The bay extending from ground to roof is the feature of this exterior, while a large living-room with open fireplace gives a homey suggestion. A roomy cold room off the kitchen is of practical use. Three good size bedrooms are allowed for, together with an ample storage or linen closet.

Sixth prize is for plans by Henry P. Whitworth, 155 Carlyon road, Cleveland, and illustrates a home of the cottage type, with large living and dining-rooms, giving the effect of a

much larger house. All available space has been used to advantage, and the general effect is pleasing.

Seventh prize was awarded Maurice Feather, 129 Langdon avenue, Watertown, Mass., who evolved a house of exceptionally interesting exterior. The placing of the porch and entrance upon opposite sides of the front wing, the rather steep roofs and the single large chimney placed in the centre of the building, give it the effect of bigness which is a feature of this interesting design. The interior is well planned, with all rooms of good size.

The judges were favorably impressed with the other drawings shown, which made difficult the work of selection, all of the designs containing features of originality, making them "different" from the average homes.

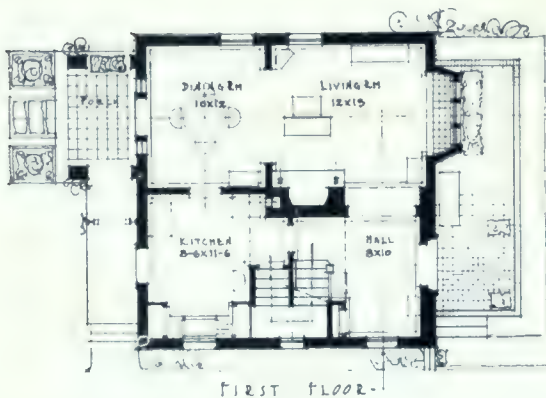
The first prize was \$200.00, second \$125.00, third \$75.00, fourth \$50.00, fifth \$25.00, sixth \$15.00, and seventh \$10.00.

Judges appointed by A. Garfield, president of the Cleveland Chapter A.I.A., were C. S. Schneider, A. S. Skeel, W. R. Watterson, R. G. Hubby and H. Dercum.

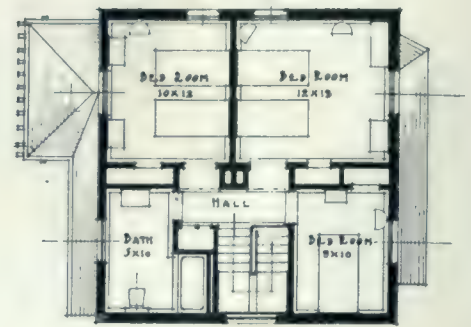
The Cleveland Art Association erected both interior and exterior models of the first prize house on the floor of the Coliseum for exhibition at the show.



THIRD PRIZE HOUSE—By H. W. Peebles and R. W. Hazlewood, Detroit, Mich.



FIRST FLOOR.



SECOND FLOOR.

GREATEST MARBLE BUILDING IN THE WORLD

Construction work on the new \$5,000,000 Field Museum of Natural History, to be built in Chicago, is under way. The structure will be completed, it is expected, in less than three years, and more than 3,000 men will be employed in the work. When finished it will be the largest marble building in the world. It will consist of three storeys and a basement, and will cover an area of 700 feet by 350 feet. The floor area of the museum will be 670,000 square feet, of which 400,000 square feet will be devoted to exhibition purposes. The remainder will be used for scientific laboratories, lecture halls, offices, and a restaurant. The contract for the building is held by the Norcross Bros. Company, of New York and Worcester, Mass., and the material will be Georgia marble.

THE VALUE OF MICROSCOPES IN INVESTIGATING STONE

Comparative microscopic study of building stone that has stood the test of time and that which has not, is very valuable. According to a contemporary, the cause of rapid weathering can be recognized as a natural structural relation. Two granites, for instance, of almost identical mineralogical and chemical composition can behave quite differently. The one remains sound for years; the other disintegrates rapidly because delicate microscopic pressure zones run through it. Two marbles of equal beauty show entirely different powers of resistance as material for a work of art exposed to the weather, according to whether the calcite individuals in this section interlock with sinuous outlines or merely adjoin each other as paving stones.

The Fire Safe Building

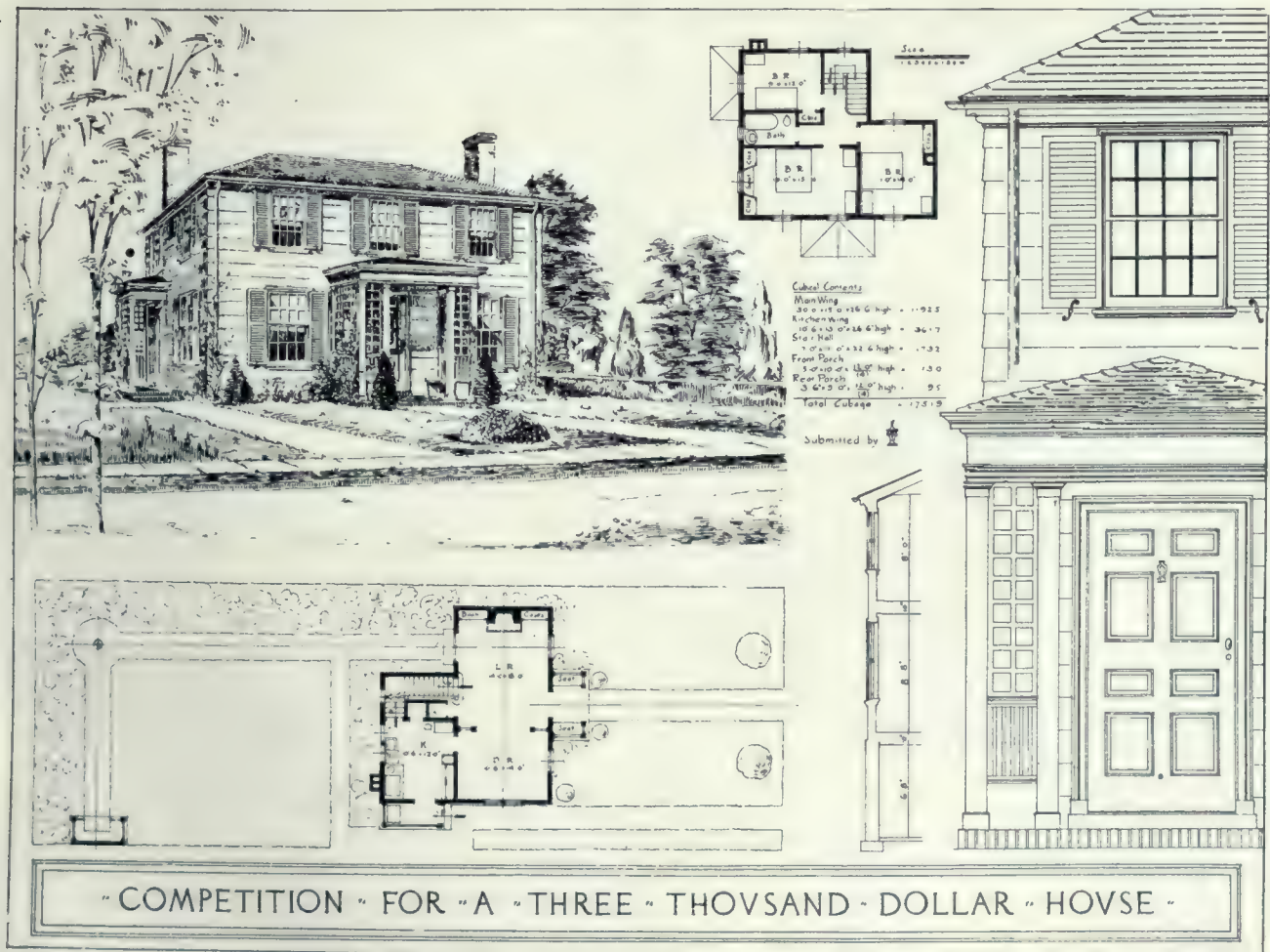
By A. W. ECHBERG

BESIDES a fire loss of about \$25,000,000 per annum this country now carries the excessive cost of insurance, the vast sums spent for fire-fighting equipment and up-keep of fire departments in all our cities, the lost sustained in case of fire, in time, loss of prestige, loss of customers, the cost of renewing the insurance upon resumption of business, and the dead expense while the business is suspended. Besides this, there is very little property insured to its full value, so that even if some insurance is carried, the owner will have to stand a good share of the direct loss. Taking all these items into consideration, the total loss to this country amounts to a really appalling figure.

But what are you going to do about it? It is not within the scope of human possibility to entirely prevent fires, but it is possible to reduce the fire hazard to a minimum. At an expense insignificant as compared to the saving in property and trouble, it is possible to so equip buildings as to render a serious fire practically impossible.

This discussion does not attempt to enter into the merits of different methods of fireproofing the structural parts of a building, or the relative value of different materials used for that purpose. The necessity for providing such fireproofing is well recognized by even the layest of laymen. It is proposed to take up here the question of interior fireproofing, "the kind that safeguards life and contents," as the need for proper equipment of buildings to prevent incipient fires from spreading, and to safeguard the exits to prevent loss of life, is not so well understood or so thoroughly realized.

The first attempt to provide exits in case of fire for the occupants of a building was the outside fire escape, which even up to this time disfigures so many buildings in our cities. While they have no doubt served their purpose in some cases, they have in numerous instances failed, sometimes on account of flimsy construction, and again on account of inadequate upkeep, as the metal work has not been painted, but allowed to rust and become deteriorated, so that when



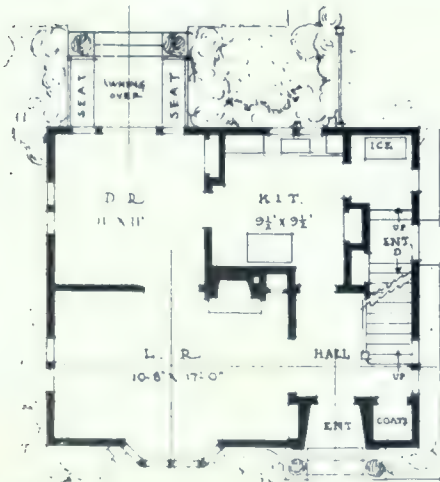
FOURTH PRIZE—BY FREDERICK J. HARBURG, NEW YORK CITY.

put to the test they have failed. Even if the fire escapes were strong enough, they have very often been rendered useless on account of the flames from a fire breaking out through the windows or doors opening on the fire-escape in the lower storeys, so that the people endeavoring to use it from the upper storeys have been caught in a trap. The idea of using fire-escapes on a modern building is becoming obsolete. It has been found that inside stairways, or fire-towers, if protected by fireproof doors or windows, are much more effective and safe, and designs for new buildings generally incorporate this idea for providing safe exits for the occupants.

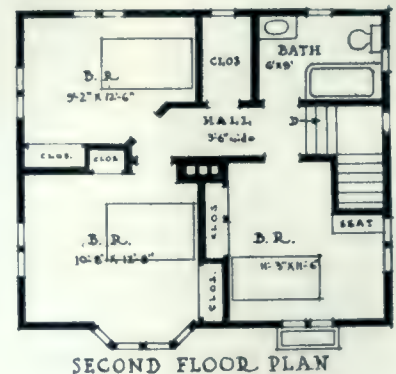
The next step in the evolution of fire protection for buildings and preventing the spreading

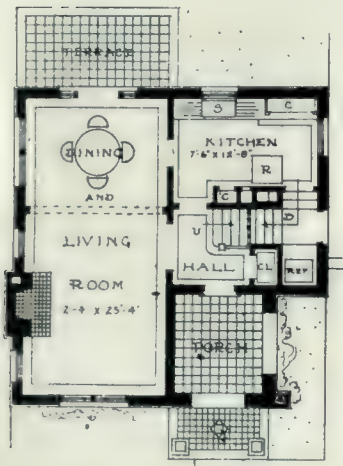
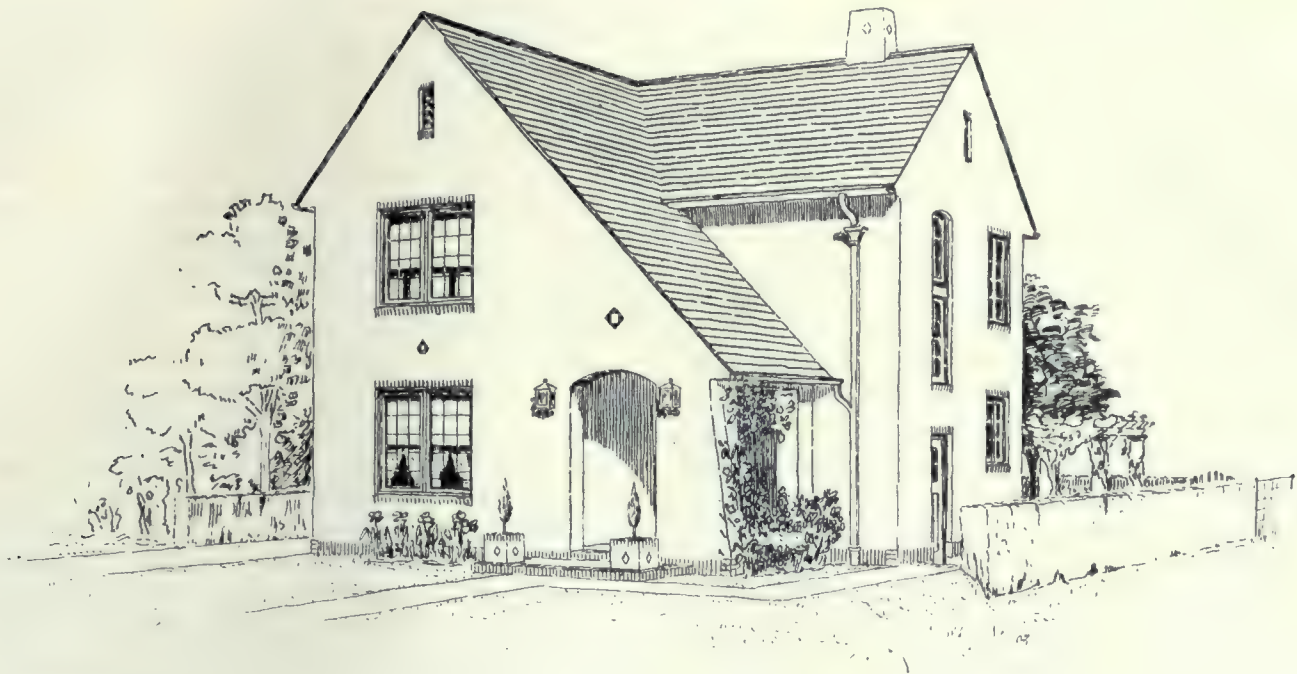
of the flames was the realization of the danger from outside exposure. It was found that in a large fire the flames would very often enter an adjoining building through the window or door openings, and to protect these openings, shutters were provided, either of steel plates or made of wood covered with tin. These were eventually found unsatisfactory, however, because they were not always closed by the occupants at the end of a day's work. The metal covering would also very often deteriorate, rendering the shutters useless, and taken as a whole they were quite unsatisfactory.

The invention and manufacture of wired glass opened up a new field, and new possibilities for fire protection of such openings. It was now

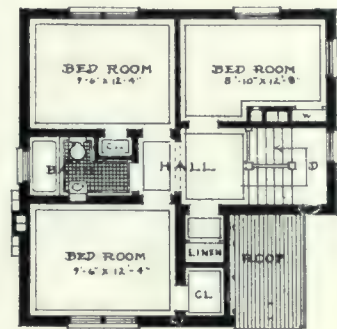


FIFTH PRIZE
BY
C. C. TALLMAN, AUBURN, N.Y.





SIXTH PRIZE
BY
HENRY P. WHITWORTH, CLEVELAND, OHIO.



found possible to construct a window frame of metal, and by the use of wired glass a permanent protection was obtained that needed no particular attention. These also served to confine the fire within a building, and prevent it from escaping to adjoining buildings, so that they really served a double purpose in this respect. Great care, however, should be exercised to get the very best class of metal windows, as very often they are poorly constructed, and of material that is liable to rust, causing it to deteriorate in a very short time when exposed to the severity of the elements. The very best material that can be found for metal windows, that will withstand the ravages of time as well as fire, is the hollow constructed windows of hard bronze metal. The next best would, no doubt, be a window constructed of heavily coated 18 or 20 gauge galvanized iron, or windows treated within and without by the sherardizing process, which at least for a long time will withstand the action of the elements and prevent the starting of rust.

We now come to the study of interior fire protection, or means for preventing a fire from

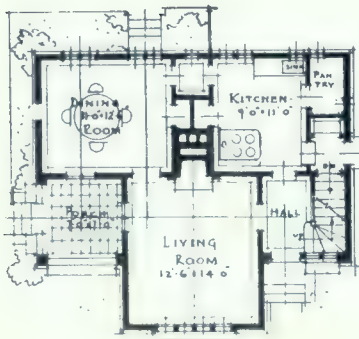
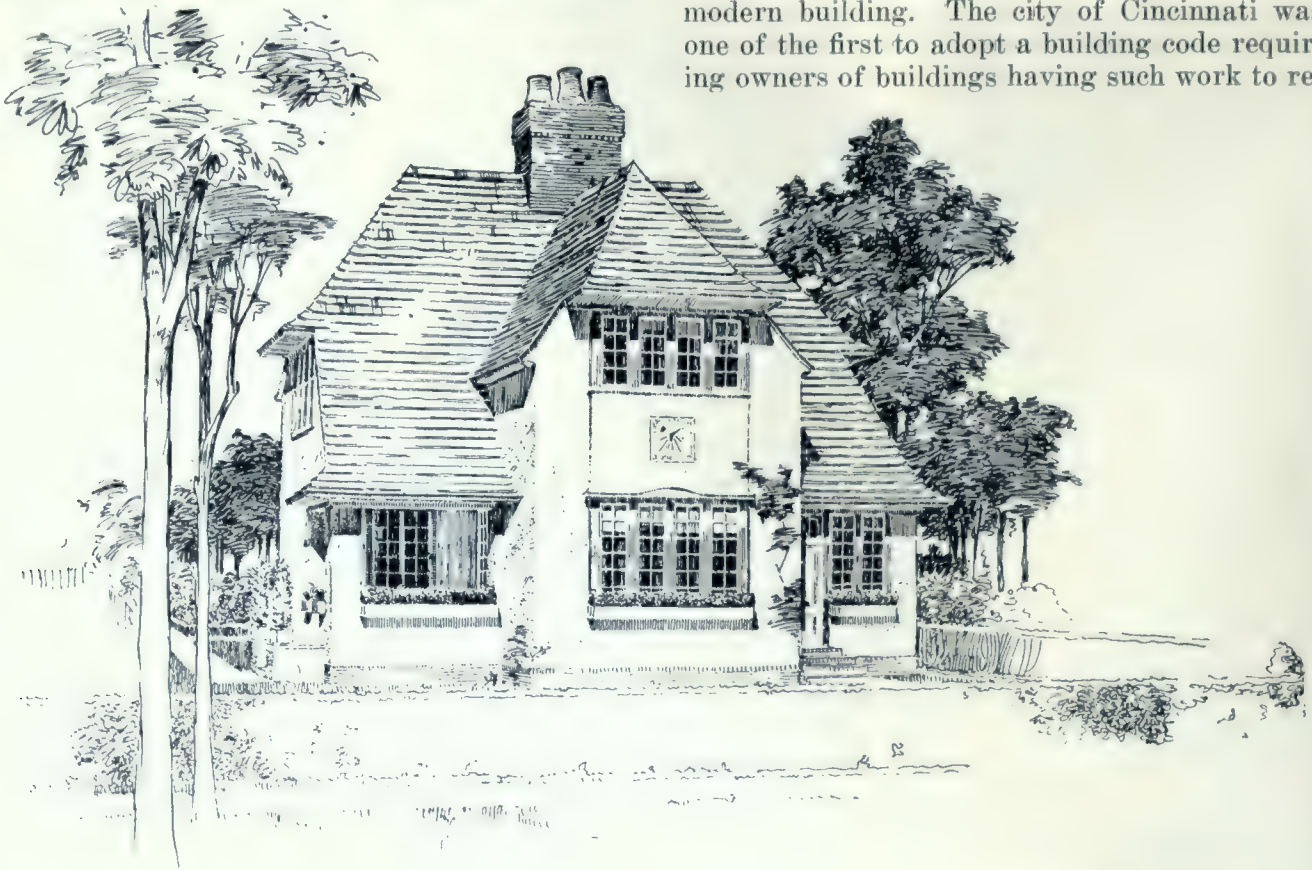
spreading within the building itself. This is an ever-present danger, and the means for localizing and controlling any incipient fire to its place or origin should be given due consideration. One of the most efficient of these devices is the automatic sprinkler, which finds its greatest usefulness and is best suited for such buildings as mills and factories, loft buildings, warehouses, freight terminals, storage buildings, etc. While there are cases on record where sprinklers have failed, they are, on the whole, very satisfactory, and have proven themselves to be one of the most efficient parts of the equipment of such buildings for the purpose. A curious circumstance in connection with the development of the sprinkler system is the fact that the insurance companies at first would not recognize it, or would not allow any reduction in the insurance rate for buildings so equipped. This caused mill owners in one part of the country to organize a mutual insurance company for their own benefit, in order to save the cost of insurance, and it was only after their experiences through a number of years was made public that the old line insurance companies would recognize the merits of the sprinkler system, and give any credit or reduction in the rates where they

were installed. This system is now widely recommended by all insurance companies and experts for buildings of the classes named.

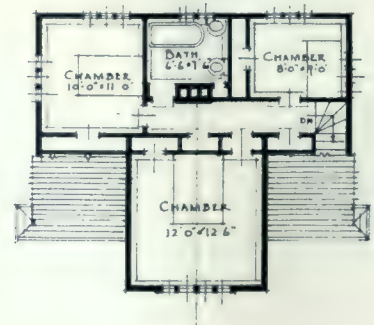
Another idea which has proven itself valuable and is being adopted for buildings of the classes above named is the idea of subdividing buildings having large areas by so-called "fire walls," the openings between the different sections protected by automatic fire doors or curtains. These will provide exit for the occupants of any section in which the fire should happen to occur. It will only be necessary for the employees of a factory or mill to pass through the opening in the fire wall into the next section and close the fireproof doors, when they are safe from the fire peril. This method is to be recommended, providing each section has a separate exit from the building, and will be found useful in hospitals, schools, museums and similar buildings of the better class, in addition to mills and factory buildings.

A study of this important subject has also brought out the fact that vertical shafts

throughout a high building, such as elevator shafts, stair hall, pipe and wire shafts, ventilator shafts, etc., will serve as flues for a fire starting in any of the lower storeys and allow the flames to spread throughout the building. In actual experience in many cases great loss of life has occurred in buildings because escape was shut off by the flames entering the stair halls or elevator shafts. The fact that openings to such flues or shafts have not been provided with fireproof doors have caused some very expensive fires; for instance, the Equitable Building in New York City about three years ago. This has served to call the attention of architects and builders to the necessity for having fireproof doors for such openings and eliminating the open grille work so commonly used for elevator enclosures in the past, and to enclosing elevator shafts with fireproof walls or metal partitions, with wired glass, if light is required. The open grille work used for such a long time has been found inadequate for the purpose, and will not be tolerated in any really fireproof or modern building. The city of Cincinnati was one of the first to adopt a building code requiring owners of buildings having such work to re-



SEVENTH PRIZE
BY
MAURICE FEATHER, WATERTOWN, MASS.



place it with really fireproof enclosures, and other cities are fast following this excellent precedent. According to the best and most advanced ideas, the stair hall shafts are being located in a different part of the building from the elevator shaft, so that in case a fire occurs near one the other would be available for exit by the occupants. This idea is a very important step in the right direction, and will tend to increase the safety of a building, especially those of the better class, or those of the "skyscraper" type.

When the fire prevention campaign started some thirty years ago several attempts were made to protect the wooden door. It was hard to get away from the thralldom of wood, so at first it was painted with preparations of alum and other salts, which was then called fireproof paint, and by this combination wood would not ignite at first, but would not withstand a hot fire for any length of time. Later, experiments were tried to make the wood fire resisting by extracting the resin and other inflammable components of wood, leaving only the fibre. This was tried for some time, but was found wanting, as the wood would presently burn and the fire looked very much like ordinary wood fire.

Later on the method of covering the wooden doors with metal was adopted, and was no doubt the best that could be had for that period. It is, however, impossible to obtain with this kind of work a result that is in any respect satisfactory for high-class buildings. The wooden core will swell and shrink with the atmospheric changes, and the thin metal used will buckle, making the work very unsightly. The finish can only be an ordinary air-drying paint, applied in the dust and dirt of a building under construction, and cannot even remotely be compared with the high-class material and finish required in modern, first-class buildings.

An insurance engineer of national reputation when asked his opinion of tin-clad or metal-covered doors, stated: "I merely quote the best authorities when I say that if the wood core in a metal-covered door does not contain 10 per cent. of moisture, dry rot has already set in; and if it does contain 10 per cent. or more of moisture and is subjected to severe heat, sufficient gas will be generated to explode its metal covering." Hundreds of thousands of dollars have been invested in the manufacture of this class of goods, and an equal amount of kalameined door depreciation is now carried by the people of this country; but in view of the later and more modern developments, the days of the wood core fire protections are counted, and the metal-covered contraptions will soon be a thing of the past.

In their place, and to more adequately meet the requirements of these modern times, the

hollow metal doors and trim were put on the market about ten years ago. In developing the hollow-metal door idea the inventor had to break away from the precedent and start out along original lines, by cutting out the weak spots entirely and replacing it with what has proven to be the last work of door and trim construction—a door of cold-drawn steel provided with air chambers to insulate, instead of wood, which would char and collapse at the most critical moment. This door has proved itself effectively fireproof, handsome, economical and where properly cared for, practically everlasting. Therein is the evolution of the hollow-metal door. The replacing of wood and all other combustible, or semi-combustible, interior trim with cold-drawn steel was a comparatively easy and simple matter. Wherever custom called for the installation of wood for these purposes its absolute elimination was now made possible.

A building equipped throughout with hollow-metal doors and trim, and being, of course, otherwise fireproof, simply means that you have done away with everything which can burn with the exception of the contents of the building. Every room, compartment or floor has been literally converted into an isolated unit. Such an equipment will confine the fire, and combat it by virtually the only possible successful method, namely, starvation. When the contents of the particular unit in which the fire originates are consumed the fire is extinct, because it has nothing more to feed upon. Whatever the structure, be it a skyscraper, loft or office building, theatre, hotel, post office, hospital, residence, school, steam vessel, battleship or railroad car, if it is otherwise fireproof the installation of hollow-metal doors and trim makes it entirely so, or effectively completes the fireproofing by the elimination of these materials which can be consumed by fire.

The necessity for fireproof equipment for buildings is now so well recognized that specifications for a really ideal modern fireproof building generally calls for metal doors and trim throughout; but these should be specified at least for openings in fire walls, stair halls, elevator doors and enclosures, fire towers, fire escapes and all vertical shafts, the openings to which should be protected against the fire spreading throughout the building, rendering the building semi-fireproof. The quality of workmanship, construction and finish obtainable in this line of products makes them particularly suited for these purposes, for such buildings as hotels, schools, office buildings, theatres, hospitals, public buildings, residences, libraries, museums, club buildings, etc., or in other words, buildings in which high-class, satisfactory finish is required.



America's First Public Abattoir

Toronto Leads in Establishment of Civic Abattoir

CANADA has been until recent years somewhat lacking in institutions of public service, and for this reason the new municipal abattoir, recently opened in Toronto, is of more than passing interest.

Added to this, the building illustrated in this issue represents the best in modern construction and equipment adapted for the purpose which it serves.

The necessity of proper inspection of meat, which enters so largely into the daily fare of a city grown to a population of over 500,000, and the desire on the part of the city fathers to have all meats prepared under modern sanitary conditions, a desire furthered by a vote of sanction on the part of the citizens, led to the establishment of America's first civic abattoir.

Here the smaller butcher has all the equipment, if not more than the private owned abattoir, and the facilities at his disposal compel cleanliness.

The city stock yards on Tecumseth street provide a site for the new building, which, while close to the centre of the business section of the city, is on the extreme southern frontier,

separated from the shore of Toronto Bay by the tracks of the different railways which enter the city from the north and west, and provides excellent shipping facilities.

In no way, either within or without, is anything objectionable attached to the building located here, which structurally is an acquisition to the district.

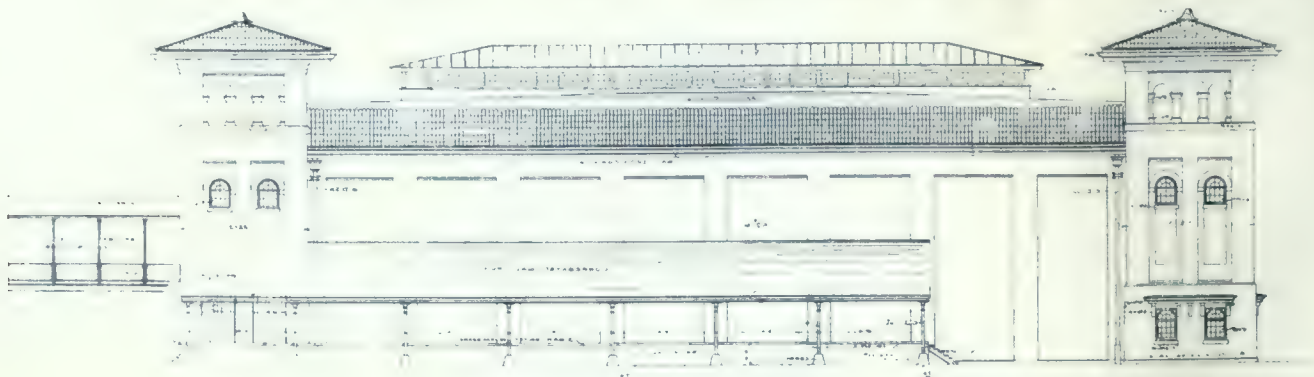
The plant is contained in two buildings, attached by enclosed passageways, the main portion including offices, killing rooms, refrigeration, cold storage rooms, etc., while the rendering and offal disposing plant is located in a separate building.

The main building dimensions are one hundred and eighty feet by one hundred and eighty feet, and the rendering building occupies space of one hundred feet square.

The exterior walls are of Canadian buff brick, while the interior walls in part are of white glazed brick.

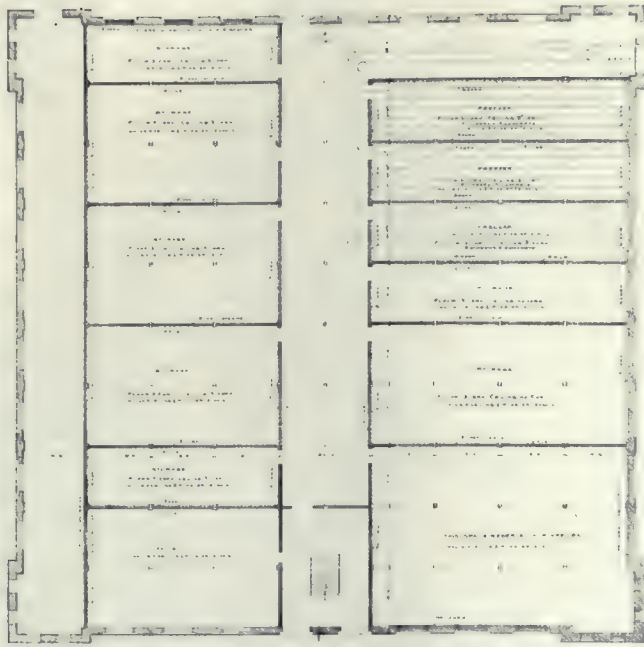
The floors are of hollow tile and brick construction, which is not affected by continued flushing with water.

Steel frame work carries the roof, which is



NORTH ELEVATION TORONTO MUNICIPAL ABATTOIR, TORONTO.

WM. R. PERRIN & COMPANY, ENGINEERS, TORONTO.



GROUND FLOOR PLAN, TORONTO MUNICIPAL ABATTOIR.

of felt and gravel, with red Spanish tile on the towers and mansard slope.

On the ground floor of the main building is located the general offices, and separate cold storage rooms, the walls of the latter being of cork insulation. Dining and toilet accommodation is provided for the operators.

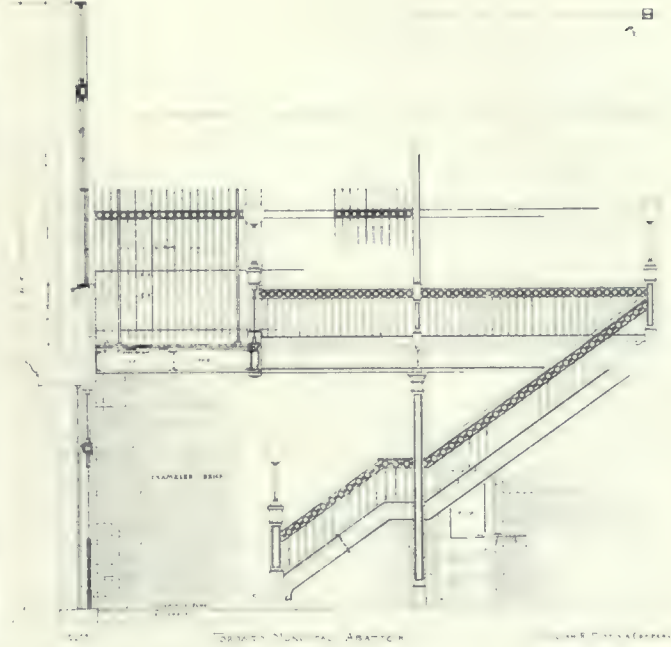
The first floor of this two-storey building contains the killing and cooling rooms, with separate accommodation for twenty-two butchers to slaughter and prepare the product.

The rendering building is of three storeys and basement, and contains the equipment for preparing the by-products, which is an important part of this trade.

The basement is used in storage of the hides, and the ground floor contains the fertilizer plant.

On the first floor evaporators and casing machinery is installed, while the second, or top floor, includes fat washing equipment.

The interior walls throughout this latter building are composed of vitrified brick.



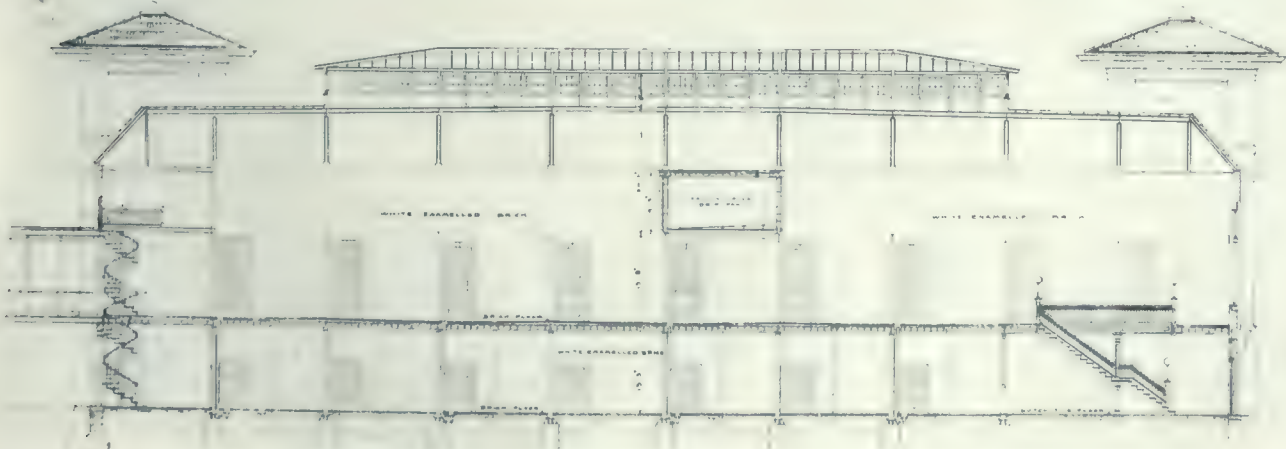
DETAIL OF STAIRWAY AND HALL TORONTO MUNICIPAL ABATTOIR.

The power plant is housed in a separate building, sixty-four feet square, and while the motive power for the hoists, refrigeration machinery, presses, dryers and rendering house machinery is electricity, steam is largely used and provides for rendering, cooking and heating of the plant. All pens are of steel, raised six inches to permit of washing the entire floor and preventing any accumulation of dirt.

Overhead conveyors and tracks connect all departments and make the use of trucks, etc., unnecessary.

REFRIGERATION EQUIPMENT.

Steam is supplied by two tubular boilers of one hundred and fifty horse-power each, with a working pressure of one hundred and twenty-five pounds. Two ammonia compressors are installed of sufficient capacity each to supply the entire plant, and are also cross connected, so that either or both may be used as occasion requires, one machine being direct connected to a steam engine, while the other is electrically



SECTION EAST AND WEST TORONTO MUNICIPAL ABATTOIR. W. M. R. PERRIN & COMPANY, ENGINEERS, TORONTO.

driven. The compression side consists of six stacks of ammonia condensers of the double-pipe counter current type, each stack being twelve pipes high by nineteen feet long. The condensers are equipped with purge and wash-out headers and valves, in addition to the usual inlet and outlet ammonia and water valves. The other machine has on the compression side a double type ammonia condenser consisting of six stacks, fifteen pipes high and twenty feet long. All pipes from the machines are insulated with cork covering. The cold storage and freezing rooms comprise ten, five being low temperature on the north side and five of high temperature on the south side, ranging in degree from zero to thirty-five F. The walls and ceilings are finished with cement, and the floor with inch and a quarter brick, the rooms being insulated with cork from three to six inches thick. The rooms are cooled with about 22,600 feet of two-inch expansion coils placed in the freezers on the ceiling and on the walls in the higher temperature rooms, connected to two four-inch return suction mains and one inch and a quarter liquid feed main, the two suction mains allow for two different pressures to be carried in the cooler coils, for the freezer and higher temperature rooms respectively.

CANADIAN LUMBER COMES INTO ITS OWN

The decision of the various Dominion Government departments and of the Canadian Pacific railway to use Canadian timber only, to the exclusion of imported timber, is a decided advantage to Canada.

Southern pine, in 1915, was imported to the extent of 95,000,000 feet, having a value of over \$3,000,000. In previous years, very much larger quantities were imported despite an adverse trade balance for Canada and in the face of a supply in Canada of better timber at an equal or lower cost, grown and manufactured entirely within the Dominion.

The Dominion Government will use Douglas fir to replace Southern pine in such works as Quebec and Montreal harbor improvements and Hudson Bay terminals. Douglas fir has been used entirely in the Toronto Harbor works, as a clause was inserted in that contract calling for Canadian material. The action of Baron Shaughnessy in ruling that Canadian timber only shall be used in works of the Canadian Pacific Railway shows that large private users are also finding it consistent with present conditions to use Canadian products.



INTERIOR VIEW OF TORONTO CIVIC ABATTOIR. W.M. R. PERRIN & COMPANY, ENGINEERS, TORONTO.

The Education of Public Taste*

B. D. JESSE BENEDICT CARTER, Director of the American Academy at Rome

TWO years ago I had the great privilege of addressing this institute, and when I think that at that time I had the childlike and simple audacity to prophesy to you that we were approaching the Middle Ages, I tremble to-night at what I may say, and at the gruesome way in which the fulfilment of that prophecy has been revealed in the last eighteen months. I told you then that we were approaching the Middle Ages. They have not only come, but they are in full darkness. Europe is very dark to-day. She is dark physically, for fear of the terror that flieth by night. She is dark spiritually, for the bubbling up of that perpetual query, "*Cui bono?*"—What is it all about?

And still we stand in an age of prophecy, and prophecy goes, if you will, very cheap. We have old men seeing visions and young men dreaming dreams. We have our peace ships. We have our peace congresses of mothers and wives getting together and throwing themselves, in good old Roman fashion, between the combatants. These are strange days, my brethren.

*An address delivered at the annual dinner of the American Institute of Architects.

The history of them is full of those things that are so simple,—that seem to us so tragic. And, in the midst of this prophecy, I have only one prophecy that I dare to make to-night, and that is that when this war is over the result of it, whichever way victory may lie, will be felt in the United States more than anywhere else in this world. And yet, I understand we dare not talk about preparedness; we must wait until the time has come when we must be prepared.

But that is not my subject to-night. I would not have chosen my subject as it is; it was given me by one of the institute, who asked me to speak on the "Education of Public Taste." Now that, to me, is an unnecessary thing to speak of in the presence of this institute. To you, who are doing all things, it seems impossible that I should tell anything about the possibilities of educating public taste; all the more so when, as I could not hear, I came and saw the growth, the wonderful strides that public taste is making year by year. I stand in rapt admiration of what you are all doing to give us the expression of those things that are latent in all true Americans.



THE DEPARTMENT OF HOUSEHOLD SCIENCE BUILDING, TORONTO.

This was a gift to the University of Toronto from the late Mrs. Massey Treble, who died in Santa Barbara last November. By her will an endowment fund of \$100,000 is left to this institution.

But, seeing I have been asked to do it, I do it in the same spirit in which the request came; for I can think of nothing more touching than the fact that you who are doing these things should so entirely for the moment forget your commissions in the spirit of the realization of your omissions, that you should write pamphlets and circulate documents and publish a journal, in the hope that you may be able to rouse America to a sense of the necessity of the education of public taste. It seems to me such a wonderful thing—so old, so ancient! Like the patriarch that labored all those years and forgot them, for the love he bore to her—the love you bear to your art.

And so, in the spirit of perfectly straightforward honesty, and having been asked to answer this question, I propose to say something to you that may seem very crude. It may have the transcendental uselessness of those counsels that transgress all the rules because they seem to discourage reasonable effort.

As a matter of fact, when we look at the beginnings of public taste, we must look at the history of our country. And there is a thing that could be written in a wonderful way, if someone could only do it—the story of how in the progress of our country, our history, we have gradually forgotten the individual entirely and gone into, not only the psychology of mob-motion, but the personal appreciation only of the mass.

We understand it perfectly. Our ancestors came up with the most wonderfully developed

taste, a small community. Except the ancient Greeks, there was never a community in the world so perfectly individualistic, so absolutely personal, as the Eastern Atlantic States in the seventeenth and eighteenth centuries. And then there came that great, sublime ideal,—no man can have reason that speaks against it,—that ideal that this Continent must be ours; we must possess it; we must cultivate it; we must cover it with a network of railroads; we must extract its mineral wealth; we must populate it—by ourselves, and by hordes of those who would come to us in the great principle—gradually diluting, if you will—in which our ancestors came here first.

But in that process we have long lost the appreciation of the copper cent. From the cent we have passed to the dollar; from the dollar we have passed to the thousands of dollars; from the thousands to the millions. And, in the same sense, the individual went into the mass. It is so much easier to handle the dollar than one hundred copper cents. So much easier to speak of one hundred human beings than one hundred personalities.

So we have gone on massing, massing, massing—working with masses until our alienists, teaching us mob-psychology, in order to make the vicious circle complete, divide us into double, triple, quadruple personalities—until we are in danger of making little mobs inside ourselves. And, when those little mobs come into existence, we may feel, perhaps, more at home, because we are so much more accustomed to dealing with



A COLONIAL HOUSE IN CONNECTICUT, U.S.A.

To the immediate rear of the house, sturdy oaks raise their branches, while sloping lawns retire gracefully to the waters of the Sound. An effective touch is added to the charm of house and grounds by the high white fence of Colonial palings which completely encloses the land. The approach leads through the sunken gardens, a section of which is visible in the accompanying illustration, across the grassy terraces to the severely simple Doric portico which dominates the facade.

masses than with individuals. We may, perhaps, feel a certain old-fashioned sense of shame in the presence of a little internal mob.

I say this in all seriousness, for it seems to me that the only problem we have to deal with in this difficulty in regard to public taste is the problem of private taste and the problem of the elevation of individuality. Taste is the most personal thing in the world. It is quite as personal as religion. A public taste could be, of course, the taste of a committee appointed by some political or organized mass; but it would simply be then the standardizing of the tastes of its members.

We may go beyond that. We may develop a taste among ourselves that may be harmonious. And that is what we are doing. To inculcate the whole thing, it is an absolute necessity that we should develop private taste—that people should come into harmony with their surroundings. The trouble is simply that we as a nation have forgotten for a moment the necessity of appreciating individuality.

A man goes through the streets of New York, his mind filled with wonderful schemes for helping the masses. He gets on the tram, he gets off the tram, and he doesn't see the man who runs that tram. He would do a great deal more good if he recognized the personality of that tram-conductor.

Really, rowdies are themselves the most courteous men in the world, if you only realize that. I come here and I say to the lift boy, "please," and the man takes his hat off to me a year afterward. I say to the man, "Forty-two, if you please," and he says, "Certainly, sir; thank you."

But this is, after all, only the appreciation of individuality. What other difficulty is there? These persons having been crushed by this massing movement—they are individuals—what are they doing? They are trying to escape individuality, poor things, by being all alike! We establish in this country the great principle that all men are free and equal; and then we spend all the time trying to be equal, and never try to be free.

Speaking for the masses, what is the freedom of our intellectual life? It is the equality of the headline in the newspapers. It does our thinking for us; it does, usually, our reading for us. And what is the freedom of our private dress, of our habitations? We stand there under that anæmic influence of commercial advertising. We find that the wonderful Icthyosaurus Department Store has ten thousand lingerie gowns at ten dollars, and at once ten thousand women must buy those ten thousand lingerie gowns. We find that the men who "saw that hump" put it on the toe of the shoe; and there-



"EUCLID HALL," FOR MANY YEARS THE MASSEY RESIDENCE.

This handsome house on Jarvis street, Toronto, was for years the residence of the late Hart A. Massey, and afterwards of his daughter, Mrs. Massey Treble. By the will of the latter, "Euclid Hall," together with all the land in connection therewith, is devised to such corporation created and organized for educational, hospital or other purposes in connection with the Methodist Church of Canada as the trustees may in their discretion appoint; if for educational purposes to be known as "Phelps-Massey College," and if for hospital purposes as "Methodist Deaconess Hospital" or "Methodist Hospital."

upon all our shoes wore humps, until we rebelled and sent them to Europe, where they are still wearing them.

Now, we may not be able to cure these things. I do not see how we are going to stop them. At the same time, don't forget that they ought to be stopped. Don't give up the great ideal, the possibility of education along these lines.

Don't you see? We are not all of us as we were yesterday. We know, more than we ever knew before, that we are a very mixed nation; there are so many of these "ignorant foreigners" coming in every day.

They're the people who go to the museum on Sundays.

They are men and women who know a good picture when they see it. They know it is a good picture, not because it cost a million dollars, not because the artist died last week, but because the picture speaks to them with the still, small voice of their own admiration.

Those are the people that are ignorant, and the people that are following in our lead.

There was once a man in this world who did more for culture than most men have ever done—Saint Benedict. He founded a monastic rule. In his rule, he puts the doctrine of *stabilitas*—stability. Don't you see, we need that rule. We need a little bit of the recognition of the value of the pools and backwaters. There is where your culture stands. We don't know the people that have had the most of it. Thousands of them we have never met. They are the quiet people, the *stabilitas*-loving people. They sit quietly in their pools and their backwaters, and the great stream rushes on.

And culture lives in the pools and backwaters, lives on things that have been done away with now. All taste is barnacles, if you will; but as soon as we wipe and wash and vacuum-clean all our civilization, where is the residuum, the sedimentary deposit, from which these precious things are to arise? When we find pools and backwaters we organize movements that will drain these things into the great rushing stream, instead of letting them lie there and respecting them.

This all seems criticism. It is not criticism of anything you have done, only criticism of conditions called forth by the spirit of our time. We have not had time to do these things yet, you say. Perhaps we have not, but let us take a quarter of an hour a day and think about them.

On the other hand, what we have done is so wonderful! You men have written these living books that can be read—that he who runs may read. Most people are running here, and so I suppose that is the most popular literature.

Take, for instance, New York. Take a man who is able to put the blessing of God in the shape of a cathedral, or a skyscraper; who is

able to make a Woolworth Building into a sort of amphibious thing, half commercial and half divine. Take your railway stations. I entered the gate of one to-day, a wonderful building, the great Pennsylvania station in New York. I entered it some two years ago, a dark winter morning, at seven o'clock, and there was a light such as I had never seen in such a place, a light such as exists in the Pantheon—that blue, purple dawn, scattering itself in those coffers. I forgot myself. I forgot I was in this prosaic America, and, standing before the man that was going to sell me my ticket, I exclaimed, "Oh! this is wonderful." Then I hesitated, somewhat confused; but I was agreeably surprised. The man said, "My dear man, I am the night ticket man, and that is what I sit up waiting for. Isn't it beautiful?"

You take a city which has on its Fifth Avenue a church like St. Thomas', and when we walk that avenue it divides itself into two parts for almost everybody—until you have seen it, and afterward when you are thinking about it.

The history of taste is a most marvelous series of vicissitudes. In the ancient world it stood again and again at the brink of failure. There came a time when the city of Rome was in the balance, when Totila had captured it and was preparing to raze it to the ground, in order to celebrate his victory. Those things are not so far away now as they once seemed. He was preparing to raze that wonderful city to the ground simply to show his joy in acquiring that valuable piece of real estate, and the Imperial General, Belisarius, wrote him a letter saying: "Great cities are not the work of one generation of men, or of one age, but of countless ages. And surely of all cities in this world the fairest is the city of Rome. And therefore, O Totila, should you destroy this city, and should you fail to win this war, what can you expect of us, of pity or mercy, after you have destroyed it? Whereas, if you win the war, how sorry will you be that you have destroyed the brightest jewel in your crown."

Totila spared Rome, and in sparing Rome he left to it that building which of all buildings is the most wonderful—the Pantheon. He left that building, and Boniface came and rescued it by making it into the Church of St. Mary and the Martyrs. And so it has stood there down into the present.

And when we stand in that Pantheon, and see that moving light and shade which thousands and thousands of our fathers have seen,—our spiritual fathers,—it means a beautiful thing which is not made by man, except in so far as its effects bring out the beauty of God. Those are the things in this world which create taste. They educate our taste. And God be merciful to those who, in any case, destroy a monument such as that!

New Building of The Robert Simpson Co.

A Modern Fireproof Building

ONE of the large buildings now under way in Toronto is that of the Robert Simpson Co., which is being erected on Mutual street, just north of Wilton avenue, on a site extending through to Dalhousie street on the rear.

The building covers the whole site, and is one hundred and fifteen feet by two hundred and seventy-nine feet, and will be eleven storeys in height, to contain the mail order business of the company, which has grown to an extent that makes necessary the space to be provided by the structure illustrated herewith.

Reinforced concrete of mushroom construction, with brick panels, provide a handsome and durable exterior, and is in line with modern fireproof practice. In the front above the first floor no pillars are shown, leaving an unbroken front of glass extending from the two towers, the piers being set back to provide for this feature. The first floor on both sides extends over

an areaway where all deliveries will be handled, and while the building has a rear street frontage two bays are also placed there, so that all handling of freight will be on the property of the company, and will not interfere with street traffic in any way. A steel chimney will be erected from the boiler room.

"Canada should seriously take up the question of engaging her ship-building facilities," said a Scotch ship-builder in answer to a question whether the Dominion could compete with the Clyde or Tyne yards. "Material and labor are at hand in Canada. The only question hitherto has been that of cost, and while formerly the cost of building in British yards has been six pounds per ton on the average, it has now risen to fifteen, which is higher than you should be able to build them in the Dominion."



NEW WAREHOUSE BUILDING OF THE ROBERT SIMPSON CO., NOW BEING ERRECTED ON MUTUAL STREET, TORONTO.

MAX DUNNING, ARCHITECT. BURKE, HORWOOD & WHITE, CONSULTING ARCHITECTS, TORONTO.

The Farmers' Dairy Building, Toronto



SOUTH AND FRONT EXTERIOR OF THE FARMERS' DAIRY BUILDING, TORONTO.

THE Farmers' Dairy building, completed in 1915, offers an example of simplicity and quiet dignity as applied to buildings of the factory type, which of necessity must be placed in districts more or less residential. The site of this structure is on Walmer road, Toronto, immediately below the "Hill," where it is surrounded by homes. In selecting this location the directors had in view the receiving of the milk from the dairy farms which abound in York County, the highways of which converge close by, while a railroad line from more distant points is close at hand. This site also makes for quick distribution of the dairy products to the homes of their many customers. Nothing objectionable can be charged against the locating of the plant here, as smoke and noise are entirely abated, and the character and design of the building is not out of harmony with the surroundings.

This building is constructed of reinforced concrete, the exterior being finished with a coat of cement and painted, the use of exterior facing material being eliminated. The dairy has a frontage of one hundred and five feet by ninety feet deep, and contains two storeys and basement. In the ar-

range of the interior three important processes were to be provided for, viz.: First, the reception of the milk and its conveyance to the pasteurizing room; second, reception of the empty bottles and their conveyance to the cleansing room; third, the conveyance of bottled milk to the cold storage rooms.

A glance at the floor plans will show how well the above were arranged for, and all waste motion obviated.

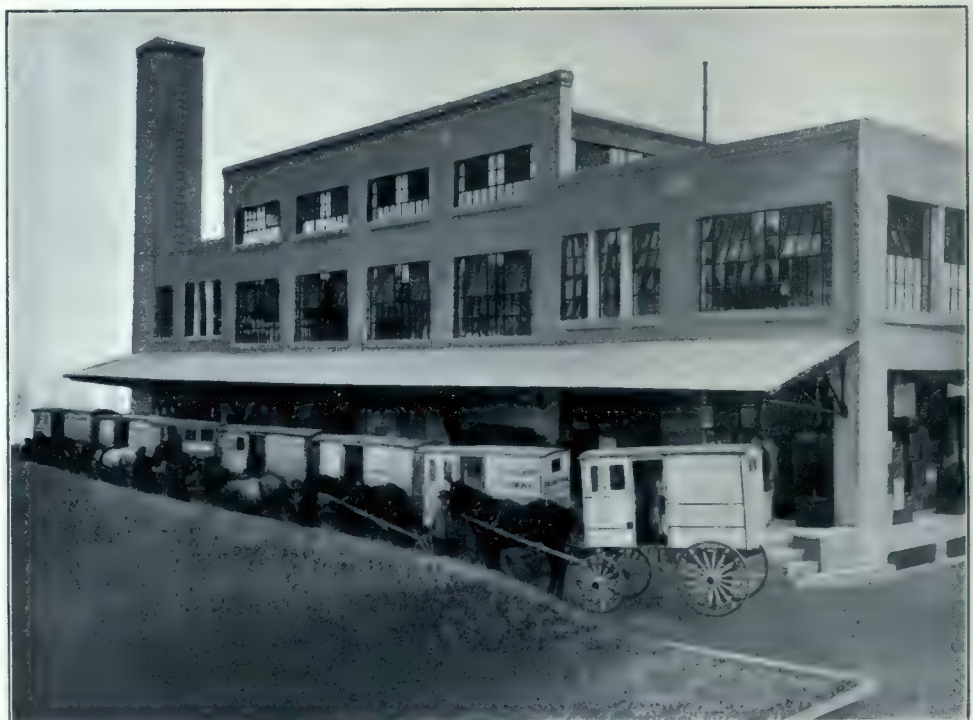
Throughout the dairy proper wood is eliminated; concrete, steel and

glass provide for modern sanitation, as well as making same absolutely fireproof.

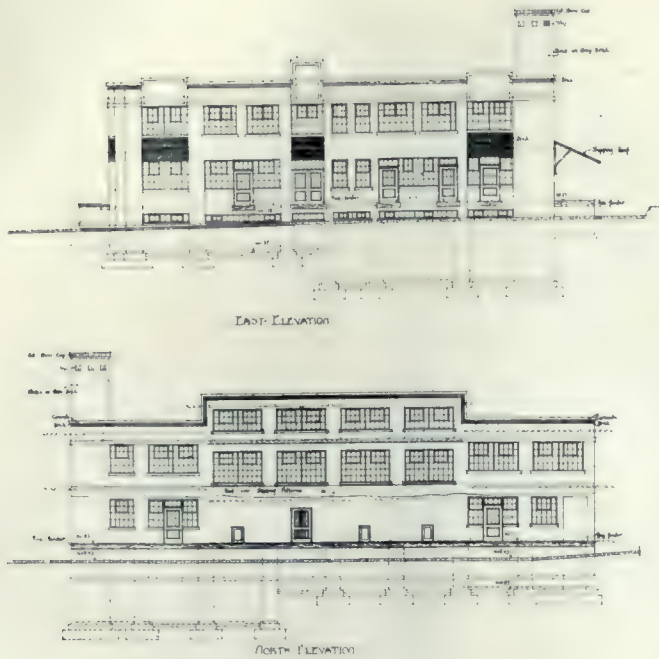
In the modern factory inspection of process by the public is invited, and in this example provision has been made for the closest scrutiny by having visitors' corridors separated from the actual machinery by partitions of glass.

In the basement are placed the workshop, refrigeration equipment, dressing rooms and power plant. Two boilers of the return tubular type are installed, and coal is delivered through a chute in areaway direct to coal room.

In addition to the refrigeration equipment of



NORTH AND REAR EXTERIOR OF THE FARMERS' DAIRY BUILDING. SYMONS & RAE, ARCHITECTS, TORONTO.

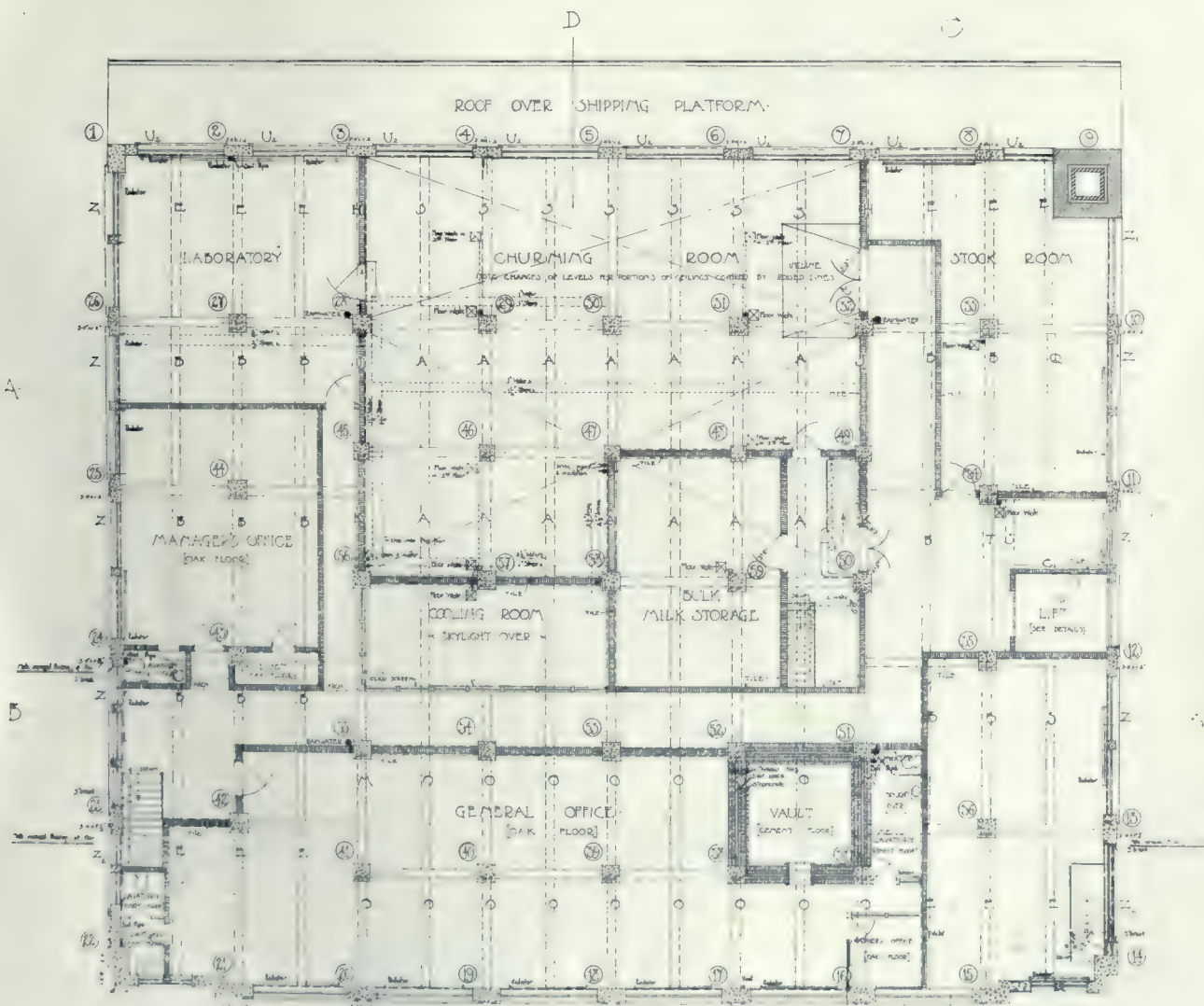


the company which was removed from the old premises on Queen street west, and re-erected in the new building, the following apparatus was installed: One ammonia condenser and receiver, one ammonia oil separator, gauges, brine tank, brine circulating pump, brine cooler, to-

gether with the necessary thermometers, valves and fittings.

The ammonia compression system of refrigeration is used, which, briefly, may be described as follows: Anhydrous ammonia is used as the refrigerating medium, or refrigerant, partly on account of its high latent heat of vaporization or heat absorbing quality, and partly because of the fact that it may be reliquified after expansion and vaporization at comparatively low pressures. In its natural state, at atmospheric pressure and ordinary temperature, anhydrous ammonia is a gas or vapor.

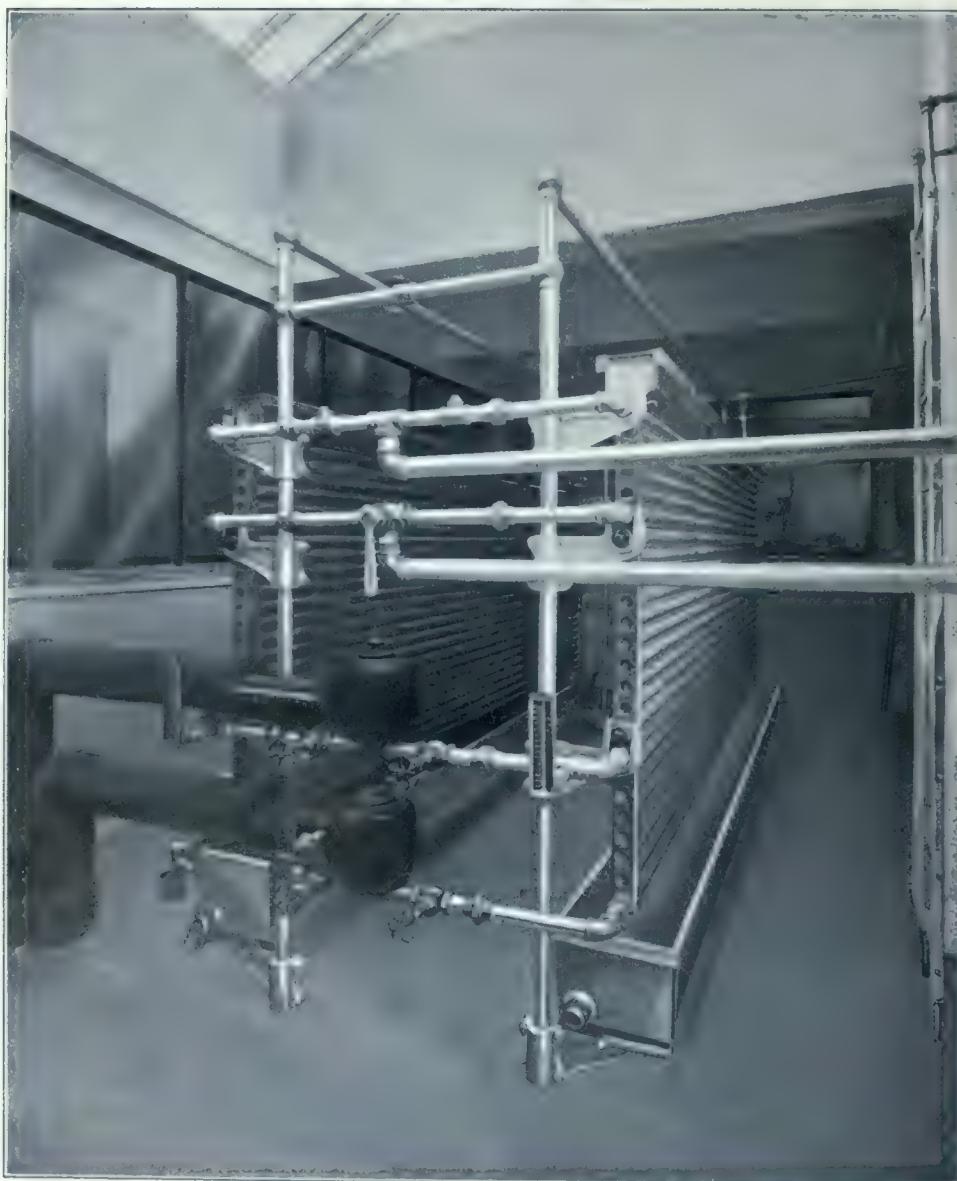
The refrigeration process takes place during the transformation of the ammonia from a liquid to a gas, and is accomplished by allowing the liquid, compressed to 150-170 pounds (roughly), to pass through a special valve, known as the expansion valve, to the expansion piping, in which a much lower pressure is maintained. The ammonia tends to vaporize at the lower pressure, but in order to do so it must be supplied with a certain amount of heat, namely, its latent heat of vaporization. The heat is absorbed from the surrounding substances or bodies by the ammonia in its passage through the piping after leaving the expansion valve.



GROUND FLOOR PLAN, FARMERS' DAIRY BUILDING, TORONTO. SYMONS & RAE, ARCHITECTS, TORONTO.



BOARD ROOM OF THE FARMERS' DAIRY BUILDING, TORONTO.
SYMONS & RAE, ARCHITECTS, TORONTO.



COOLING THE MILK AFTER PASTEURIZING, THE FARMERS' DAIRY BUILDING, TORONTO.

Through the expansion side of the plant the now vaporized ammonia returns to the compressor, is re-compressed and forced through the condenser, where its latent heat is absorbed. From the condenser the ammonia flows into the receiving tank, and from there to the expansion valve, to commence again its cycle. The expansion takes place through piping placed in direct communication with the substance to be cooled.

The pipe covering is of sectional moulded cork, painted with black asphaltum paint.

The walls and partitions of the cold storage rooms are of hollow tile, covered over with two-inch corkboard in a one-half-inch bed of cement, all vertical joints being broken. A second two inch course of corkboard was then added, laid in hot asphalt cement, and additionally secured to the first with galvanized nails, followed with an interior course of hollow tile.

The floors, of concrete, were first covered with four-inch corkboard in two courses, this being flooded with hot asphalt and a three-inch working concrete surface laid over same. Over the boiler room six inches of corkboard was used in two courses, laid as described above, and all exposed hollow tile and corkboard surfaces on walls and ceilings were finished with one-half-inch cement plaster, applied in two coats with a float finish. A temperature of 35 to 40 F. is maintained by the fan blast system on a basis of twelve-hour compression operation. All doors are of special make.

On the ground floor are located the receiving and delivery rooms, can, and

bottle washing department, storage rooms, etc., and sales rooms occupy the front portion of this floor. The first floor comprises general offices, board room, laboratory, churning, cooling, storage and stock rooms. In the offices and board room hardwood floors are laid over concrete. Employees' rest rooms and shower baths are also a feature of this plant.

Since the erection of the dairy building work was started on the stables, which is now nearing completion. This building is on the same site, but some distance away, and facing on another street. Built of concrete reinforced construction, this structure will contain storage for vehicles, stabling accommodation on the second floor, blacksmith, carriage and paint shops completely equipped.

CANADIAN STONE PROTECTION

The decision of the Government to increase the duty on dressed stone, announced by Mr. White during his budget speech, is the result of representations made by stone cutters and quarry owners throughout Canada. The Montreal Builders' Exchange have taken a foremost part in asking the Government to give increased protection to this industry and have been represented on two deputations which have waited on the Government. The stone cutting and quarry trade section of the Montreal Builders' Exchange presented a very strong petition to the Minister of Finance, setting forth the need for higher duties. They then asked for a specific duty of 65 cents a cubic foot on building stone of any kind, sawn, dressed, hewn, polished, or otherwise manufactured. The Government, however, propose that the duty of 20 per cent. on dressed stone should remain on stone



GENERAL OFFICE OF THE FARMERS' DAIRY BUILDING, TORONTO.

sawn on two sides, but if sawn on four sides it will pay 15 cents per 100 lbs.; and if turned, cut or further manufactured, 45 cents per 100 lbs. The Canadian stonecutters and quarry owners contend that there is plenty of suitable stone in the Dominion for all purposes, if the industry were given proper protection, although architects who specify Indiana limestone and Ohio sandstone state they do so for the reason it is most suitable for their purposes.



MILK BOTTLING ROOM OF THE FARMERS' DAIRY BUILDING, TORONTO.

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ENGINEERING AND CONTRACTING
INTERESTS OF CANADA



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CONTRIBUTIONS.—The Editor will be glad to consider contributions dealing with matters of general interest to the readers of this Journal. When payment is desired, this fact should be stated. We are always glad to receive the loan of photographs and plans of interesting Canadian work. The originals will be carefully preserved and duly returned.

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FRASER S. KEITH - - - EDITOR AND MANAGER

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QUANTITIES AND CONTRACTS

The method in vogue of estimating from plans and specifications, which has been in existence during the past generation, and possibly longer, is about to be superseded by a more efficient method.

No matter how many men or firms are figuring a building each takes off his own quantities and figures accordingly, and the time allowed for determining the value of work is now, generally speaking, too short. Someone has said accuracy is too often sacrificed for speed. Present methods are conducive to error and resulting complications. Estimating as it is now done

entails an immense amount of wasted time and energy, as one individual could take off the quantities ready for pricing, whereas twenty, perhaps, are doing the same work, all going over the same ground. The builder in the various lines wastes a great deal of his own time and the time of men in his employ in taking off quantities for estimating. If this wasted time and energy could be devoted to supervising actual construction work on hand, it would be much better from the standpoint of efficiency, and, incidentally, profit. The builder may not add a particular item for the wasted time and energy in an estimate, but in the overhead cost of the various buildings he does; it becomes a serious item of office expense, and therefore must be, and is, paid for eventually by the owners, although under our present methods he may never realize the fact.

It appears that we are wanting in efficient methods in this particular. Owners may pay in the end many times over for taking off the quantities of a building; this would not be the case if one well-trained person were to take such quantities off and duplicate lists of these quantities furnished to each bidder as a uniform basis upon which to figure. This would help to reduce the cost of construction in the sense that a builder would be able to devote more time to the work he has in actual progress. He would have more time and a clearer mind with which to consider the numerous questions which always arise in carrying out work; greater efficiency and less waste would result.

It would seem, therefore, that the creation of the office of quantity surveyor, licensed by the Government, or appointed by the architectural associations, is desirable; men who have special training in this work and who are responsible and competent. The plans and specifications would pass into his hands from the architect. His duty would be to prepare a bill of quantities of the various materials required for the construction of the building. This bill of quantities, with the plans and specifications to be submitted to the various bidders who are to figure the work. The plans and specifications to indicate the conditions under which construction will take place, height of building, character of work, etc., and the bill of quantities to indicate the quantity of materials of all kinds which the successful bidder is expected to furnish. The bill of quantities should be made the basis of the contract entered into between the builder and the owner. Should more materials be required the builder to be paid for same at his own unit rate, and if less materials are required, the same to be deducted from the contract at the unit rate. This would result in a great saving of energy and time now wasted, and result in a better understanding between all parties.

Some builders seem to be opposed to change

in our system, taking the position if changed anyone from a candlestick-maker could become a contractor; therefore, the business would become overcrowded and would not be a profitable business in which to engage. There is nothing to prevent that now, and, unfortunately, it does occur. It appears that profits are not the result of our system of estimating. Our system is responsible for the losses, because it is impossible for a bidder in the hurry generally necessary in taking off quantities to accurately and intelligently do such work for several reasons, consequently he must use his building instinct and judgment to guess "right" in greater or less degree in making up his estimate, and it is through resulting errors and by omitting quantities altogether that losses occur.

The great variation in figures submitted for buildings is due not to the unit prices used, but is due to the difference in the quantities each bidder takes off. This variation in quantities is due in part to the difference in the judgment of the various men taking off quantities, time being usually too short, and consequently under our present unscientific, inefficient methods of estimating there must be more or less guessing as to the quantity of materials required.

The profit in building—when there is any—is due rather to the ability of the builder to buy materials at the best market price and to his efficient methods in conducting his operations and managing his business.

The quantity system, or some method of payment based on the quantity of work actually executed, would make the business more profitable to the builder, less costly, and therefore a better investment for the owner.

The survey system, as it is called, dissects each and every part of the work, telling the amount of the material required and the length of time, together with the cost necessary, to complete any part of any building. In the case of the owner this system will show what material and labor is required to complete his house. It shows him the kind and grade of material, and by following his cost sheet, as the building progresses he may prove to himself that he is receiving exactly what he is paying for. It is a great saving of time in estimating by the contractor. Instead of many men figuring the same plan in the ordinary way, it is surveyed by the estimator according to plans and specifications.

This system is now being exploited by private companies, and herein lies an opportunity for the various architectural associations and builders' exchanges to work together with a view to facilitating construction and lessening its cost. There are many men in Canada who have had considerable experience in taking off quantities who could be appointed official estimators by the associations of architects and

thus have recognition from the members of the builders' exchanges. In carrying out this procedure it would call for co-operation between the architects and builders, the discussion of which would bring the two bodies of men in closer contact and would have the result of being advantageous to both parties.

ON A BASIS OF EDUCATION

While nearly every professional and technical organization in Canada bases its reason for meeting on the ground of educational advantage by listening to a paper or address by some one of its members on a subject upon which he is probably more familiar than the others, resulting in a discussion by the various members present, the architects of Canada have not yet generally adopted this plan. There is no denying the fact that by meeting on such a ground in this manner the members of any profession are brought in closer sympathy with each other in the very discussion of the problems that confront the individual, and at the same time should be in the way of becoming better posted on the various subjects under discussion.

It is so generally admitted by individual architects themselves that such a system would work out greatly to the advantage that one wonders why it has not been adopted before this.

The Canadian Society of Civil Engineers, whose profession is the most closely allied with that of the architects, and whose work often brings them together on a common ground, have adopted a plan that might well be followed. It happens that the central organization of the Civil Engineers is at Montreal, where the society has a handsome building designed for its own purposes. Here meetings are held weekly, at which a paper is read by a member of the society on some subject relating to civil, mechanical, electrical, mining or chemical engineering, after which a free discussion on the part of the members is indulged in. In every one of the large cities of Canada a local branch of the society exists, where the same procedure is adopted, although the meetings are not held as often as in Montreal, where the largest number of members is to be found. The result of this not only stimulates the interest of the members in the subjects discussed, but it makes them better acquainted, brings them together more often than they would otherwise meet, and creates a bond of union and sympathy that would be impossible under other conditions.

With the experience satisfactory in every way of the Civil Engineers as an incentive the Architectural Institute of Canada, through its Provincial organizations and local chapters, could adopt a similar system which would be of the greatest possible benefit to every member concerned.

Architectural Digest

Articles of More Than Passing Interest From Our Contemporaries

BALANCE IN DESIGN.

Equal disposition of mass about a centre or axis is due to a law having its origin in the demands of equilibrium. In architecture the rule applies rigidly to free-standing parts and components, such as columns. It cannot always, and need never, of necessity, apply to a whole composition. No doubt a peculiar dignity, not obtainable otherwise, attends the exactly-balanced facade in monumental buildings; but site, circumstances, and practical conditions often make it an impossibility for the designer to proceed on centre-and-wings principle. We have, then, to design irregular building masses with grace and beauty. Irregular architectural composition favors variation and novelty, that which at first sight seems an evil need not necessarily prove so. Looking back into architectural history, we see that irregular plans are by no means inconsistent with grandeur of effect. The departure from exact balance in Gothic buildings gave them one of their greatest charms.

In all great styles the rule of exact symmetry in the part is closely followed. This assertion may seem inconsistent with fact, and would be so did we not here include all components that are wanting in exact equal-sidedness by reason of their breaking into other masses. Where a square plan breaks into a circular, the square and the circle are broken; but the spirit and intention in the square and in the circular plan is exact symmetry. When, therefore, we assert that in all great architectural styles the law of equal disposition of mass about a centre or plane is duly honored, we include, for the reason stated, symmetrical components breaking into others. It is possible that those of expansive views, but small practical experience in architectural design, would regard part breaking into part, and leaving an irregular junction, as fatal to all beauty of effect. The architect will contend that such irregular junction, whereby something on asymmetric principles is produced by the union of two symmetrical objects, is not only without offense, but may originate great beauty and interest, and is quite an essential in the "picturesque." If we generally agree upon this, then something is gained of practical usefulness to the asymmetrical planner, and to all those whose minds are greatly exercised with questions of "balance" whenever they are compelled to abandon the principle of centre-and-wings.

The stair-turret and the tower are largely evidenced in our old village churches. We have shown that both the turret and the tower are planned, in spirit, as objects of geometrical regularity and exact symmetry (so called). As carried out, an irregular, unbalanced mass is produced. To destroy symmetrical orderliness by breaking the one into the other seems, at first, a crude idea, likely to cause offense; but we have urged, and taken for granted the concurrence of the reader in our view, that no such offense is produced, but that, on the contrary, a resultant architectural mass of true beauty and interest is obtained.

Under certain conditions, an element or compound will crystallize in true "symmetry" as a cubical figure, a tetrahedron, or the like. Under other conditions the crystals cluster. The free-born, regular, isolated crystal is an object of beauty; but no less beautiful or interesting is the group of associated crystals. Yet here, as with our turret and tower, and as in the case of all irregular junctions of divergent masses in building, broken and diverse—symmetric—forms are produced; but so much of each crystal as exhibits itself is true to the crystal form, true to angle of crystallization, and possessed of symmetry. On the face of things, one might conclude that the irregular massing of crystals would destroy their beauty. All who carefully ponder this matter will admit, we think, that the resultant forms, lines, outlines, and masses are beautiful, often very beautiful indeed, and highly suggestive for the picturesque grouping of masses of building on the asymmetric system—that is, opposed to the centre-and-wings arrangement. We should consider this natural phenomenon, and endeavor to establish some general proposition respecting the breaking-in of part to part in architectural composition. On elevation, such masses may appear at times "lopsided"; but this effect of out-of-balance disappears in perspective.

Once we have, either by choice or necessity, abandoned the centre-and-wing plan, we must, we assume, proceed on a different fundamental design principle. Asymmetrical or irregular composition must be adopted without compromise. There must be no weak leaning towards the rules of symmetry, and we should ascertain what will be the true effect of masses in execution before we amend apparent defect on elevation. Equal-side, centre-and-wing composition of a whole facade is one way; the other is totally different. It was, sometime back, observed to us on passing a block of office buildings, that it seemed that the tower "should have been bigger." The observation was not made by an architect; but, all the same, it was much to the point. A strictly "symmetrical" facade, with equal mass right and left, up to about roof-line, had on one side a weak, half-hearted turret, an excrescence just budding, one might say. The effect and impression was that the designer had hesitated to destroy the exact equal-sidedness. Had a bold tower been provided, the composition, from a mere tribute to pseudo, or distorted, symmetry, would have passed clear into true asymmetry.

In a very difficult subject, we have endeavored to suggest two rules for guidance in irregular architectural composition, such as we find must necessarily pertain in the great majority of buildings: firstly, to maintain the great principle of mathematical equal-sidedness in the part, either actually, as in a column, or in spirit and intention, as in the circular turret breaking into the square tower; and, secondly, that when once the symmetrical whole facade is not possible, or not desired, the asymmetric principle should be consistently observed. If we believe in the former suggested rule, we shall not put pilasters with one left-hand volute on the right side of a facade, with a right-hand, single-voluted cap on the left wing. In irregular architectural composition we must needs be too urgently concerned in rendering each part beautiful to have time to waste in perpetrating these or other monstrosities. The offense is against the rule of studied "symmetry" in the part. The strongest argument for irregular architecture, and

for dispersed ornamental device, is that each part of the composition may be so fashioned as to be interesting and graceful, irrespective of other parts. In unbalanced (in a sense) composition we need not distort the unit for the sake of some whole effect; and a beautiful building, surely, should be such that, as we pass along, every part, contributory to the whole, should appear an object of interest and beauty. Then architecture bears comparison with music. Our subconsciousness, or memory, holds the general air and progress of rhythm and melody, while our immediate consciousness is enthralled with the instant harmony. We cannot have it both ways; either there must be symmetry, so-called, or asymmetry—either a St. Owen interior or a west front of Rouen Cathedral.

The idea that we must "balance" in irregular architectural composition is often a delusion, an impression, a legacy of lingering sympathy with exact equal-sidedness, itself largely the outcome of habitual elevational display of architectural device. The lion is sufficiently like the unicorn to balance in heraldic composition; sufficiently unlike to give individual interest to dexter and sinister hands. If we duplicate either the real or the mythical quadruped, we certainly attain exact equal-sidedness; but sameness is substituted for variety. This, by the way, demonstrates the fundamental difference between asymmetry and symmetry, so-called. We cannot however, deal with architectural mass as the herald employs lion and unicorn. Divergent "twin" towers to cathedral west-ends may have a certain quaintness; but we generally feel dissatisfied, or unconvinced. The failure may, perhaps, be accounted for as the result of an attempt to graft asymmetry on symmetry, which we have endeavored to show is not possible. We must either produce the monumental, equal-sided building, or start away on a new plan, based on quite a different principle. Small variations in detail are added charms in many symmetrical compositions; but a great belfry is not a detail.—Chas. H. Sturgis in "Architecture."

APPLY MODERN METHODS TO SUPERVISION OF BUILDING WORK.

The surprisingly low ratios of efficiency obtaining in some of the departments of state and city government having jurisdiction over the construction, equipment and operation of factory buildings, in New York City, revealed by the investigations held as a result of the Diamond candy factory fire seem to add tremendous weight to the contentions of those who advocate a consolidation of all departments governing building construction. That the present plan, involving as it does a division of responsibility among various departments, leads to a waste of public funds, and gross inadequacy of service appears now to be pretty thoroughly established.

Under the laws nominally in force here at present—and it is probable that conditions differ but little in other cities of the first class—factory buildings are inspected by seven, tenement houses, theatres and motion pictures by six, and office and hotel buildings by five separate and distinct departments. The advantages to be derived by establishing one bureau and conferring upon it complete jurisdiction over building construction and alterations are many, and would seem to be so apparent that all classes coming in active contact with building work must recognize them. It would, for example, inevitably lead to the establishment of high standards of inspection in place of the present multiplicity of ineffective and superficial inspections with divided responsibility. It would at the same time greatly reduce the cost of this work to the city, and add immeasurably to the convenience of architects, builders and owners.

The Advisory Council of real estate interests, in recommending a unification of all departments controlling the construction, equipment and repair of buildings, goes on record as follows:

"If this consolidation of building inspection departments should be accomplished, friction between minor city officials and property owners would largely disappear, while simultaneously some saving should be effected to the annual budget by the elimination of those positions consisting of similar duties. Economy and efficiency is not a slogan merely for taxpayers, but realization is gradually dawning upon the rentpayer that the high cost of living here is largely due to high taxes, and that high taxes can be partially accredited to extravagance in the administration of many of the city departments. It has been difficult to make progress in this respect, because of the mandatory legislation imposed on the city by the State Legislature. If a large part of this legislation could be repealed during the coming legislative session, and the various conflicting duties of the various city departments co-ordinated and unified under a single department, the mayor and the comptroller would have corrected one of the chief evils in our local government."

An advantage not noted by the various bodies which have given endorsement to this movement for consolidation of departments controlling building work, is the amount of time which it might be expected to save in the securing of permits for new buildings or alterations to existing ones. Under present laws the filing of plans at various departments and the necessity of securing the approval of some departments before the consideration of others can be obtained—traveling from one part of the city to another, and in general attempting to comply with the complex and often conflicting requirements of different departments—has resulted in not only a burden of expense and inconvenience to the architect, but a real loss to the owner, the construction of whose building cannot be undertaken until the approvals of all the various city departments have been secured. In the interest, therefore, of economy, convenience, thoroughness and general efficiency—in fact from every point of view except possibly that of the politician or holder of some of the easy berths existing by reason of the present lax and indefensible methods—it would seem desirable, if not actually mandatory, to consolidate and bring under one responsible head all the various branches of city and State government now charged with the control of building work.

As suggested by the Advisory Council of the real estate interests, it is devoutly to be hoped that conflicting legislation will be repealed and new laws necessary to the establishment of the new order of things passed as the first important act of the coming session.—"American Architect."

Construction News

The following information is obtained from our correspondents, from architects, engineers and local newspapers. These items are published in our Daily Report Service, and are herein compiled for the use of subscribers to the monthly issue of "Construction." Should any of our readers desire this information daily we will be pleased to submit prices upon request

CIVIL ENGINEERING.

BRANTFORD, ONT.—City of Brantford propose installing natural gas plant.

BRANTFORD, ONT.—Township of Brantford, A. M. Jackson, Tempie Building, has called for tenders for bridges, concrete or steel construction.

CALGARY, ALTA.—City of Calgary will erect bridge, steel construction; cost \$24,000. Tenders now open.

COLLINGWOOD, ONT.—Tenders open for water works apparatus, steel tower and foundation, pumps, pump well, etc. Chairman, H. A. Currie; engineers, Chipman & Powers, Toronto.

CORNWALL, ONT.—Town Council have awarded contract to John Inglis, Toronto, for boiler and pump equipment.

DRUMMONDVILLE, P.Q.—Town of Drummondville, P.Q., will erect pumping station and filters. Tenders close March 15, 1916.

GLADSTONE, P.E.I.—Department of Public Works, Charlottetown, P.E.I., has called for tenders on a new bridge over Fox River. Engineer, L. B. McMillan.

HAMILTON, ONT.—Hamilton and Toronto Highway Commission have plans for new bridge.

HULL, P.Q.—New bridge over Gatineau River proposed. Chairman, Archambault.

LACHUTE, P.Q.—Town of Lachute has awarded contract for water-mains to Contractor R. Arthur. Contract for new bridge has been awarded to Messrs. Lafleur & Bernier by the Province of Quebec.

LEAMINGTON, ONT.—Town Council has called for tenders for reinforced concrete work.

LONDON, ONT.—City Council are calling for tenders on new sewers.

ONTARIO—Plans are being prepared covering good roads by the Counties of Kent, Brant, Lambton, Victoria, Elgin, Prescott, Dundas, Stormont and Glengarry.

OTTAWA, ONT.—City of Ottawa, engineer, J. B. McRae, 310 Booth Building, has called for tenders on pumping station and equipment on Lemieux Island.

PEMBROKE, ONT.—County of Renfrew, clerk, R. Roney, has called for tenders on new bridge.

PORT STANLEY, ONT.—The Dominion Government propose erecting a new bridge here, of steel construction.

PORT STANLEY, ONT.—Dominion Government will improve docks at a cost of \$115,000. P. Pocock and M. D. Fraser, Port Stanley, interested.

TORONTO—City of Toronto has called for tenders for special tracks. Plans at room No. 10, City Hall.

TORONTO—City of Toronto, contract awarded for new bridge at Bathurst street, to Canadian Bridge Co.

VICTORIA, B.C.—Canadian Northern Pacific Railway has awarded contract for new bridge over Selkirk River to S. Doe for \$20,000.

WINDSOR, ONT.—City of Windsor has called for tenders on sewers for Elsmere and Marenette avenues. Engineer, M. E. Brian.

WINNIPEG, MAN.—City of Winnipeg has opened tenders for water mains on Doncaster street.

WINNIPEG, MAN.—City of Winnipeg propose laying new asphalt pavement on MacGregor street at an estimated cost of \$40,000.

YORK COUNTY—Engineer E. A. James, Toronto, has completed plans for roads to cost \$800,000.

CLUBS, THEATRES, HOTELS AND HOSPITALS.

ALBERTA PROVINCE—Province of Alberta, architect, M. Blakley, Edmonton, will erect asylum.

BRANDON, MAN.—Addition proposed to General Hospital.

GUELPH, ONT.—Griffin Amusement Co. will erect a new theatre on St. George street. Architect, W. Mahoney, Guelph.

GUELPH, ONT.—Guelph Theatre Co. have plans completed covering alterations and additions to present building, covering brick work, flooring and seating accommodation.

HAMILTON, ONT.—City of Hamilton; secretary, S. H. Kent; architects, Stewart & Whitten; alterations to hospital. Tenders have been called for steam fitting.

KINGSTON, ONT.—New nurses' home proposed for Hotel Dieu. Chairman of committee, Dr. A. B. Williamson.

LONDON, ONT.—Tenders called for addition to Victoria Hospital. Architect, A. E. Nutter.

MEDICINE HAT, ALTA.—Sisters of St. Louis propose erecting new hospital on Crescent Heights to cost \$15,000.

MONTREAL, QUE.—Metropolitan Columbus Association propose erecting new building.

OTTAWA, ONT.—City of Ottawa have plans ready for sun room addition to Isolation Hospital to cost \$6,000. Architects, Millson & Burgess.

REGINA, SASK.—Department of Education; secretary, W. Scott, are preparing plans for institute for the blind to cost \$30,000.

ST. THOMAS, ONT.—Alterations will be made to Amasa Wood Hospital. Architect J. T. Findlay has called for tenders.

SYDNEY, N.S.—Architect R. A. Frechette, 30 Bonnacord street, Moncton, has called for tenders on Knights of Columbus club house to cost \$6,000.

WINDSOR, ONT.—Oscar Fleming and G. McGregor propose erecting new hotel, Ouilette and London streets.

WINNIPEG, MAN.—Department of Education, Minister G. L. Caldwell, propose building deaf and dumb institute.

VANCOUVER, B.C.—Plans completed of new theatre for Broadway Moving Picture Theatre Co., to cost \$50,000.

VICTORIA, B.C.—Department of Public Works, architect, H. E. Young, will prepare plans for new asylum.

ELECTRICAL CONSTRUCTION.

BEADLE, SASK.—Beadle Rural Telephone Co., secretary, J. Buckingham, have taken tenders on new telephone construction and equipment.

CALGARY, ALTA.—City of Calgary has awarded the following contracts: Electric light arrestors, \$5.13 each, to Canadian Westinghouse Co.; reactors, \$1,825, to Northwest Engineering Company.

COBDEN, ONT.—Town of Cobden will purchase electrical equipment.

HAMILTON, ONT.—City of Hamilton, clerk, S. H. Kent, has received tenders for renewal and re-erection of motor pumps and electrical equipment.

NIAGARA FALLS, ONT.—Niagara Power Co. preparing plans for developing 250,000 additional horse-power.

ORANGEVILLE, ONT.—Dufferin County Court House to be rewired. Clerk, J. C. Reid.

SASKATCHEWAN—Marienthal Telephone Co., secretary, A. G. Vinje, Torquay, Sask., has called for tenders on new telephone system.

ST. THOMAS, ONT.—City of St. Thomas have awarded contract for new transformers to Canadian General Electric Co.

TORONTO, ONT.—Board of Education has called for tenders on electric conduit work, etc.; architect, C. H. Bishop, City Hall.

Factories and Warehouses.

BERLIN, ONT.—John Forsythe Co. will erect addition to factory, brick construction.

CAMPBELLFORD, ONT.—The Northumberland Paper and Electric Co. will rebuild mill recently destroyed by fire.

CALGARY, ALTA.—Ford Motor Co. site secured for new plant; cost \$200,000.

EDMONTON, ALTA.—Emery Mfg. Co. preparing plans to rebuild building destroyed by fire.

FENWICK, ONT.—W. L. Horton and Irvin Lambert will erect saw mill; new machinery required.

FORT WILLIAM, ONT.—J. I. Case will erect warehouse.

GUELPH, ONT.—Alex. Callander will erect a new foundry to cost \$8,000.

HAMILTON, ONT.—Hydro Commission have awarded contract for new warehouse to Dickinson Building Co.

HESPELER, ONT.—A. B. Jardine Co. will rebuild plant recently burnt. Contracts let: for masonry, Grill Bros.; carpentry, Presteen & Bartles.

KINGSTON, ONT.—Richardson Co. will make additions to elevator early in the spring.

LONDON, ONT.—Parnell Baking Co. will make additions to plant to cost \$35,000.

MONTMORENCY FALLS, QUE.—Dominion Textile Co. will make addition to plant.

MONTREAL, QUE.—J. H. Rainville, M.P., interested in new cutlery factory to be erected on south shore; cost \$250,000.

NIAGARA FALLS, ONT.—The Union Carbide Co. will make additions to factory to cost \$25,000.

NIAGARA FALLS—Pollard Manufacturing Co. will erect new plant; have purchased equipment of the Dominion Safe and Vault Co., of Farnham, Que.

NEW TORONTO, ONT.—Brown, Cooper Brass Co. have awarded contract for new factory to Toms Contracting Co.

OAKVILLE, ONT.—Wallace, Chapman & Marshall require machinery for box factory.

OTTAWA, ONT.—New storage and office building to be erected by city of Ottawa. Engineer, F. C. Askwith.

PELEE ISLAND, ONT.—J. C. Pennington, Windsor, Ont., is preparing plans for warehouse for N. McCormick.

PETROLIA, ONT.—Alviston Flax Co. have secured site for new flax mill.

PRINCE RUPERT, B.C.—T. M. Michaels and F. J. Burling are preparing plans for woodworking plant and sawmill.

PRINCETON, B.C.—British Columbia Copper Co. will erect smelter.

SAULT STE. MARIE—Algoma Steel Corporation will make additions to their plant.

ST. CATHARINES, ONT.—Metal Drawing Co. will make additions to plant.

ST. THOMAS, ONT.—Factory plans completed by St. Thomas Milk Co. for new plant on Railway and Wellington streets. Tenders called.

STRATFORD, ONT.—Avon Hosiery Co., Erie street, will erect factory, architect, T. J. Hepburn; cost \$15,000. G. Laughlin Furniture Co. preparing plans for four-storey factory addition, 60x160 feet. R. M. Ballantyne contemplates addition to plant.

TORONTO, ONT.—Ideal Bread Co. have plans completed for addition to their plant on Argyle street.

TORONTO, ONT.—Dunlop Tire Co., Booth avenue, will make additions to plant, plans completed.

TORONTO, ONT.—Factory, three-storey brick, to be erected by Andrew Peet Mfg. Co., Boston, Mass., in Earls court district.

TORONTO, ONT.—R. J. Mitchell, 661 Queen street west, will erect new factory. Scythes & Co., 22 Church street, P. Atkinson, architect, have plans for addition to factory, Brown and Paton road.

TORONTO, ONT.—Architects Messrs. Craig & Madill, Manning Chambers, Toronto, have awarded contract for new factory of the Hamilton Carhart Co., 535 Queen street east, to F. W. Weale, 35 Lindsay avenue.

TORONTO, ONT.—Kellogg Cereal Co. will make alterations to old Central Prison buildings for use as a mill. Mr. Thompson, the company's representative, care of Queen's Hotel, Toronto, has called for tenders.

TORONTO, ONT.—Gutta Percha Rubber Co. will erect new storage sheds. Contracts let to Holtby Bros. for masonry, McGregor & McIntyre for steel work. Architects Sproatt & Rolph prepared plans. Harris Abattoir have awarded contract for additions to Messrs. Wells & Gray of this city.

TORONTO, ONT.—Robert Simpson Co. are erecting a warehouse building on Mutual street; architect, Max Dunning, 35 Dearborn street, Chicago; associate architects, Burke, Horwood & White, Toronto; general contractor, Wells Bros., Toronto office, 96 Gould street, will sublet contracts; contract for steel sash awarded to Henry Hope & Sons.

TORONTO, ONT.—Warehouse to be built on Church street by Architect F. S. Baker (in trust); plans now ready. Factory addition contract has been awarded by Sheet Metal Products, 199 River street, to Brown & Cooper, 297 Carlton street. Standard Sanitary Mfg. Co. have awarded contract for new addition to Dominion Bridge Co. to cost \$2,000.

VANCOUVER, B.C.—Cresote plant to be built by Vancouver Cresote Co. Contract for piling awarded to Palmer Bros.; filling, Pacific Dredging Co.

WINDSOR, ONT.—Maxwell Motor Car Co., president, W. E. Flanders, Detroit, are considering tenders for new factory to cost \$65,000.

WINDSOR, ONT.—Store house to be erected by city of Windsor; architects, G. Jacques & Co., 5 Sandwich street west; on Tecumseh road.

WINNIPEG, MAN.—J. I. Case Co. will erect a warehouse. WINNIPEG, MAN.—T. Eaton Co. have plans completed for new warehouse. Engineer, G. W. Thompson.

FIRE LOSSES.

ASHCROFT, B.C.—Hotel destroyed, Cariboo Trading Co. owners; loss \$18,000.

BATHURST, N.B.—W. J. Kent's store destroyed; loss \$200,000.

BEAUPORT, QUE.—Church destroyed; loss \$475,000.

BOWDEN, ALTA.—Barclay hardware store destroyed; loss \$30,000.

BROCKVILLE, ONT.—Dr. W. Harding, business block; loss \$15,000.

CALGARY, ALTA.—Central Methodist Church destroyed; loss \$50,000.

CALGARY, ALTA.—White Lunch Co., 8th avenue, buildings destroyed; loss \$8,000.

CAMBELLFORD, ONT.—Northumberland Paper and Electric Company plant destroyed.

CARBERRY, MAN.—Carberry grist mill destroyed; loss \$25,000.

CLARKSON, ONT.—Barn of G. W. Gooderham, Toronto, destroyed; loss \$10,000.

COBDEN, ONT.—J. M. McDermott's butcher shop and E. Little's grocery store destroyed by fire.

DAVIDSON, SASK.—Bank of British North America, frame structure; loss \$4,000.

DELORA, ONT.—Mrs. Devine's store destroyed; loss \$8,000.

EDMONTON, ALTA.—Emery Skirt Mfg. Co., factory; loss \$100,000.

FENELON FALLS, ONT.—Post office gutted.

FORT WILLIAM—St. Luke's Presbyterian Church damaged; loss \$5,000.

HALIFAX, N.S.—Store of L. Cody, Poplar street, destroyed; loss \$3,000.

HALIFAX, N.S.—Clarendon Hotel and Schwartz & Co. buildings destroyed; loss \$5,000.

HARRISON, ONT.—Residence, Eaton street; loss \$2,200.

HAYRE BOUCHER, N.S.—St. Paul's R.C. Church destroyed; Rev. Father M. M. Doyle, priest; loss \$20,000.

HEPWORTH, ONT.—Bell Telephone building destroyed by fire. V. S. Campbell, manager; loss \$4,000.

INGERSOLL, ONT.—Gas Co. building wrecked and purifiers destroyed; loss \$4,000.

KEDGWICK, N.B.—Richards Mfg. Co., lumber mill.

MAILDEN, ONT.—J. E. Sneed, residence destroyed; loss \$14,000.

MERLIN, ONT.—Stores destroyed of Dr. Reid, W. Barr and J. Halliday; loss \$150,000.

MONCTON, N.B.—Record Foundry and Machinery Co. building damaged; loss \$100,000.

MONTREAL, QUE.—Gold Medal Furniture Co., store; loss \$30,000.

MONTREAL, QUE.—Windsor Bowling Club damaged; loss \$30,000.

MONTREAL, QUE.—G.T.R. Bonaventure Station destroyed; loss \$300,000.

MONTREAL, QUE.—Canada Car and Foundry Co. factory destroyed; loss \$50,000.

MONTREAL, QUE.—Pharmacie Secord, Amherst street, gutted by fire; loss \$5,000.

MONTREAL, QUE.—Lighting Fixtures Co., 618 St. Catherine street, store and flat damaged.

MONTREAL, QUE.—Residences destroyed: J. B. Ledoux, Chabot street; Arthur Brisette, S. Carron.

MONTREAL, QUE.—Dufresne & Gallipeau's shoe factory, 66 St. Paul street, gutted; loss \$10,000. Prince Hotel, R. M. Michael, proprietor, 126 St. Antoine street, gutted; loss \$8,000.

NORTH BATTLEFORD—Separate school destroyed; loss \$30,000.

NORTH SYDNEY, N.S.—J. W. Peppett's store damaged.

ORILLIA, ONT.—G.T.R. station destroyed.

ORILLIA, ONT.—J. A. Orton, planing mill destroyed; loss \$7,500.

PORT HOPE, ONT.—Five houses owned by W. R. Chislett damaged by fire.

PORT STANLEY, ONT.—John Frick's residence destroyed.

QUARRYVILLE, ONT.—Residence of B. Jackson burnt; loss \$10,000.

QUEBEC, QUE.—Quebec Central R.R. building destroyed.

QUEBEC, P.Q.—La Biscuiterie factory destroyed; G. A. Vandy, proprietor; loss \$40,000.

RIDGEWAY, ONT.—Residence of W. H. Hogg, Phipp street, destroyed.

SACKVILLE, N.B.—T. Horsler, Main street, store; loss \$4,000.

SACKVILLE, N.B.—Residence of Rev. A. V. Landry destroyed; loss \$5,000.

SHERBROOKE, P.Q.—Queen's Hotel damaged; loss \$4,000.

SMITH'S FALLS—Elgin Ward School destroyed and will be rebuilt at once; loss \$16,000.

ST. CATHARINES, ONT.—Marshall's Ltd. and Columbus Candy Kitchen destroyed; loss \$18,000.

TORONTO, ONT.—American Club gutted by fire; loss \$30,000.

TORONTO, ONT.—W. Rennie & Co.'s seed warehouse damaged; loss \$5,000.

TORONTO, ONT.—Ideal Bedding Co., Jefferson avenue, damaged; loss \$3,000.

WELLAND, ONT.—Planing mill of S. C. Lambert destroyed; loss \$25,000.

WINDSOR MILLS, P.Q.—Grist and sash mill destroyed of Henry Tremblay.

PUBLIC BUILDINGS AND STATIONS.

BEAMSVILLE, ONT.—Bank of Hamilton will make alterations to their premises; L. Huntsman, contractor.

CHATHAM—Bank of Toronto will erect a new building.

CHATHAM, ONT.—City of Chatham, clerk, W. A. Merritt, are preparing plans for temporary market building.

HALIFAX, N.S.—City of Halifax propose erecting a civic abattoir.

HAMILTON, ONT.—Erection of municipal auditorium proposed by city of Hamilton.

KINGSTON, ONT.—Architects Sheppard & Calvin, Excelsior Life Building, Toronto, are preparing plans for new library building for Queen's University.

LEAMINGTON, ONT.—Leamington Agricultural Society will erect new building; secretary, L. Smith.

MIMICO, ONT.—Grand Trunk Railway will erect a new station.

MONTREAL, QUE.—City of Montreal will rebuild St. Antoine market building and also erect new building in North End; Architect Decarie.

MOOSE JAW, SASK.—C.P.R. will erect new stations on Saskatchewan division. Engineer, T. C. McNab.

OTTAWA, ONT.—The Dominion Government have appointed Darling & Pearson, Toronto, and C. Marchaud, Montreal, to inspect foundations and walls of recently destroyed Parliament Building, and make report on rebuilding.

QUEBEC, P.Q.—Architect Pierre Levesque, 115 St. John street, has awarded general contract on La Banque Nationale to C. E. Marissette.

RICHMOND HILL, ONT.—Town Council have purchased a site for municipal building; clerk, J. Hume.

SMITH'S FALLS, ONT.—Bell Telephone Co. have purchased a site on William street and will erect new building.

TORONTO—American Club will rebuild recently damaged building.

TORONTO—Godson Contracting Co., Manning Chambers, will erect office and stable.

VANCOUVER, B.C.—C.N.R. and G.N.R. will erect a union station. Architect, R. P. Pratt, C.N.R. Building, Toronto.

VICTORIA, B.C.—C.N.R. have secured a site on the corner of Fert and Government streets, and will erect an office building; agents, Green & Burdick.

RESIDENCES, STORES AND APARTMENTS.

FENELON FALLS, ONT.—James Fraser will rebuild stores damaged by fire.

KNOWLTON, P.Q.—F. S. Mallory, architect, 65 Adelaide street west, Toronto, is preparing plans for a new residence to cost \$12,000.

LOCO, B.C.—Plans being prepared for office buildings for Imperial Oil Co.

LINDSAY, ONT.—Woolworth Co., contractor, M. McGeough, altering store.

LONDON—W. Hill, Home Bank Building, will erect new residence; cost \$5,000.

MEAFORD, ONT.—A Watson & W. McCutcheon will erect two new residences.

MEDICINE HAT, ALTA.—Robt. Mitchell, Second street, is having plans prepared by Architect W. H. Bourne for office building. Hefferman Bros. are having plans prepared by Architect W. H. Bourne for new store.

MELFORT, SASK.—H. Carlson has awarded contract for new house to Rush & Price.

MONTREAL—E. Pepin, 129 Marlowe avenue, will erect a new dwelling to cost \$4,000.

MONTREAL, QUE.—P. Duchavine, 4409 Lagunessse boulevard, has plans completed for new store and residence, to cost \$5,000.

MONTREAL, QUE.—J. Legault, 3141 Drolet street, will erect residence. G. Hoolohan, 361 Belanger street, will erect residence.

MONTREAL, QUE.—Hyde & Sons, 33 Bleury street, will erect a three-storey brick veneer residence to cost \$1,000. N. Forget, 526 Gufford street, will build a new residence to cost \$1,200. Jas. De Caunfel, 1143 Delormier street, will erect a new dwelling to cost \$2,500.

MONTREAL, QUE.—Gersler Bros., 676 Drolet street, will erect a residence; cost \$3,500. Gault Estate, 263 St. James street, will erect store and apartments; cost \$6,000. J. Rodier, 3349 St. Gerard, will erect two residences; cost \$2,000. O. Provst, 1219 Cote de Neiges, has plans for new store and dwelling.

OTTAWA, ONT.—W. A. Cole, 163 Sparks street, will erect an apartment house. Plans completed by Richards & Akra, architects, Booth Building.

PEACE RIVER CROSSING, ALTA.—Town Council will erect a new fire hall. Secretary, L. W. Divine.

PRESTON, ONT.—F. Wurster will erect a business block.

QUEBEC, P.Q.—P. D. St. Michel, Durocher street, will make addition to building. Adj. Drown, 142 King street, will make alterations to building.

RANKIN, ONT.—Rev. J. Albert will erect a new residence. REGINA, SASK.—Grain Growers' Association will erect an office building. Head office now in Moose Jaw.

REGINA, SASK.—Architects Storey & Van Egmond (in trust) have called for tenders on new residence.

ST. JOHN, N.B.—Gaudy & Anderson will erect three houses on Crescent Heights.

ST. JOHN, N.B.—Architect F. N. Brodie, 42 Princess street, has awarded contract covering store for W. H. Thorne & Co. to R. N. Corbett.

ST. JOHN, N.B.—W. H. Thorne Co. have called for tenders for store addition on Prince William street. Architect, F. N. Brodie, 42 Princess street.

STRATFORD, ONT.—J. M. Lillow will erect eight residences. A. J. McPherson has awarded contract for ten houses to J. M. Lillow.

SUTHERLAND, SASK.—Department of Public Works, Ottawa, will accept tenders to March 23, 1916, on boarding house to be erected here.

TILBURY, ONT.—Bedford Bros. have purchased site and will erect stores.

TORONTO, ONT.—S. Swartz, 18 St. Patrick street, will make addition to residence.

TORONTO.—Darling & Pearson have called for tenders on alterations to building for O'Briens, Ltd., King street west.

TORONTO, ONT.—Architect J. Hunt, Confederation Life Building, is preparing plans for residence in Lawrence Park; owner, G. Boomer.

TORONTO.—Architect C. J. Gibson, 53 Yonge street, has called for tenders on a block of stores for Col. Nichols, to be erected on the corner of Bloor and North streets.

TORONTO.—Dr. Gibson, 1228 St. Clair avenue west, will erect stores and flats; architects, Ellis & Ellis. H. E. Warrington, 98 Wheeler avenue, will erect new residence on Waverley road. P. L. Slayer, 498 Bloor street west, will make addition to store. S. R. Marchon, 168 Oakmount road, will erect a new residence.

TORONTO.—J. Richardson, Manning Arcade, will erect a new residence to cost \$6,500. E. Wilkinson, 151 Balsam avenue, will erect a new residence to cost \$4,500. L. B. Brennan, 73 Victoria street, architect, has prepared plans for a new residence for G. C. Patton, 4 Bartlett avenue. J. C. Crocker, 2 Alton avenue, will build a new residence on Orchard Park boulevard to cost \$4,000.

TORONTO—Wilkes Estate, per Moss & Thompson, Traders Bank Building, will alter store front, Yonge and Wellington. R. Reid, 180 Jones avenue, will erect residence. H. Dunn, 25 Pendrith street, addition to residence. D. McLeod, 47 Benlamond avenue, has plans for a new residence. R. L. Spiers, 95 Glenholme avenue, architect, J. C. Uro, 122 Westmount avenue, will erect a residence. C. H. Pickering, 169 Robert street, has plans prepared for a new residence on Rushton road. R. Reed, 180 Jones avenue, will erect residence, cost \$1,500. C. L. Denison, 640 Dufferin street, will erect storage building, 18x40. T. B. Coombs, 157 Keewatin avenue, contemplates the erection of store and office building, corner Yonge and Erskine. E. & A. Gunther, Spadina avenue, are preparing plans for new residence on Benlamond avenue. D. A. Mitchell, 502 Palmerston avenue, has completed plans for two-family residence on Gormley avenue to cost \$8,000.

VANCOUVER, B.C.—Hudson's Bay Co. making alterations to store.

VANCOUVER, B.C.—Mrs. Turnel will erect residence. Contract awarded to J. McDonald.

VANCOUVER, B.C.—R. J. Snelgrove, 8th avenue west, will erect a pair of houses on Hemlock and Eighth avenue.

VANCOUVER, B.C.—Farley & Cromie, architects, have prepared plans for new residence for Mr. Allan, Sixth avenue; also for Mr. Earle.

VANCOUVER, B.C.—C. Bowman, Southampton, Ont., architect, U. F. Gardner, 347 Pinder street west, is preparing plans for stores and theatre, brick and steel construction, hot water heating.

WOODSTOCK, ONT.—J. F. Moore will alter store. Plans completed.

SCHOOLS AND CHURCHES.

BIENVILLE, QUE.—Architect Pierre Lavesque, 115 St. John street, Quebec, is preparing plans for new Roman Catholic church, to cost \$30,000.

BISHOP'S CROSSING, P.Q.—Tenders have been called for a new school. Plans by Architect H. R. Bishop.

BLACKFALLS, ALTA.—Aspelund S. O., No. 758, Blackfalls, have called for tenders on new school. Secretary, E. A. Wigmore; architect, L. A. Hill.

BURLINGTON, ONT.—School Board will make alterations to school, including lavatory equipment and painting.

DRUMMOND TOWNSHIP—S.S. No. 9, Drummond. Secretary R. Dowdall, R.R. No. 6, Perth, Ont., have opened tenders for labor on new school, material to be purchased by owners.

DUNDAS, ONT.—The School Board have secured site for new school, corner Lawrason, Alma and Cayley streets. Architect B. E. T. Ellis has been appointed to prepare plans.

HILLSIDE, SASK.—School trustees, Ward D, 3583, have called for tenders on new school; secretary, S. Wheeler, Hillsboro P.O.

HULL, P.Q.—Contract has been awarded for the building of the new St. Redemptor Parish Church to Noel & Monette, Ottawa.

HULL, P.Q.—Province of Quebec propose the erection of a new technical school. Mayor Archambault, Hull, P.Q., is interested.

HULL, P.Q.—St. Redemptor Parish, Rev. Father S. Carriere; architect, Charles Brodeur; new church tenders have been received.

JUNOR, SASK.—New school; secretary, H. Gadsby; tenders have been called for.

LONDON, ONT.—Plans to be prepared for new technical school.

LONDON, ONT.—School Board are preparing plans for temporary four-room school. Secretary, J. F. Bryant.

MONTREAL, QUE.—Protestant School Board have purchased a site on St. Helen street for new school.

MOUNT DENNIS, ONT.—Architects S. B. Coon & Son, Toronto, are preparing plans for new school, on Dennis avenue; chairman of committee, D. Robertson.

NIAGARA FALLS, ONT.—Union S.S. No. 2 has called for tenders on a new school. Architect, J. U. Collins, Niagara Falls.

NORTH RIDGE, ONT.—Architect J. C. Pennington, of Windsor, is preparing plans for new school to be erected in North Ridge.

NORTH VANCOUVER, B.C.—Department of Education propose building a two-room addition to North Star school; chairman of School Board, Trustee Purdy.

OXFORD TOWNSHIP, ONT.—J. D. Anguiss, Muirhead, Ont., secretary of the School Board, has received tenders on a new township school to cost \$5,000.

PARRY SOUND, ONT.—The School Board have called for competitive plans for new school; secretary, J. D. Broughton.

PEACE RIVER, ALTA.—Presbyterian Church have purchased a site for new church. Pastor, Rev. W. Granan.

REPENTIGNY, P.Q.—R. Gariepy, architect, 25 St. James street, Montreal, is preparing plans for new R. C. church.

RICHELIEU, P.Q.—School Board propose erecting new school. Secretary, J. C. Boshaw.

SAANICH, B.C.—Saanich School Board contemplate erection of new school. Estimates have been passed for \$6,000.

SARNIA, ONT.—Board of Education will make alterations to schools. Will require ventilating system, lavatory equipment, windows, etc.

SIMCOE, ONT.—Board of Education will have plans prepared for two schools.

STRATHROY, ONT.—The Methodist Church have plans for alterations to present building, including steam heating, painting and seating. Pastor, Rev. A. E. Jones.

TORONTO—Plans will be prepared for addition to Winchester School.

TORONTO, ONT.—R. C. School Board are preparing revised plans for St. Clare's School. Architect, C. J. Read.

TORONTO, ONT.—Plans are completed for new Earls Court Methodist Church, corner of Earls Court and Boon avenue. Chairman of Building Committee and architect, A. C. Smither, 121 Greenlaw avenue.

TORONTO, ONT.—Board of Education have called for tenders on alterations to schools, including electric work, drains, ash hoists, fire doors, etc. Architect, C. N. Bishop. Board of Education propose building new High School, Bloor street, to cost \$250,000; also additions to the following schools: Orde Street, \$50,000; Dewson Street, \$60,000; Wilkinson, \$65,000; Perth Avenue, \$45,000; Keele Street, \$60,000.

TRAIL, B.C.—Addition to public school is proposed by the School Board to cost \$12,000. Secretary, Walter Cody.

WALKERVILLE, ONT.—A new Presbyterian church is proposed to cost \$6,000. Pastor, Rev. P. Taylor.

WESTMORELAND COUNTY, N.B.—Tenders have been called for new school. Secretary, G. Morton, S.S. 21, McQuale P.O., Moncton.

WEST SALISBURY, ALTA.—The School Board contemplate erecting a new school of brick construction.

MISCELLANEOUS.

DARTMOUTH, N.S.—Department of Railways and Canals, Ottawa, has called for tenders on railway buildings.

DAVIDSON, SASK.—E. R. Mann & Son have plans completed for a new garage.

EVERITT, B.C.—N. C. Jamison will double the capacity of his shingle mill.

HAMILTON, ONT.—Hospital Board has called for tenders on fire hose and fireproof doors for Barton Street Hospital. Secretary, S. H. Kent.

KINGSTON, ONT.—City Engineer R. J. McClelland has called for tenders on cement, hardware, rubble stone, sewer pipe, manhole covers, grates, etc.

KINKORA, P.E.I.—Kinkora Cheese Factory has called for tenders on concrete work.

LONDON, ONT.—The City of London has called for tenders on supplies, covering cement, tile, coal and wood, lumber, stone and gravel, iron castings, rubber supplies, hardware, comfort station supplies, plumbing fixtures and road oil.

MEDICINE HAT, ALTA.—J. T. Bergman, box 164, Winnipeg, Man., has called for tenders on tar roof for building in Medicine Hat.

MELFORT, SASK.—Beaver Lumber Co. will erect new coal sheds and scales.

MONCTON, N.B.—School Board, secretary, E. A. McCully, require 108 school desks.

MONTREAL—The city of Montreal has called for tenders on brick. Specifications may be obtained from purchasing department.

NAPANEE, ONT.—C. A. Wiseman has purchased site for new garage on Bridge street.

NEILSON, B.C.—New smelting plant and mill will be erected. E. Delolph, Kaslo, B.C., interested.

OTTAWA, ONT.—City of Ottawa has called for tenders on new porch roof for City Hall. Engineer, F. C. Askwith.

PETERBORO', ONT.—City of Peterboro' has called for tenders on cement and tile pipe. Engineer, R. H. Parsons.

PORCUPINE, ONT.—Miracle Mining Co. will install 150-ton mill.

ROCKY MOUNTAINS—Great Northern Railway, manager, M. J. Costello, Seattle, is preparing plans for snow sheds of concrete construction.

SAULT STE. MARIE, ONT.—Steel Co. of Canada have awarded contract for barracks to McPhail & Wright.

STRATFORD, ONT.—Tenders have been called for wrecking of Central School by Secretary of School Board D. W. Foster.

THURLOW, ONT.—A. H. Eastern, Thurlow, Ont., will erect galvanized iron barn. Plans being prepared.

TORONTO, ONT.—Toronto Furniture Co. will erect garage and dry kiln.

TORONTO, ONT.—Board of Education has called for tenders on cabinet work.

TORONTO, ONT.—The city of Toronto is preparing plans for shelter, St. Clair and Avenue road, to cost \$500.

TORONTO, ONT.—W. J. McGuire, 15 Maple avenue, has awarded contract for new garage to A. H. Niblett, 34 Oxford street, to be erected on Pearl street.

TORONTO, ONT.—Manning Estate, 24 King street west, have awarded contract for new store front at 68 Queen street west to S. B. Bayshaw, 477 Marion street.

TRIPLE ISLAND, ONT.—Dominion Government will erect lighthouse. Secretary, R. C. Desrochers.

VANCOUVER, B.C.—Department of Public Works, Ottawa, architect, W. Ewart, has completed plans for freight sheds for Government wharf.

VANSCOY, SASK.—Trustees S. B. No. 3652, Vanscoy, Sask., has called for tenders on hardware and lumber for new school. Secretary, J. Cornelius.

WINDSOR, ONT.—City of Windsor has awarded contracts on new building at race track as follows: Carpentering, W. Dupuis; metal work, Pennington & Brian; painting and glazing, Lossing & Harris. Architect, J. C. Pennington.

PERSONAL.

Geo. M. Miller has returned from an extended Southern trip. Mr. Alphonse Venne, architect, of St. Lambert, Quebec, has been re-elected mayor of that city.

Lieut. F. P. Page and Lieut. S. Warrington, brothers in arms as well as partners in the architectural profession, have been raised to the rank of captain in the 36th Regiment.

The death occurred in Sydney, N.S., on the 9th of February, of Mr. F. W. Spencer, architect and designer of many of the large buildings in that city. Mr. Spencer was 47 years of age, and had practised his profession in Sydney for a number of years.

Chadwick & Beckett, architects, 132 Church street, are temporarily closing their office, owing to both members of the firm being in command of overseas regiments, while their staff are either on military service or engaged on munition work. Any communications for the firm may be sent to 107 Howland avenue.

REVIEW.

A catalogue has been received, just issued by the Gaten Hillo Revolving Door Co. of Canada, 154 George St., Toronto, which fully illustrates and describes the standard collapsible and the automatic collapsible panic-proof revolving door as manufactured by this firm. Illustrations and detail drawings clearly shown make this folder of value to those interested.

TORONTO ARCHITECTS MEET.

The Toronto Chapter, O.A.A., met at the St. Charles Hotel on Tuesday, February 15th, 1916, at 1 p.m. After luncheon routine business was disposed of, and an informal discussion on matters of interest to the profession was held. It is understood that an important announcement will be made shortly with reference to legislation to be introduced to further the architectural interests and improve existing conditions. The following members were in attendance: President R. K. Sheppard, Secretary I. Feldman, A. F. Wickson, A. A. Gregg, H. E. Moore, W. Webb, W. A. Langton, E. Menges, E. T. Arnoldi, C. E. Langley, J. P. Hynes, A. E. Watson, J. E. Wagnan, J. C. B. Horwood, M. A. White, V. D. Horsburgh, V. L. Gladman.

ANNUAL MEETING OF PROVINCIAL BUILDERS' EXCHANGE.

The annual meeting of the Provincial Builders' Exchange was held in Hamilton on February 22nd and 23rd, in the quarters of the Hamilton Exchange, corner of Main and John streets.

The meeting opened with an address of welcome to the visiting members by the Hamilton president, C. T. Pearse, local manager of the Pease Foundry Co. Mr. Pearse, in his remarks, which were well chosen, referred to Hamilton as the Pittsburgh of Canada.

The appointing of the different committees followed the reading of the minutes, after which the retiring president, George Gander, gave an interesting resume of the past year's work, making mention of general business conditions, which were fair, and pointing out the brighter future now opening up.

Secretary Flower read his annual report, outlining the efforts made and work accomplished towards the betterment of conditions for the members, after which the treasurer's report was presented, showing a satisfactory balance on hand. The meeting adjourned for lunch, and opened after with reading of reports from the different branches, showing trade fair, with prospects for the future much brighter.

Considerable time was devoted to the discussion of the Workmen's Compensation Act, and many suggested amendments made thereto, including an amendment to regulation number 53, exempting the smaller contractor.



T. R. WRIGHT, LONDON, ONTARIO.

The newly-elected President of the Ontario Builders' Exchange.

An interesting address was given by Mr. J. Mackenzie, Past President of the International Association of Master Painters, on Technical School Systems for Boys and Girls, which showed considerable thought given to his subject.

In the evening the visiting members were the guests of the Hamilton Association at a banquet held in Hotel Wentworth Arms. Ald. Plunkett, on behalf of the City, welcomed the guests, followed by an address by W. Ellis, of the Hydro Commission. Mayor Walters replied to the toast of "Canada." Addresses were also made by Principal Whittam, of the Hamilton Technical School, and President Gardner, of the Hamilton Board of Trade.

Wednesday morning a tour of inspection was made to the new Connaught Hotel, now nearing completion.

The meeting resumed by a discussion on a clause in the President's report on American competition in building, and it was suggested that the Builders' Exchange unite with the Ontario Association of Architects in representations to be made towards strictures on the unfair conditions existing.

Several resolutions were passed, including one approving of fair wage clauses in contracts.

A form prepared by the Association for use in sub-contracting was approved.

Fraternal greetings were sent and received with the National Association of Builders' Exchange, in session at Baltimore, Md.

A grant of \$25.00 was made to the Hamilton Branch of the Red Cross Association.

A vote of thanks was tendered to the Hamilton Chapter for their hospitality, as well as to the retiring officers and to the Secretary and Treasurer, who were unanimously re-elected.

The election of officers resulted as follows: President, T. R. Wright, London, Ont.; 1st Vice-President, C. T. Pearse, Hamilton; 2nd Vice-President, A. Tomlinson, Chatham; Treasurer, Geo. Arkley, Jr., Toronto; Secretary, A. E. Flower, Toronto. Executive Committee to be composed of one member to be appointed from each branch of the Association.

Architects, engineers and contractors are invited to contribute information on construction work, whether it be proposed or in progress, and such information will be published in these columns.

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To guard yourself against poor workmanship and materials, select a reputable roofing contractor and incorporate The Barrett Specification in full in your future building plans.

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Few important structures are built nowadays without being waterproofed with protecting layers of Pitch and Felt. The Central Technical School is no exception. Approximately 90,000 square feet of Barrett Specification materials have been applied to make the foundation and walls immune from damage by underground dampness and seepage of moisture from the huge swimming pool.

The Barrett Specification Waterproofing will last as long as the building, being chemically and physically immune from damage by water or acids of the soil.

Our engineers will gladly consult with interested parties.

Contractors & Sub-Contractors As Supplied by The Architects of Buildings Featured in This Issue

EXCELSIOR LIFE BUILDING.

Architect, E. J. Lennox.
Boilers, Dominion Radiator Co.
Brick, Don Valley Brick Co.
Electric wiring and apparatus, Bennett & Wright Co., Limited.
Elevators and hoists, Otis-Fensom Co.
Fire doors, A. Mathews, Limited.
Fire escapes, McGregor & McIntyre.
Flooring, Seaman-Kent Co.
Flooring (mosaic), Italian Marble and Mosaic Co.
Glass (plate, wired), Curran Bros.
Granite work, McIntosh Granite Works.
Hardware, Canadian Hardware Co.
Mail chute, Canadian Mail Chute Co.
Marble, P. Lyall Construction Co., Ontario Marble Quarries.
Office fronts, bronze entrance doors, revolving doors, A. B. Ormsby Co.
Ornamental iron, McGregor & McIntyre.
Painting and glazing, James Casey.
Plumbing (bath fittings, sanitary fixtures, faucets), Bennett & Wright Co., Limited.
Plaster work (ceiling), A. Clarke & Son.
Radiators (manufacturers), Dominion Radiator Co.
Roofing (felt and gravel), A. Mathews.
Structural iron and steel, McGregor & McIntyre.
Telescope ash hoist, W. H. Banfield.
Terra cotta (architectural), Atlantic Terra Cotta Co.
Terra cotta (floor construction), Don Valley Brick Co.
Vacuum cleaners, Bennett & Wright Co.
Vault doors, J. J. Taylor Co.
Window frames, sash, Henry Hope & Son.
General contractors, P. Lyall Construction Co.

MUNICIPAL ABATTOIR.

Boilers, Jencks Machine Co., St. Catharines.
Brick, tile, etc., Don Valley Brick Co., Toronto.
Chimneys, Canadian Customies Co., Toronto.
Concrete work, Wickett Bros., Toronto.
Electric fixtures, etc., Winkler Bros., Toronto.
Elevators and hoists, Otis-Fensom Co., Toronto.
Expanded metal, Steel and Radiation Co., Toronto.
Glass, Hobbs Hardware Co., Toronto.
Interior woodwork, James Mackenzie, Toronto.
Ornamental iron, Canadian Ornamental Iron Co., Toronto.
Plumbing and heating, Fiddes & Hogarth, Toronto.
Refrigeration equipment, Linde Canadian Refrigeration Co., Toronto.
Refrigeration machinery, Canada Ice Machine Co., Toronto.
Power machinery (motors), Canadian General Electric Co., Toronto.
Power machinery (pumps), Smart-Turner Co., Hamilton.
Radiators, Dominion Radiator Co., Toronto.
Roofing, A. Mathews, Limited, Toronto.
Stone, J. Isaac & Son, Toronto.
Contractors (general), William R. Perrin & Co., Limited, Toronto.

THE FARMERS' DAIRY BUILDING.

Architects, Symons & Rae.
Brick and terra cotta, The Don Valley Brick Co., Toronto.
Boilers, The Jencks Machine Co., of St. Catharines.
Casements, fire doors, screens, The A. B. Ormsby Co., Ltd.
Electric wiring, etc., The Rooks Electric Co., Toronto.
Elevators and hoists, The Turnbull Elevator Co., Toronto.
Expanded metal, reinforcements and exterior paint, The Trussed Concrete Steel Co. of Canada.
Flooring, Seaman-Kent Co., Meaford.
Glass and hardware, W. Walker & Son, Toronto.
Heating and plumbing, A. Welch & Son, Toronto.
Ornamental iron, Canadian Ornamental Iron Co., Toronto.
Paint (interior), Glidden Varnish Co., Toronto.
Plaster work, Taylor & Nesbitt, Toronto.
Refrigeration equipment, W. A. Drummond Co., Toronto.
Radiators, Dominion Radiator Co., Toronto.
Roofing, G. Duthie & Sons, Limited, Toronto.
Tile, Lautz-Dunham Co., Toronto.
Vaults, Canadian Fairbanks Co., Toronto.
Contractors (general), Jackson-Lewis Co., Limited, Toronto.

CORNERSTONE LAID FOR UNIQUE STRUCTURE.

A unique ceremony was performed recently at the works of the Canada Metal Company, Limited, on Fraser avenue, Toronto. This company during 1915 made very large extensions to their factory to enable them to cope with the growth of their business. Another extension is now being made, and includes a shot tower, which will be 150 feet high, and is the largest in the British Empire.

This tower is a steel structure, and will weigh over 150 tons; in fact, the weight being so enormous it necessitates special concrete foundations, which will take thousands of bags of cement. The building will be 95 feet by 150 feet, and three storeys high.

The cornerstone for this shot tower was laid by Mr. Harris, Sr. (president and general manager of the company), and consisted of a cylinder weighing in the neighborhood of ten tons.

In this cylinder was enclosed samples of goods manufactured by the company, including samples of bullets. These specimen bullets were the same as are being used in shrapnel shells. Samples of all advertising literature used by the company, Canadian coins, consisting of gold coins, silver coins and copper coins, a copy of each of the Toronto morning and evening papers, the Toronto "Saturday Night," and other local publications. Stamps were also enclosed, including one cent, two cents, three cents (war tax stamp). These were hermetically sealed in this huge cylinder.

The cylinder will be buried in tons of concrete, and will remain buried for generations.

The works were closed down and all the work people assembled to see Mr. Harris perform the ceremony. If at any future time excavations may be necessary to put up other buildings the cylinder with its contents need not be disturbed, as

it is buried deep enough to avoid this. When future generations do begin excavating the discoveries of papers containing news of the war, as well as full particulars of the fire which devastated the Parliament Buildings at Ottawa, will prove interesting reading, and the specimens which are sealed in the cylinder will create quite a sensation.

MATERIAL REQUIRED.

Pittsburgh, Pa., U.S.A., Feb. 29, 1915.

"Construction," Toronto, Ontario, Canada:

Dear Sirs.—Dodge Reports referred me to you in regard to information pertaining to firms dealing in the following materials: Common hard burned red bricks; No. 1 fire bricks; No. 1 enamel (white) brick, English style, straight and bull nose; fire clay, lime, sand, cement, asbestos and fine axed blue stone coping. The Heine Safety Boiler Co. have requested me to give them a price on building brickwork around two boilers to be installed at the plant of the Imperial Oil Co., Toronto. Amounts of material required follows: 19,000 common hard burned red bricks, 8,000 No. 1 fire bricks, 2,500 white enamel bricks, straights, English style; 500 white enamel bricks, bull nose; 5 tone fire clay, 15 barrels lime, 12 tons sand, 6 barrels Portland cement, 20 sacks (100 lbs.) asbestos cement, 60 lineal feet of finely axed blue stonecoping, 2 in. thick x 13 in. wide. Would be pleased to have you place this list of material in the hands of interested parties and request them to mail me prices at their earliest date. Prices to be quoted f.o.b. cars or wagon delivery, Imperial Oil Co.'s plant. Trusting you will favor me with the above request and thanking for your kindness, I remain, yours very truly,

CHAS. T. STEVENS,
7 Market St., Pittsburgh, Pa., U.S.A.

St. John, N.B., March 1st, 1916.

The Editor, "Construction," Toronto, Ontario:

Dear Sir.—We desire to get in touch with manufacturers of unglazed and glazed tiles for hearth and lavatory work. If you know of any manufacturers in Canada, we will deem it a favor if you will let us have the names of same. Yours truly,

GANDY & ALLISON,
Per H. A. Allison.

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April, 1916

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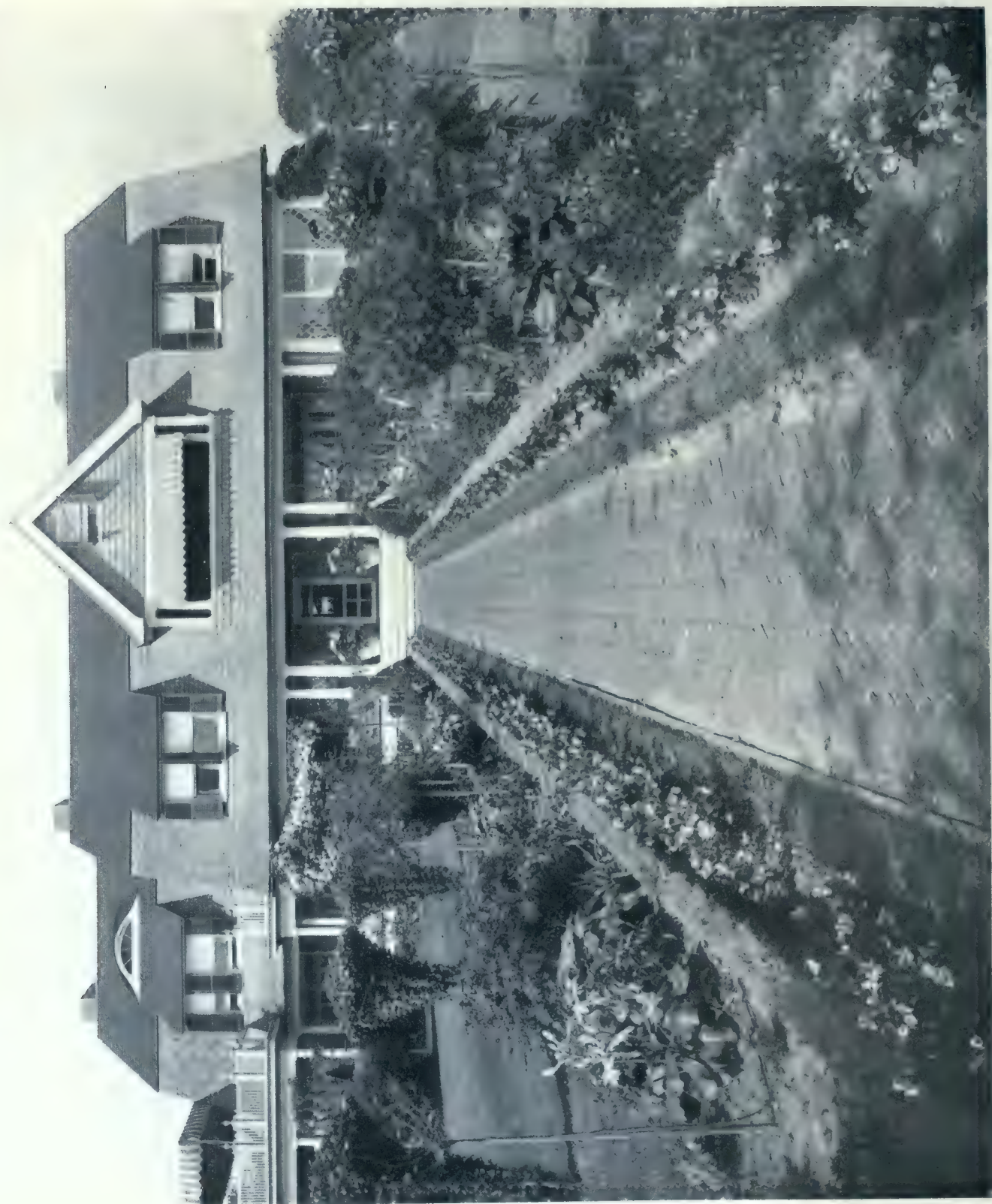
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GRAPHIC ARTS BLDG., TORONTO, CANADA

MONTREAL

BRANCH OFFICES

NEW YORK



HAMPTON HOUSE IS STRONGLY CHARACTERIZED BY AN APPEALING AIR OF THE COMFORT WHICH MAKES FOR LIVABILITY.
The flower-lined brick walk leading up to the house is very inviting. For the ribbon effect a dwarf begonia is used. The clipped shrubs are allbeas.

A Notable Example of Factory Construction

Abundant Daylight, Improved Sanitation and Comfort of Employees
Are Features of This Building

THE new reinforced concrete factory building erected by the McCormick Manufacturing Company at London, Ontario, is an example of the ideal attained in factory construction in Canada. In it a pleasing architectural effect has been combined with utility, strength and durability. The main portion of the building is approximately three hundred and fifty-four feet long by ninety-one feet in depth, with the wings in the rear. Exclusive of the basement, the building is four stories in height. Provisions for extensions have been made to amply take care of the future expansion of the business.

The whole exterior is of white terra cotta tile, attached to the reinforced concrete structural frame, and steel sash. The combination of reinforced concrete with steel sash affords maximum daylight, proper ventilation and greatest permanency. The arrangement of the panes harmonizes with the general architectural features, and at the same time gives the maximum available area for lighting. A large amount of ventilation is secured by means of specially designed pivoted ventilators.

The floor construction is of what is known as flat slab design, and consists of solid reinforced concrete slabs, with no beams projecting underneath to cut off the daylight. The floor slabs are seven inches in thickness, and are designed for a live load of one hundred and fifty pounds per square foot. In the packing room, where heavier loads are anticipated, the floor slab is nine inches in depth and designed to carry two hundred and fifty pounds per square foot. Circular, spirally-wound, hooped columns, with flaring capitals,

have been used throughout the interior of the building. Casting a twelve-inch flue in the core of a number of these columns in the north-west wing of the building was an interesting feature in reinforced concrete column design.

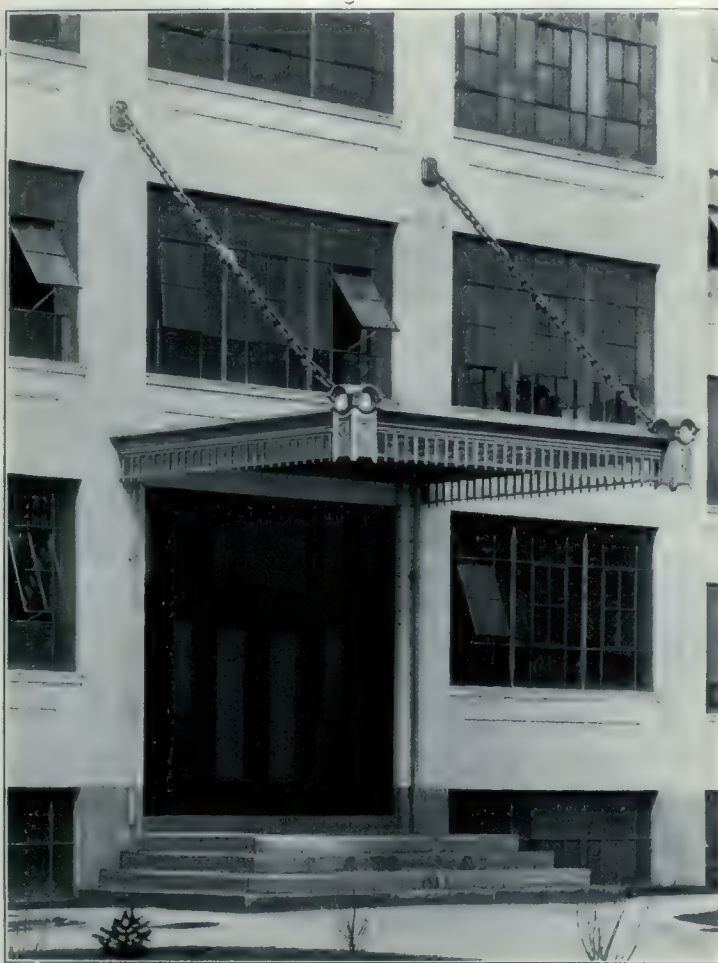
The fireproof qualities have been carried out in all parts of the building, even to the interior partitions, which are of metal lath plastered to the required thickness with cement mortar. Metal lath is also used in the suspended ceiling

over the oven room. The stairs also are of solid concrete construction, with the concrete steps being moulded in place. Kahn system standard design was employed throughout in the reinforced concrete work.

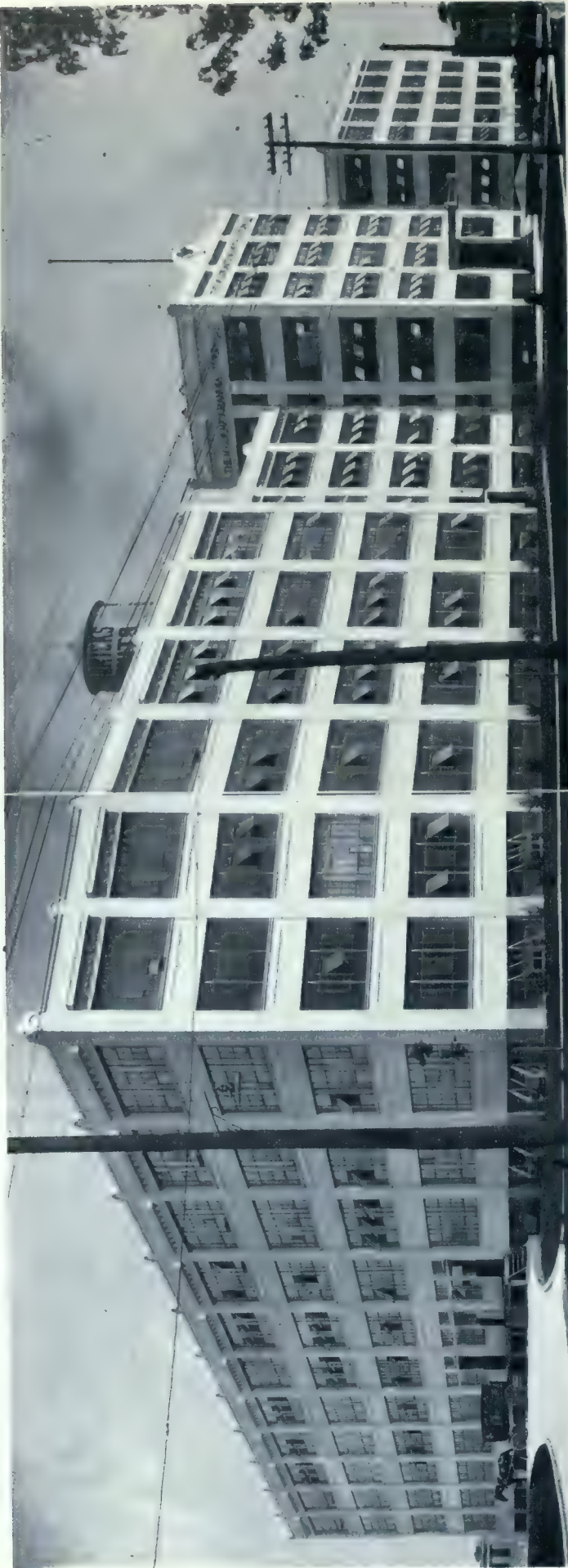
When planning this new building, perfection was the aim, and apparently the architects have attained their ideal. The design shows study and a careful placing of any ornamentation, and showing a strong vertical feeling, and presents an unusual and attractive appearance; the main entrance being accentuated by the tower portion.

Passing into the main entrance, one is confronted with a most attractive lobby.

with tile floor, oak trim; ranged around this lobby are built-in showcases, of leaded glass design, displaying all the different brands of the firm's confections. On either side of this lobby are placed the private and general business offices, all finished in quarter-cut oak, and on either side of these are placed the employees' entrances. The remainder of the first floor is utilized for shipping rooms, mixed candy department, cold storage and stock rooms, while at the rear is the oven room. This portion is

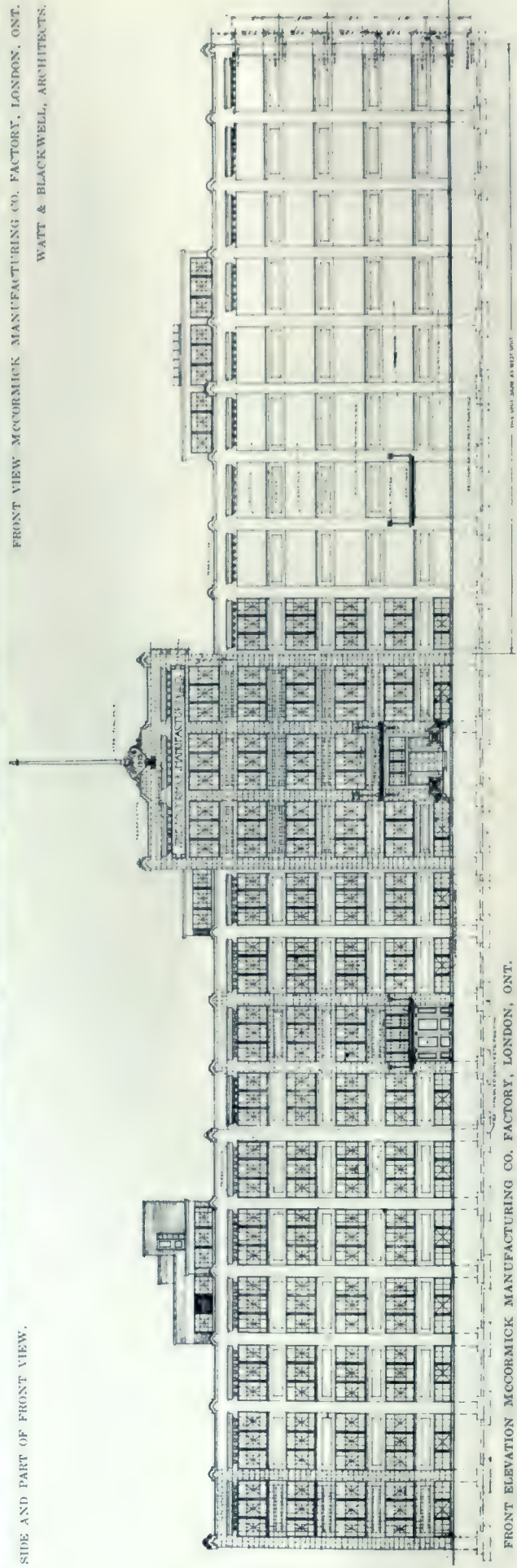


MAIN ENTRANCE, SHOWING MARQUISE, MCCORMICK CO., LTD., LONDON, ONT.
WATT & BLACKWELL, ARCHITECTS, LONDON, ONT.



SIDE AND PART OF FRONT VIEW.

FRONT VIEW MCCORMICK MANUFACTURING CO. FACTORY, LONDON, ONT.
WATT & BLACKWELL, ARCHITECTS.



FRONT ELEVATION MCCORMICK MANUFACTURING CO. FACTORY, LONDON, ONT.



VIEW OF RECEPTION ROOM.

but one story in height, and is lighted by skylights. In this room the biscuits are carried, after leaving the ovens, by travelling conveyors to the packing rooms on the fourth floor, and thence by conveyors to the final destination in the shipping rooms on the first floor, where they are placed on the freight cars, which come in on the two sidings between the rear wings of the building.

Another feature of the plant is the long corridors from one end of the building to the other, whereby visitors may view the different processes through glass partitions without going directly into the rooms, and also the oven room from a balcony on the second floor.

From the employees' point of view, this factory compares favorably with anything of its kind in Canada; not only is the health well cared for by the proper ventilation and light, but there is a large serve-self dining-room, with a seating capacity of six hundred, a modern gymnasium, shower baths, locker rooms, library, and a most complete Red Cross room for emergency accident cases.

In the room on the fifth floor of the tower is the reception room, which is fitted in a restful manner with wicker furniture.

The power plant is situated in a separate building at the rear end, and here also is to be found the most modern machinery, both in the way of electrical and steam equipment, and also the same cleanly surroundings.

This large plant has eight acres of floor space, and is so planned that additions may be added without disturbing business in the present one.

Mechanical and Electrical Equipment

H. P. Elliott, Consulting Engineer.

The equipment of these buildings, that is, the parts that came under the supervision of the engineer, consisted of the following:—

- Power plant, buildings and equipment.
- Heating system.
- Ventilating system.
- Refrigeration system.
- Electric power transmission and motors.

Illuminating system.

Hot blast apparatus for drying rooms.

Temperature regulation.

High pressure steam system.

Elevators and conveyors.

Ovens, etc., etc.

Placing of all machinery, shafting, etc.

Pumping systems for syrups, etc.

The most interesting features, from the standpoint of an engineer, are that the owners placed no restriction in regard to expense in purchasing the best equipment, and spared no engineering expense in making complete plans. All parts of the buildings were laid out on a scale of three-eighths inch to the foot. These plans showed the location of all motors, shafting, pulleys, pipe work, machines, etc., etc. In consequence of this all the equipment went into place without interference, and the machines, used in manufacturing, were transferred from the old factory and manufacturing started in the new factory without any loss of production.

The owners' instructions were to provide every possible device to ensure the safety and comfort of the employees and the sanitary handling of raw materials and finished products.

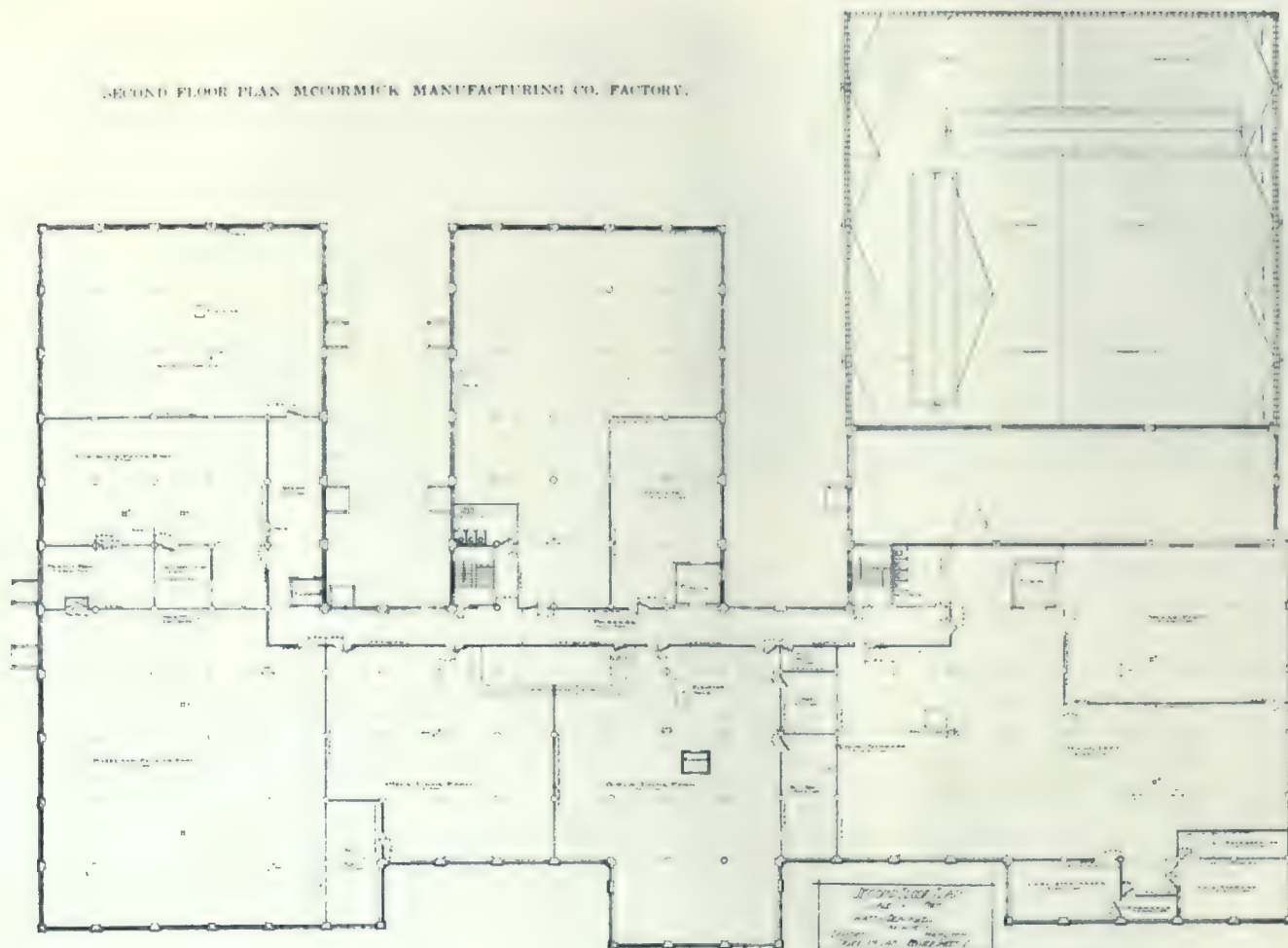
The power plant is placed about one hundred and fifty feet from the main buildings and connected to them by a well-lighted tunnel. All the steam and water pipes are carried at one side of this tunnel, and the electric cables are carried in conduit buried in the reinforced concrete roof.

The floor of the boiler house is eight feet below grade, which allows a gravity return of all condensed steam and at the same time brings the coal hoppers of the stokers level with the ground, so that coal can be brought in on a track without handling. The chimney is one hundred and twenty-five feet high, five feet six inches inside, built of reinforced concrete "coniform" section. Provision is made for five boilers, one hundred and twenty-five horsepower each. These are return tubular, sixteen feet by seventy-two inches, and each has a self-feeding,



TILED ENTRANCE LOBBY.

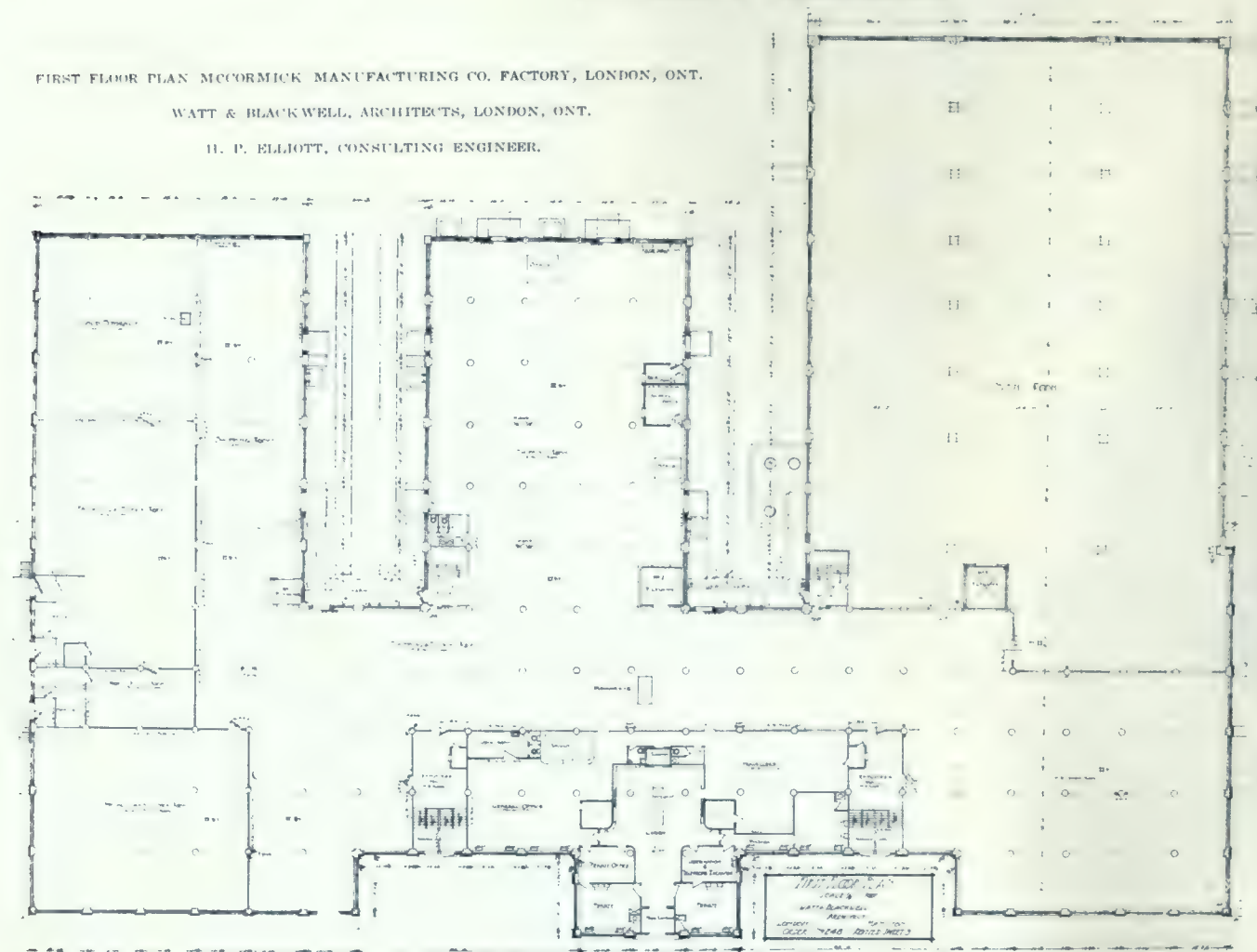
SECOND FLOOR PLAN MCCORMICK MANUFACTURING CO. FACTORY.



FIRST FLOOR PLAN MCCORMICK MANUFACTURING CO. FACTORY, LONDON, ONT.

WATT & BLACKWELL, ARCHITECTS, LONDON, ONT.

H. P. ELLIOTT, CONSULTING ENGINEER.





VIEW OF WRAPPING ROOM, SHOWING SPACING OF COLUMNS.

smokeless furnace. A full equipment of pumps, traps and heaters are provided, all in duplicate.

The plant is laid out with the idea of using "Hydro" power, and a very complete switch-board is installed, having a capacity of four hundred kilowatts. There is a one hundred and twenty-five K.V.A. generator, five hundred and fifty volts, three-phase, twenty-five cycles, direct connected to a high-speed vertical engine. This outfit has a large overload capacity, and is used chiefly at times of peak load or to keep important parts of the plant in operation during a temporary failure of "Hydro" power. On account of a number of large motors in this factory, which run intermittently, it is impossible to maintain a good power factor without the use of synchronous motors. This generator is, therefore, arranged so that it can be floated upon the circuit, and the power factor can easily be brought to one hundred per cent. Provision is made for future units if found advisable.

The buildings, in general, are heated by direct radiation under a pressure of one pound or less. It is a one-vacuum system, complete in every detail.

In a factory of this nature, the floor space is



VIEW OF LUNCH ROOM, SHOWING EXTENSIVE INTERIOR.

large compared to the number of employees, and no general system of ventilation is required. Very complete ventilation systems are provided for the officers, however, and for all departments where the nature of the work requires it. The oven rooms, chocolate dipping rooms, boiling rooms, etc., are perfectly ventilated, winter and summer, by special multivane fans. In the winter the air is tempered by pipe coil heaters. The air for the chocolate dipping rooms and several of the storage rooms is passed through an air washer, and in the summer is cooled by the refrigerating plant.

The ammonia compressor, for the refrigeration system, is a sixty-ton machine, driven by a ninety horsepower variable-speed motor. It is placed in the engine room, and a brine system used, so that no ammonia gas is used in the factory. An interesting feature of this installation is the method of carrying cooled and washed air to various departments without disfiguring the rooms with large air pipes. Certain columns of the building are made hollow, and the air is introduced into these at the basement, and thus carried to the rooms above.

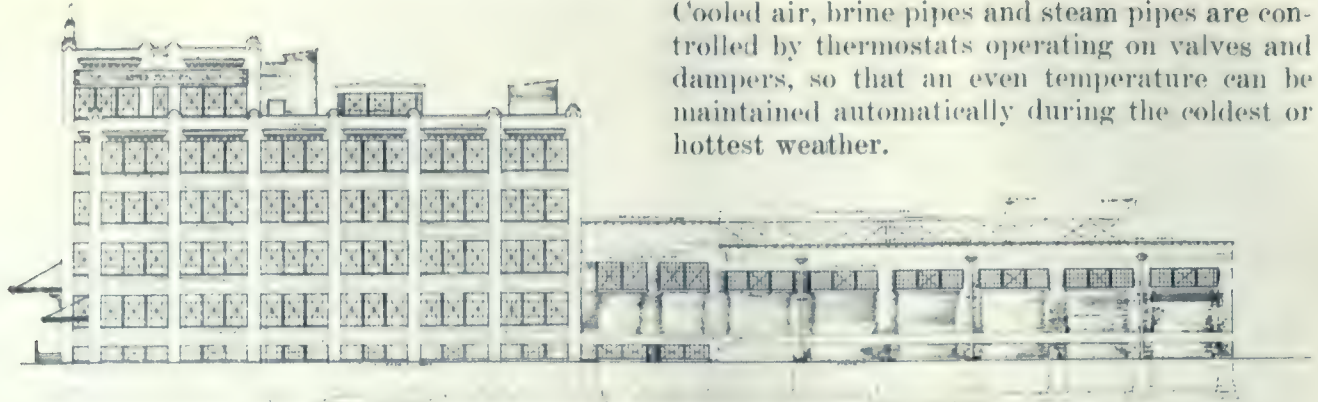
All the steam and return pipes, water, gas, electric cables, etc., are carried up in accessible places beside the elevator shafts. The wiring



CLOAK ROOM, SHOWING METAL INDIVIDUAL LOCKERS.



FULLY EQUIPPED HOSPITAL ROOM.



SIDE ELEVATION MCCORMICK MANUFACTURING CO. FACTORY, LONDON, ONT.

is all in conduit. All the lighting circuits are buried in the concrete floors. The power wiring, from the junction boxes, is carried in conduit on the ceiling. The motors are all carried on special steel cradles suspended from the ceilings. Individual drives are general, and group drives are used where more economical.

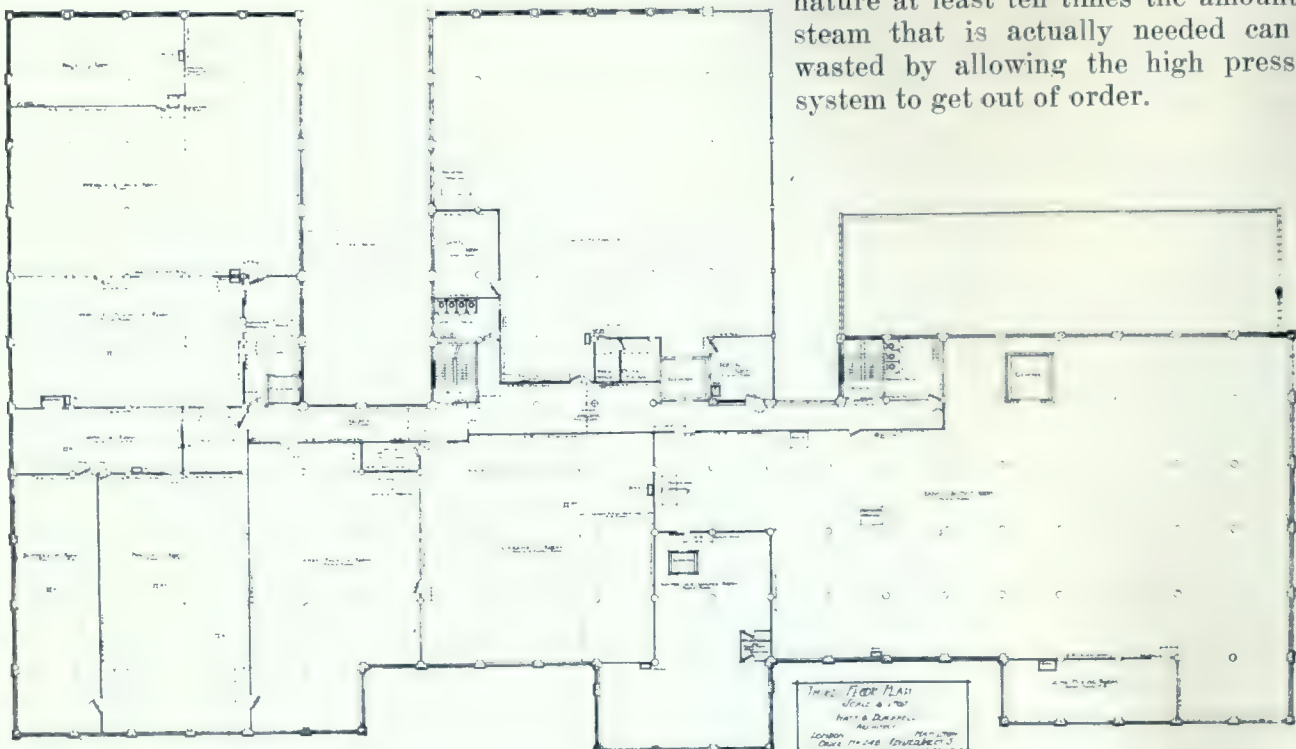
The illuminating system is thoroughly worked out, and consists of a system of general illumination over the whole factory, the intensity being varied to suit conditions. The offices are lighted by a system of total indirect illumination, which has found great favor with the employees.

Various large drying rooms are provided, in which the temperature can be carried up to one hundred and eighty degrees Fahrenheit. They are heated by pipe coil heaters and multivane fans, and provision made for thorough circulation and close regulation.

A special system of temperature regulation is provided in various departments, notably the sponge room (where the biscuit dough is allowed to rise) and in the chocolate rooms.

Cooled air, brine pipes and steam pipes are controlled by thermostats operating on valves and dampers, so that an even temperature can be maintained automatically during the coldest or hottest weather.

High pressure steam is used for various manufacturing purposes. The boiler pressure is kept at about one hundred and twenty pounds. This is passed through a regulating valve reduced to eighty pounds, and carried from the power house through an eight-inch main. All apparatus is trapped with tilt traps or continuous flow traps. Various tell-tale devices are installed, which indicate the failure of any trap, and the whole system has proved very effective and economical. A feature of this is a special return pipe carried to most of the steam-using apparatus. A special drip is provided on each machine, independent of the trap. This drip opens above a funnel leading into the special return. In this way, if a trap gets out of order and the machine operator uses the drip, it is at once noticed by the foreman. Vents are also lead out above the elevator towers, and if any steam is being wasted, it is quite evident and can be seen by the manager or superintendents. The importance of this can be readily recognized from the fact that in factories of this nature at least ten times the amount of steam that is actually needed can be wasted by allowing the high pressure system to get out of order.



THIRD FLOOR PLAN MCCORMICK MANUFACTURING CO. FACTORY.

WATT & BLACKWELL, ARCHITECTS.

Complete systems of automatic carriers have been provided for taking the biscuits from the oven room to the packing rooms and from the packing rooms to the shipping rooms. The flour is automatically weighed, sifted, blended and delivered to the dough mixers. A mono-rail conveyor enables one man to handle a tub containing nearly two tons of dough. Sugar syrups and all raw materials are taken from the cars and placed in the desired locations without manual labor.

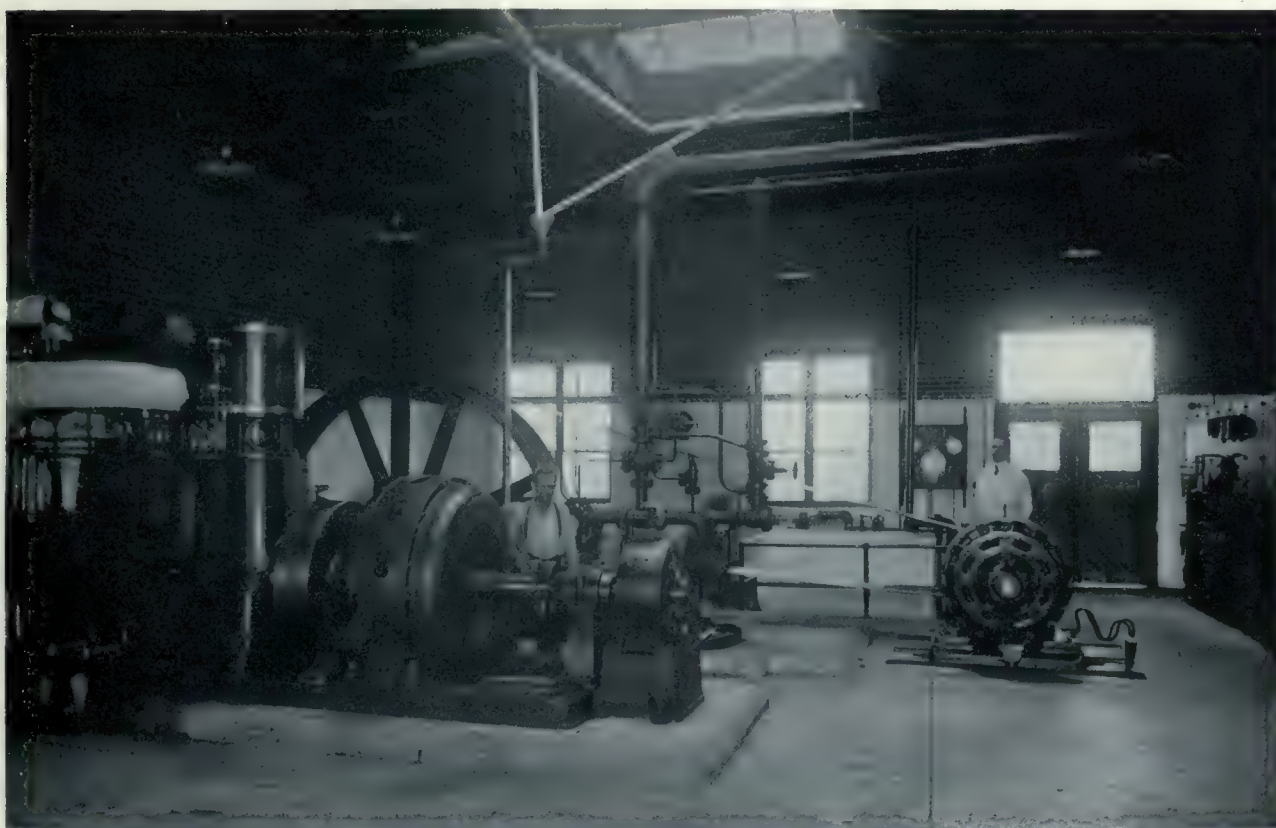
The large freight elevators and passenger elevators are operated by induction motors with special high resistance end rings. No controllers are used with these motors, and there is consequently very little apparatus to get out of order.

modern as Perret's plans; 12-foot walls were none too thick to support 11 stories. Here, again, however, the ingenuity of the architect showed itself, for he found a way to make use of the walls without weakening their strength.

"In the thickness of the walls," he wrote, "are little stairways, cabinets and cupboards, from the bottom floor to the top floor. Thus there is no space wasted."

Evidently the building was designed for a dwelling—perhaps an apartment house—for in describing his project Perret wrote: "This great and excellent edifice can accommodate comfortably 500 people."

Considering the date of the design, the project of Jacques Perret was, in many ways, a remarkable prophetic vision. In ornateness of



POWER PLANT, MCCORMICK MANUFACTURING CO. FACTORY, LONDON, ONT.

H. P. ELLIOTT, B.A.S.C., M.E., E.E., CONSULTING ENGINEER.

ANCESTOR OF SKYSCRAPERS

In 1601 Jacques Perret, an architect living in Chambray, Savoy, designed a building that, although it was never erected, may properly claim to be the ancestor of the modern skyscraper. What a visionary dreamer must have been the architect who 300 years ago, planned an 11-storey building, 361 feet in height—almost half as tall as the tallest building in New York.

According to Perret's measurements the building was to be 166 feet long and 140 feet broad. And the walls were to have been more than 12 feet thick. But in 1601 the methods of building construction were by no means so

detail and in fanciful exaggeration, the building suggests the 16th century, but in its general lines it represents a much later period in architecture. Like the modern skyscrapers, it has a tower above the main building. And when he designed the terraced roof, did Jacques Perret dream of a roof garden?

FOREST PLANTING

Forest planting has been carried on by the Japanese for probably a much greater period than 400 years, and it is this work that gives Japan credit for having practised forestry before any other nation. As a matter of fact, however, the forests of Japan have been under real forest management less than thirty years.

A Reinforced Concrete Structure of Merit

Modelled From The Firm's Parent Factory, The Canadian Building
Contains Improved Ideas

THE Wm. Wrigley, Jr., building is five storey and basement of reinforced concrete construction of the most modern fireproof type, with a width of 90 feet on Carlaw avenue, and a depth of 260 feet.

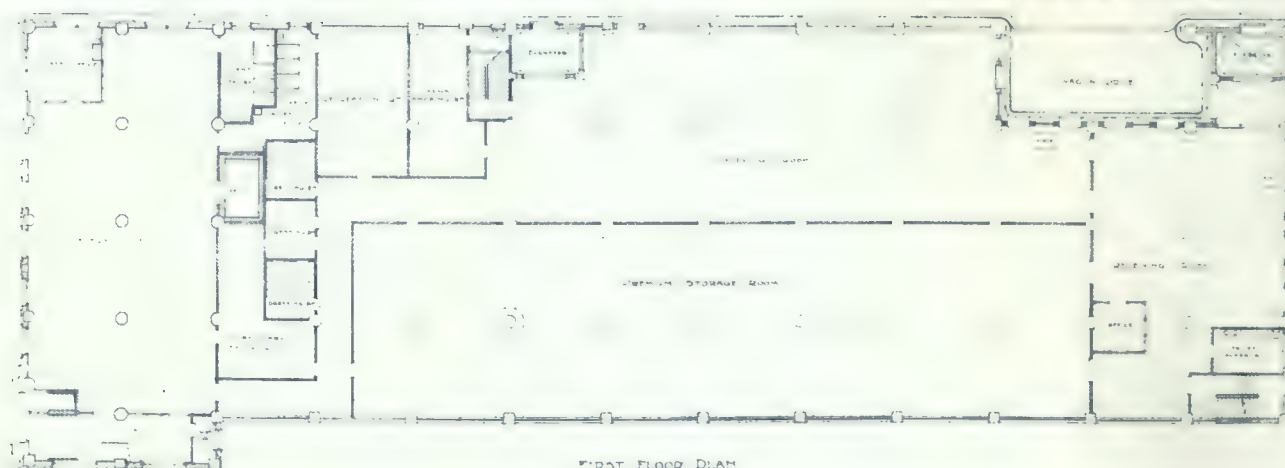
The exterior windows of the building are of wire glass with rolled steel frame extending from column to column, and giving a maximum of light for manufacturing purposes.

All elevator shafts and stairwells are entirely



FRONT AND SIDE EXTERIOR, WM. WRIGLEY, JR., FACTORY, TORONTO.

BRACK & PERRINE, ARCHITECTS.



FIRST FLOOR PLAN

enclosed with fireproof partitions and fire doors from basement to roof, so as to afford absolutely safe means of egress to the occupants in case of fire.

In giving orders for the building, the owners required that it should be designed for manufacturing purposes, with a maximum of light, should be as fireproof as practical to make it, and that special attention should be paid to the sanitary arrangements, and ample provision made for the accommodation of the employee, as in their manufacturing processes cleanliness was the first consideration, so no expense was spared in the building to realize the highest ideals in this regard.

The building construction is patterned to to some extent after the owner's Chicago factory, and sanitary arrangements found successful there, adopted for use in this building. The plumbing fixtures are of the best throughout with flushometer valves and syphon jet bowls, easily flushed and cleaned at all times.

The toilet room floors throughout are of terrazzo, with waterproof walls and ceilings, and with cove molds at all corners, so as to leave no awkward corners for the accumulation of dirt and rubbish. A novel feature is the arrangement of the wash basins throughout the factory, which, instead of being placed inside the toilet rooms in the usual manner, are placed just outside the door in the factory with a white terrazzo floor under them. This enables the foreman to keep a watchful eye on the employees and make sure that their ablutions are properly attended to.

Ample dressing rooms and locker rooms have been provided also, and rest rooms for the women and smoking rooms for the men, with magazines, gramophone and other amusements for the noon hour. Shower baths are also provided, and sanitary bubbling drinking fountains so as to encourage the employee to cleanliness and self respect.

For the main structure of the building *Flat Slab* reinforced concrete construction was adopted with columns spaced 20 feet apart in each direction. This construction gives an absolutely flat ceiling without any projecting beams or girders, and as the side windows are run clear up to the ceiling, the distribution of light through the interior is as near perfect as it is possible to be. This construction also allows the greatest economy in the installation of all sprinklers and heating pipes, shafting hangers and other equipment, eliminating all awkward bends, and also increases the available head room and storage heights materially. The great stiffness of this construction also renders imperceptible the vibration from moving machines so that all delicate machines register accurately, and all shifting and other moving parts once

properly set keep their alignment indefinitely.

This construction also with round columns has been proved by the Edison fire at Orange, New Jersey, to be the most perfect type from the standpoint of fireproofness, as there are no projecting corners anywhere for the fire to attack, and no sprawling off of corners due to unequal expansion, such as happens in buildings with square columns and beams. This fact has been recognized by the "Fire Underwriters," so that it is now possible to secure a lower insurance rate with this construction than with any other type, as has been proved by the rates offered on this building, and on others of similar design.

This building was designed for a floor load of 200 pounds per square foot, and at the time it



MAIN ENTRANCE, SHOWING MARBLE STAIRWAY, W.M. WRIGLEY, JR., FACTORY, TORONTO.

was built was the first large building of this type that had been constructed in Toronto, and the first one of this type under the new Toronto building code; although this construction is widely used in the States and rapidly superseding other types.

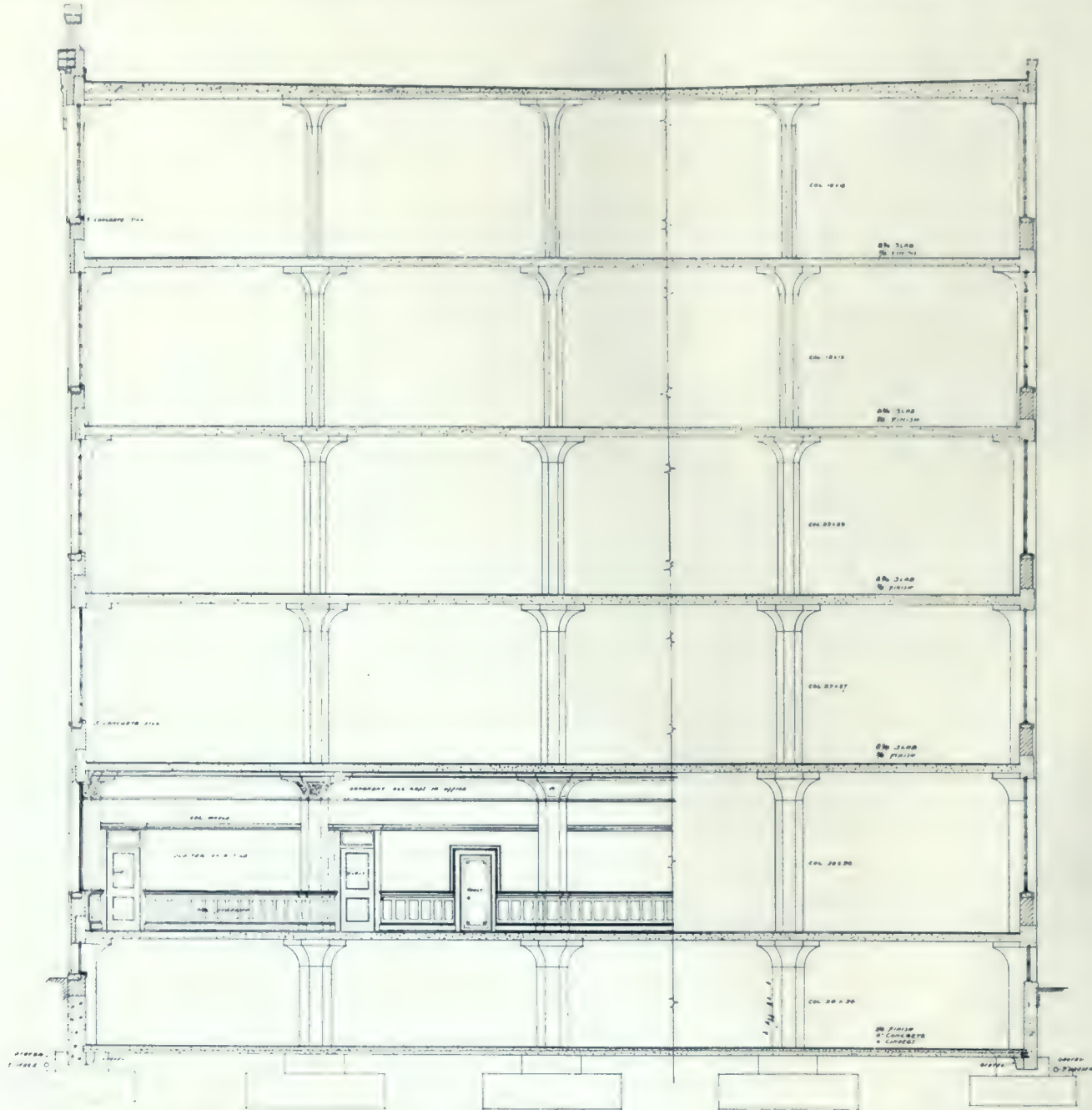
The Toronto code being somewhat conservative, owing to the newness of this type, the building is somewhat heavier in proportion than a building of the same capacity would be in Chicago and other large American cities. During construction and before the concrete was sufficiently aged to attain its full strength, the floor was tested over two panels, an area of

about 1,500 square feet with a test load of 514 pounds per square foot, or about 341 tons, in accordance with the city requirements. The deflection for this load was only 5 16 inch at the 20 foot panel without any signs of distress in the concrete at any point.

Great care was given to the floor finish of the building, most of the factory floor having a cement topping and carefully graded silica gravel and sand was used in mixing the cement

used, applied directly on the concrete and has made a splendid, pleasing floor both to walk on and for appearance.

The artificial lighting is supplied by means of one large outlet in the centre of each 20 x 20 foot panel, which makes a permissible arrangement due to the flat ceilings which reflect the light uniformly in all directions, and the interior of the building and all ceilings being painted with white paint, greatly adds to this result. The



SECTION THROUGH FACTORY OF W.M. WRIGLEY, JR., TORONTO.

PRACK & PERRINE, ARCHITECTS.

topping laid rather dry and afterward cured by being kept covered with damp sawdust for several weeks. The result has been a splendid hard topping that stands up under trucking and without the dusting of the surface so objectionable with most cement factory floors. Floor hardener was used in the topping for the stairs and landings with good results, while in the offices, battleship linoleum 1 1/2 inch thick has been

paint for the factory portion being of the brand of cold water paint, an excellent cheap paint with waterproof qualities.

The heating of the building is by steam of a combination gravity and vacuum steam heating system, steam being supplied by two efficient C. I. sectional boilers of 100 H.P. each.

The elevator service of the building is furnished by two freight and one push button pas-

senger elevators, which amply provide the transportation service in the building.

As an aid to the receiving and shipping facilities, a siding runs close to the building in the rear, and loading and unloading is done directly from car into first floor of building, while for wagon shipments a loading dock has been provided as shown by the first floor plan, where wagons can drive under a portion of the building at the rear and load and unload under cover.

The front portion of the building is devoted to offices, and has for that reason been made more elaborate than the factory construction, being veneered with pressed brick over the concrete work and ornamented with terra cotta.

The interior of the main offices have been finished in an ornate and harmonious though simple manner.

The walls and ceilings are plastered and ornamented with a few simple plaster molds, while the wainscoting and trim is panelled in quartered oak. The walls are beautifully tinted with soft colors restful to the eyes, the lighting fixtures are bronze of the indirect type of an elegant graceful design; the furniture is all new and of quartered oak especially finished to match the wood trim, the floor of green linoleum, the entrance halls and toilet rooms finished with marble wainscotings and floors, and the whole effect is quite artistic.

This building has been pronounced by those who have seen it, to be one of the finest and best type of modern factory buildings in Canada, embodying as it does all the late developments and improvements in factory construction, due to the remarkable development of reinforced concrete during the last ten years, and is well worth a visit by anyone interested in new building construction.

PRACTICAL RESULTS OF TOWN PLANNING

In giving his experience as a resident of a town-planning garden suburb, Mr. George Phelps, now of Toronto, at the preliminary conference to form a Civic Improvement League, said:—I had the privilege of living in a garden suburb a few years ago, and from having lived in it and taking part in the life there, that very fact has fired me with an enthusiasm for town-planning and housing I cannot get rid of. I know the project from the inside, and I also know that the place where I lived was one of the most beautiful places anywhere—the Hampstead garden suburb in England. Anything I can do to forward a movement to improve conditions in the way that the town-planning movement has been carried on there I will do to my very utmost ability, simply because I know, from living in it and being connected with the movement, what a tremendous benefit it is, not only in beautifying the town but in uplifting the people who live there.

BUILDING MATERIALS WANTED IN RUSSIA

The British Vice-Consul at Moscow (Mr. E. B. St. Clair), in calling attention to the great demand that will arise in Russia after the war for manufactured goods of every description, points out that the following goods were formerly imported from Germany and Austria-Hungary on a large scale:—Building materials and requisites: Tiles, majolica, terra cotta, locks, and sanitary goods and fittings. Machinery and tools: Power plants, pumps of every description, motor-cars and spare parts, etc. Scientific instruments, etc. Scientific instruments, etc.



WM. WRIGLEY, JR., FACTORY, INTERIOR VIEW, SHOWING COLUMNS AND FLAT SLAB CONSTRUCTION, ALSO SPRINKLER SYSTEM.

A Modern Factory of Steel and Concrete

Former Experience in Factory Construction Utilized to Advantage

SITUATED on Christie street, Toronto, just north of the Canadian Pacific Railway tracks, in the city's newer factory section, is located one of the most up-to-date and best-equipped manufacturing plants on the continent, recently completed to provide a home for the manufacturing and executive staff of the National Cash Register Co., of Canada, Ltd.

The four buildings of the group arranged in the form of an "L," are placed in the south-east corner of the property which comprises some seven and one-half acres, and provides for plenty of air and light, as well as making provision for necessary extensions expected in the near future. The recent elevation of the railway tracks and the depression of the street on which the main portion of the building fronts, made necessary a retaining wall of concrete, so that the structure has an imposing appearance on the elevated surrounding ground.

Brick and steel were the materials used, the lintels and sills are finished in stone, and the interior steel columns are encased in concrete, so that a building of fireproof construction is obtained, and further security is secured by the installation of a sprinkler system throughout. The floors of the factory are of concrete, while the foundry floor is of brick and the windows are of the metal sash type.

The main building is set back some fifty feet from the street line, the intervening space being grass covered, with flower beds well arranged, the whole providing a pleasant view from within or without, and adding to the gen-

eral appearance of the plant as seen from the street. Entrance to the main building is through a large doorway designed in the Gothic style, the beauty of which will be noted by referring to the reproduction in detail, which we show herewith.

Facing on Christie street, the main building



MAIN ENTRANCE, NATIONAL CASH REGISTER FACTORY, TORONTO.

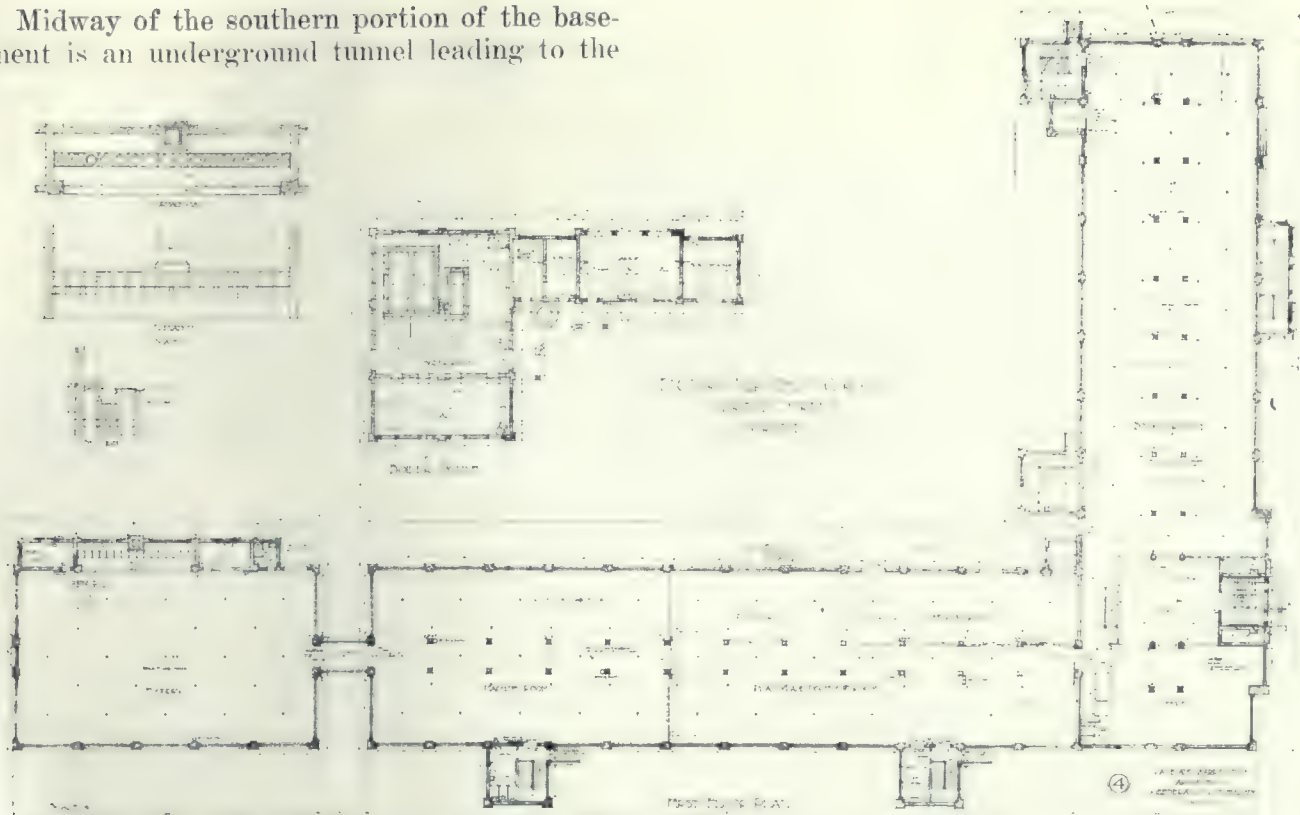
has a frontage of two hundred and forty feet by sixty feet deep, and is two storeys in height, with a full size basement. The frontage of the manufacturing buildings on the south is also two hundred and forty feet by sixty feet, and contains one storey and basement, while the foundry connected at the extreme end by an enclosed passageway is eighty by sixty feet.



SOUTH AND EAST ELEVATION, NATIONAL CASH REGISTER FACTORY, TORONTO.

PAGE & WARRINGTON, ARCHITECTS, TORONTO.

Midway of the southern portion of the basement is an underground tunnel leading to the



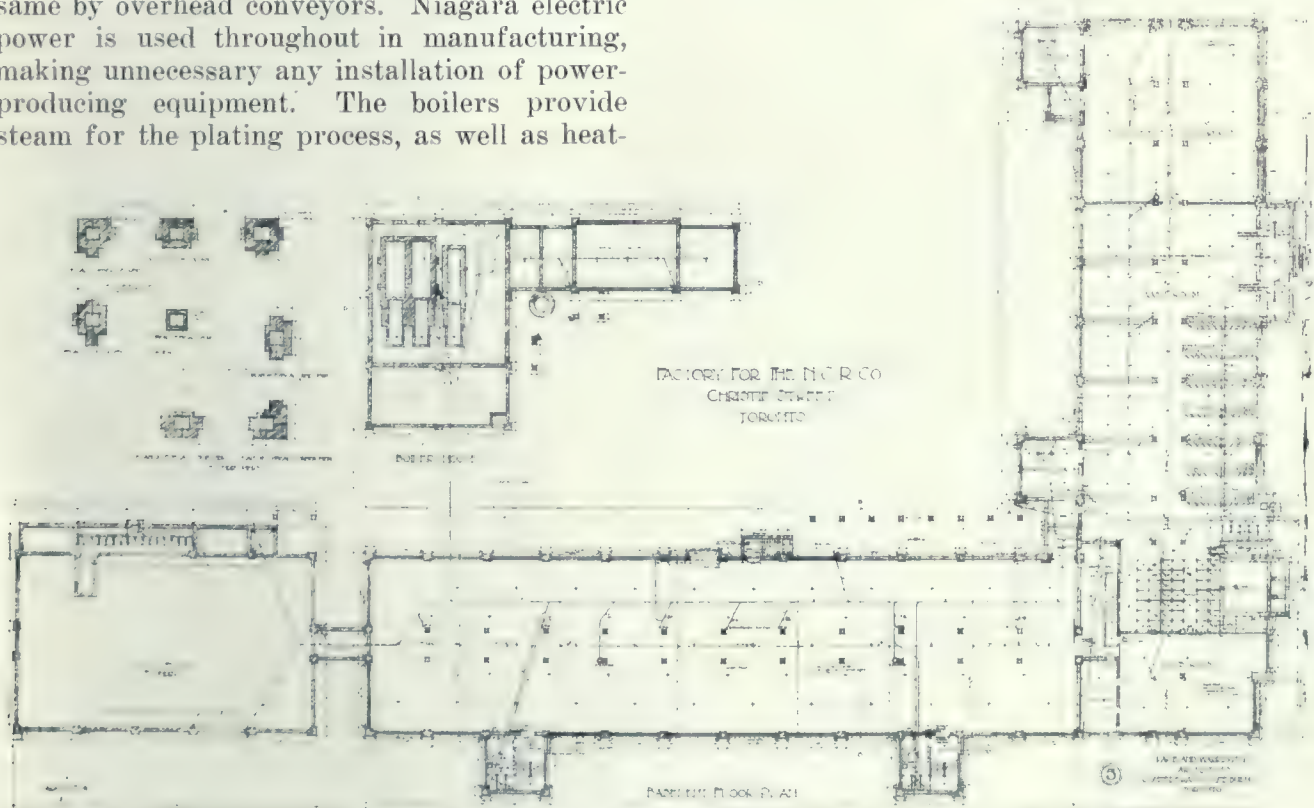
GROUND FLOOR PLAN, NATIONAL CASH REGISTER FACTORY, TORONTO.

power house, garage and blacksmith shop, situated about sixty feet from the factory buildings. This tunnel serves as well for the heating mains and live steam lines to the plating and finishing rooms.

The power-house contains three boilers of the tubular type, together with the same number of smokeless furnaces, coal being carried to same by overhead conveyors. Niagara electric power is used throughout in manufacturing, making unnecessary any installation of power-producing equipment. The boilers provide steam for the plating process, as well as heat-

ing the water which circulates as a heating medium to all parts of the building.

While the forced hot water system of heating is installed in some of the larger institutions in Canada, its use has been uncommon, due to the greater cost of installation largely, so that its adoption for use in a building of the factory



BASEMENT PLAN, NATIONAL CASH REGISTER FACTORY, TORONTO.



STEEL FRAME WORK, NATIONAL CASH REGISTER FACTORY.

type is worthy of note. The claim is made for this system that it does not give the dry and more intense heat of steam, which absorbs the natural humidity of the air, and as a result a more healthy atmosphere is provided for the occupants. The water is heated by steam in two duplicate converters, and is circulated by means of two electrically driven rotary pumps.

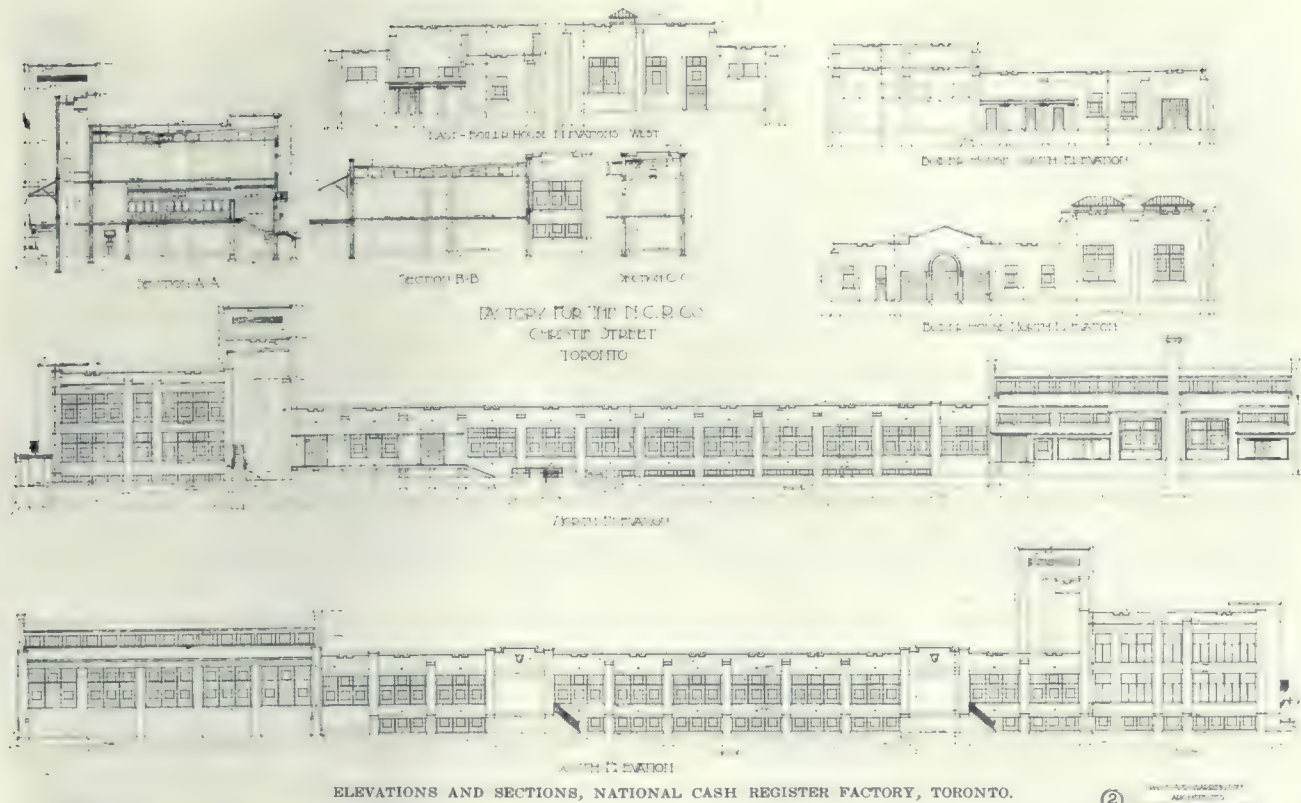
An important feature of the equipment of this plant is the ventilation, fresh air heated is circulated to the manufacturing departments and the foul air drawn off, and a separate system draws all dust direct from the buffing and grinding machines to the basement without unsightly overhead ducts, which take up so great a space. Power is supplied to the machines on the ground floor by shafting placed on the ceiling of the basement which does away with overhead driving force and dangerous transmission belts of peril to the operators. In the foundry are installed sixteen crucible furnaces of the usual sunken type, and a sub-basement space provides for the necessary cleaning of same.

The floors of the factory are of concrete, laid

on steel "I" beams, supported by two columns in the centre placed ten feet apart, and at intervals of twenty feet. It will be noted that the buildings being sixty feet wide, a clear aisle ten feet wide is allowed for trucking and handling goods, leaving twenty-five feet of clear working space on either side of this centre aisle or passageway. All the foundations and steel structure work was designed for future extensions in the height of the plant, and the roof of felt and gravel can be readily removed. The stairs, elevators, lavatories and bathrooms are in outside towers, which also provide fireproof exits protected by automatic fire doors, the daily use in entering and leaving by the employees familiarizing them with same in case of need. The basement of the main building is divided into many rooms, all fitted for their industrial uses. In the main room at the employees' entrance locker and wash rooms are located, each employee having a separate steel locker, and provided with soap and clean towels daily. At the south end of this room large shower baths are placed, and at the north end a dining-room



REAR VIEW, NATIONAL CASH REGISTER FACTORY.



ELEVATIONS AND SECTIONS, NATIONAL CASH REGISTER FACTORY, TORONTO.

②
 W. H. G. & S. L. G.
 ARCHT.
 TORONTO

and well-equipped kitchen are located for the use of the employees. An employees' recreation room is provided, equipped with gymnasium apparatus, which is readily removed when the space is required for general purposes. At the south end of the basement, with direct stairway to the offices, is located the officers' and office staff dining hall and assembly room. Here at lunch the executive force of the company meet to partake of the good things provided by the efficient culinary department, and to indulge in impromptu discussion, while once a month a general meeting is held in the assembly hall by the staff and representatives. A plat-

form is at one end in front of a wall blackboard used for illustrated lectures.

On the ground floor entry is made from the main entrance into a large and roomy reception hall, furnished with chairs, tables, etc., with papers and magazines for the use of those waiting for interviews. A telephone operator in this room receives and answers all enquiries. A display of the various types of cash registers is contained here also. On the left of the entrance in the southeast corner the office of the manager and his assistants are located, separated by a corridor from the general office, which in common with all parts of the building is



MOULDING ROOM, SHOWING STEEL CONSTRUCTION. NATIONAL CASH REGISTER FACTORY, TORONTO.



VIEW SHOWING VENTILATORS, NATIONAL CASH REGISTER FACTORY.

flooded with light from the windows, which are sixteen and one-half feet in height by ten feet wide, occupying four-fifths of the total wall space. The furnishings and interior woodwork of the entrance hall and offices are of quarter-cut oak, fumed finish, and the ceiling is of ornamental plaster. Specially designed electric fixtures in bronze with inverted shades are in harmony with the interior. On the right of the main entry is located the stock room, containing rows of steel shelves and partitions divided into sections for the many parts of the different machines produced by the company. In the south wing of the factory, back of the general office, is placed the shipping room, and in the next section is the plating and polishing department, the floor of which is raised wooden slats over concrete to protect the feet from the water and acids used. The next section includes the machine shop, and back of same and connected by an enclosed passageway, is the foundry, which is a separate building of brick, steel and glass construction, equipped with the most modern foundry and moulding apparatus. In this

building the heating coils are placed overhead and out of the way.

On the first floor of the main building is the assembling and testing rooms, where all the machines turned out are operated by power to insure smooth working and to guard against any possible defects. In the southeast corner the experimental department is placed, adjoining which is the printing office, where inside publications are produced.

In order to encourage the use of Canadian hardwoods for interior decoration, Lord Shaughnessy has issued instructions to use nothing but Canadian forest products in the sleeping, parlor, dining and observation cars, and in the offices and hotel buildings of the Canadian Pacific Railway Company. This decision was made after careful consideration and experiment. Lord Shaughnessy had samples of all Canadian hardwoods treated at the Angus shops here, where selected specimens were tested with polishes, stains, etc., and the results showed that the Canadian woods compared satisfactorily with imported varieties.



INDIVIDUAL BASINS AND METAL LOCKERS, NATIONAL CASH REGISTER FACTORY.

PAGE & WARRINGTON, ARCHITECTS, TORONTO.

One of Montreal's Most Modern Factories

Its Equipment is Complete in Every Detail

THE new wire and cable factory of the Northern Electric Company, Limited, occupies an area of one hundred and seventy-eight thousand square feet (over four acres), bounded by St. Patrick, Shearer and Richardson streets, in the city of Montreal. The old plant, located at the corner of Guy and St. James street being inadequate, necessitated the erection of an enormous new structure which is the largest single plant in America for the exclusive manufacture of wires and cables. The foundation for walls and columns are composed of plain and reinforced concrete. In the main building some of the one storey portions the columns rest on concrete piles, of which over four thousand have been driven with an average length of twelve feet. On each group of piles rests a reinforced concrete cap on which bases for the building columns are placed.

Six thousand five hundred tons of structural steel were required for the superstructure. Bethlehem H columns, girders and beams were used almost exclusively throughout.

The most modern fireproof construction has been used throughout the entire building, all interior columns being incased in four and three-eighths inches of hollow terra cotta and beams in two and three-eighths inches. The floors are composed of hollow terra cotta seg-

mental arches with a span of six feet eight inches and are suitable for a live load of two hundred and eighty-eight lbs. on the second to seventh floors and one hundred and fifty lbs. on the eighth floor. A stone concrete fill is poured over the arches, in which wooden sleepers are embedded, and the under-flooring is nailed to these sleepers, and over this, the final maple flooring is laid at right angles. The National Fireproofing Company supplied all the fireproofing terra cotta amounting to eleven tons.

The walls are built of plastic brick, seven millions being used. All the lintels in the courts and on the street sides, together with the architectural ornaments and copings on the street sides are of terra cotta tile.

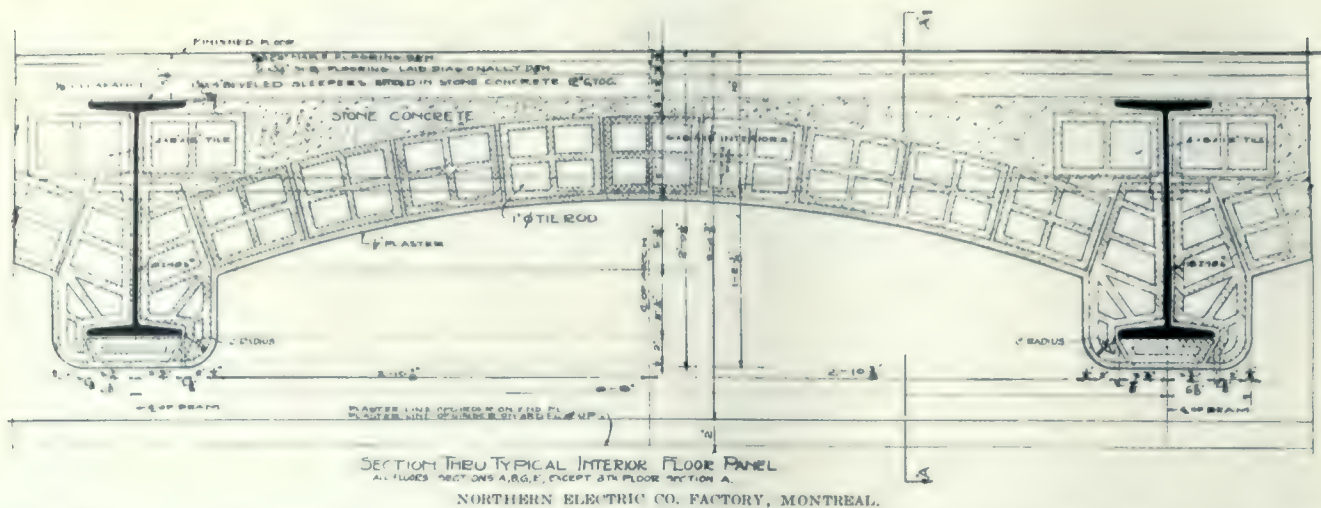
The main buildings, shaped like the letter "E" have two main courts, which serve to provide ample lighting facilities for the five hundred thousand square feet of floor space from the interior as well as the exposed sides on the streets. These courts have sloping roofs of book tile with large skylights. The G. T. R. and C. P. R. railway tracks run into one court which has large platforms for shipping and receiving purposes. Each track is provided with a one hundred and fifty ton track scale.

There are four travelling electric cranes,



REAR VIEW, NORTHERN ELECTRIC CO. FACTORY, MONTREAL.

W. J. CARMICHAEL, ARCHITECT.



one-fifty-ton, one-twenty-ton, one-twenty-ton with five-ton auxiliary hoist and one-ten-ton. The fifty-ton crane is used for handling reels of armored cable, the twenty-ton for the lead covering department, the twenty-ton with five-ton auxiliary for the turbine room and the ten-ton for impregnating tank room. The two twenty-ton cranes are so arranged that they can pass material to the fifty-ton, which will convey it over the railway tracks or vice versa.

Fire walls with automatic steel fire doors on both sides, divide the building into various sections. Each section has a fire and smoke proof stair tower with iron stairs, at both ends, thus providing ample and safe means of exit in case of fire on any floor. All windows throughout the building have steel frames with wire glass. Pivoted sections of these windows can be opened with operating chains equipped with fusible links, thus making them self-closing in case of fire. Ninety-five thousand square feet of steel sash were required for this factory.

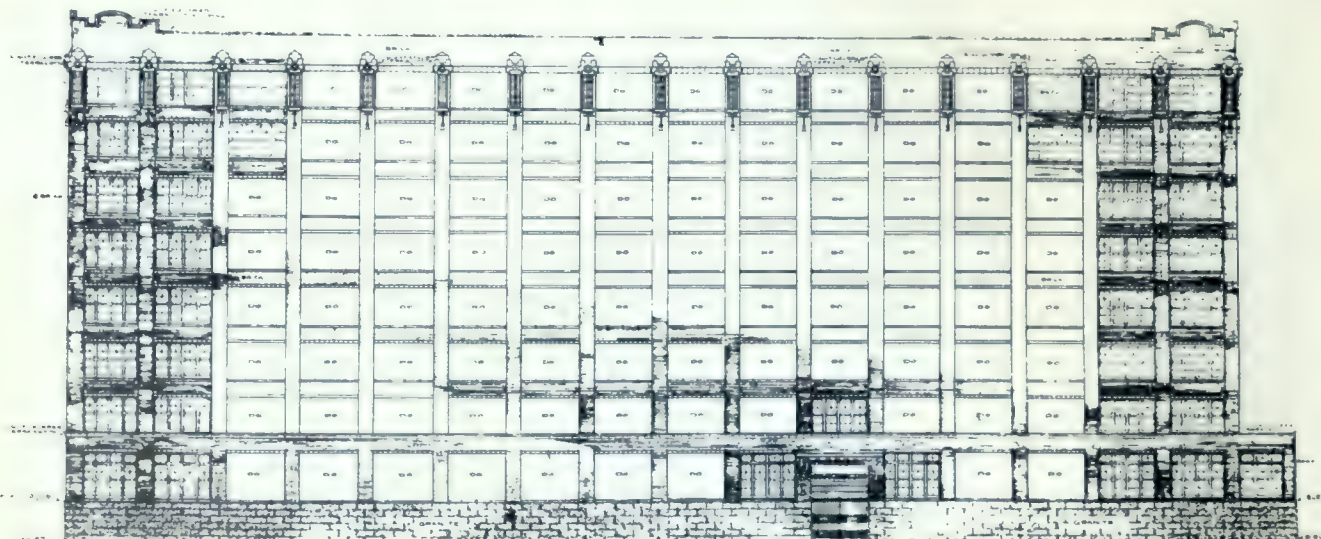
The sprinkler and fire hose systems above the first floor level consist of 6,000 sprinkler heads and fire hose located at convenient points in the building. These systems are supplied with water from the city mains, steamer connections on the street and a one thousand five

hundred gallon Underwriter's fire pump which is connected to a one hundred thousand gallon concrete reservoir and the canal.

Five six thousand and one fifteen thousand pound freight elevator with a travel of one hundred feet and twenty-five per minute respectively are used to handle the transfer of material for manufacturing, and two high-speed passenger elevators travelling at three hundred and fifty feet per minute are used to serve the general offices of the company, which are situated on the eighth floor of the building. This floor has no columns, the roof being supported by steel trusses with large skylights. The absence of columns affords splendid facilities for the laying out of offices to suit the requirements.

A unique point in the design of the building is the storage space secured on the roof of one section by means of paving bricks. The roof is served by means of one of the six thousand pound freight elevators.

Large intake pipes from the canal supply the reservoir, and the water used for condensing purposes. An automobile garage and a waggon court with platforms facing St. Patrick street are so arranged that the material can be readily loaded for city delivery without having to cross the railroad tracks.



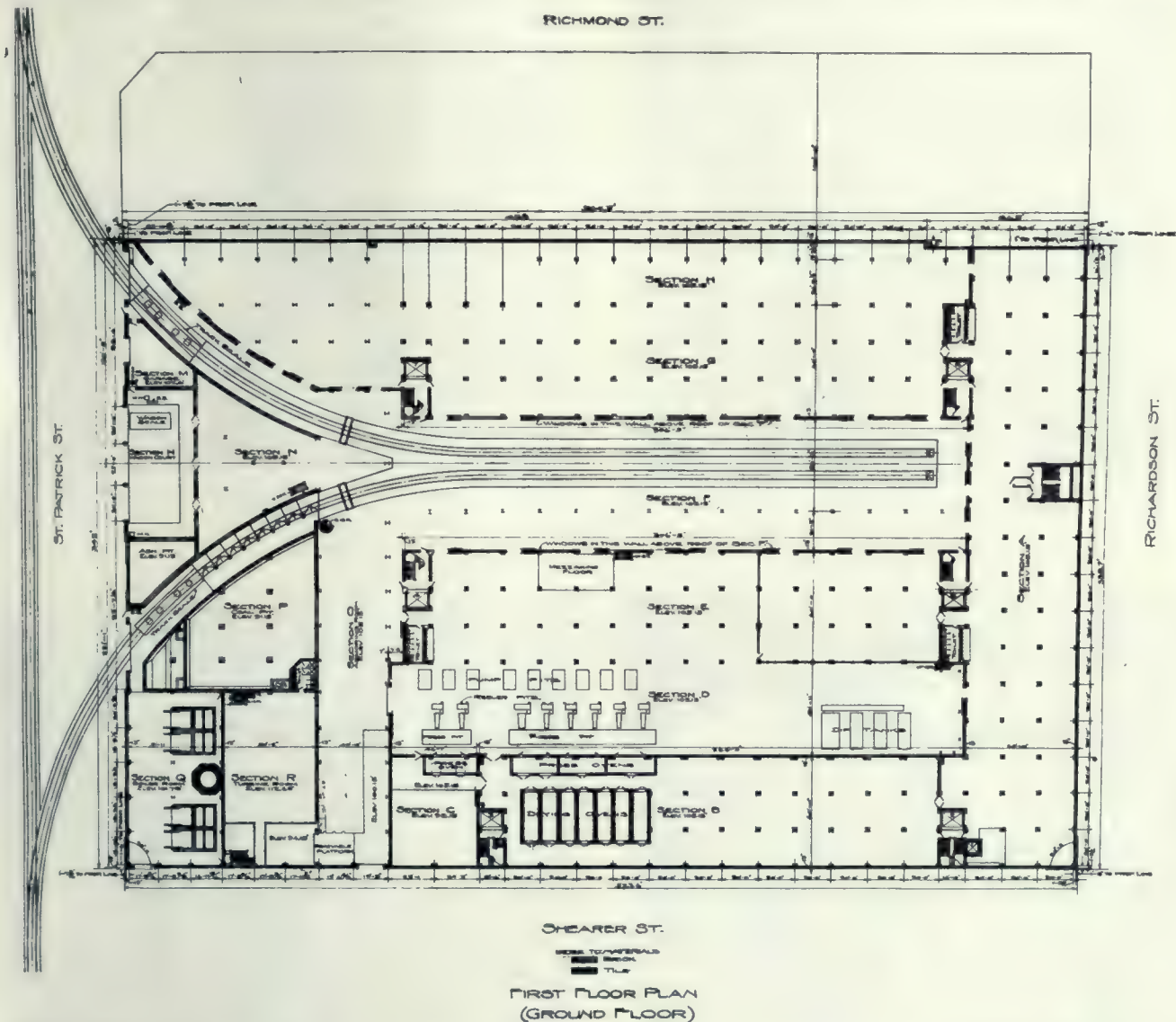
SIDE ELEVATION, NORTHERN ELECTRIC CO. FACTORY, MONTREAL.

W. J. CARMICHAEL, ARCHITECT.

The building is heated by a forced circulation hot water heating system. Exhaust steam from one of the main turbines pass through closed heaters. The water is circulated by means of a four thousand gallon single stage volute pump directly connected to steam turbine. The vapors and condensate from the exhaust steam is carried from the heaters by means of an air pump with tail pump. This makes a very flexible system to suit the changes in the outside temperature, as the vacuum can be increased in warm weather, thereby creating a lower temperature of the exhaust steam and de-

being large enough to take care of the whole system. Two steam driven air compressors, which have a combined capacity of twelve hundred cubic feet per minute are used.

The power plant is of the most modern design. Coal can be stored in large quantities and will be transferred to the storage bins over the front of the boilers by means of a Telfer car and clam shell bucket. Ash handling equipment takes the ashes direct from ash chutes under the boilers and delivers them into ash storage bins which in turn deliver them into railroad cars or carts for disposal. Ashes can also be handled



NORTHERN ELECTRIC CO. FACTORY, MONTREAL.

W. J. CARMICHAEL, ARCHITECT.

creasing the amount of steam required by the turbine as the vacuum increases. In extreme cold weather the turbine can exhaust into the heater at atmospheric pressure and thus increase the quantity and temperature of the steam. When running two turbo-generator units in parallel, one turbine can run condensing, while the other exhausts into the heating system and its load can be varied to suit the amount of steam required for heating purposes. The power plant equipment for this heating system is in duplicate, either one of the units

by means of small cars on an industrial railway running in the basement of the boiler room. The Telfer car will raise the body of each of these cars off the truck, through a hatchway in the main boiler room floor, and will carry them over to the ash storage bin, this method of ash handling only being used when it is necessary to overhaul and repair the regular ash handling equipment.

A two hundred and twenty-five foot chimney serves four B. & W. boilers nominally rated at six hundred and fifty horse power, but which



VIEW IN PRESIDENT'S OFFICE.



GENERAL OFFICE, NORTHERN ELECTRIC MANUFACTURING COMPANY.



RECEPTION ROOM.



DRAFTING ROOM.

will be forced to deliver one thousand horse power when necessary. These boilers are fitted with B. & W. chain grate stokers and superheaters. The exhaust steam and condensate from the heaters, turbines, condensers and steam driven auxiliaries is brought to a feed water heater, which is capable of raising one hundred and seven thousand pounds of water per hour to two hundred and ten degrees. From this heater, the water is returned to the boilers by means of two boiler feed pumps, each with a capacity of six thousand Imperial gallons per hour. Horizontal turbines form the motive power for the generators and are placed on structural steel stands directly over the centrifugal condensers, thus insuring a high vacuum. The condensers are located over two-thirty-two inch pipes leading to the canal. From one of these pipes, the water is drawn by a turbolute turbine driven pump, and after having passed through the condenser is discharged into the other pipe. Tunnels leading from the turbine and pump room are used to run the power and lighting circuits, the flow and return pipes of the forced hot water heating system, the house service water lines and the high pressure steam lines for manufacturing purposes.

The turbine room has been laid out for two-two thousand K.K., two-one thousand K.W. turbo-generators, two-four hundred and fifty K.W. rotary converters and two-seventy-five K.W. turbo-driven exciters. The generators are three phase sixty cycles, four hundred and forty volt star wound with neutral connection brought out to the switchboard. The exciters are one hundred and twenty-five volts and generator voltage is controlled by a regulator.

Air for the ventilation of the generators is taken from a duct in the foundations of the generators and forced through the windings and air passages by fans integral with rotors. Screens are provided in the pent house, of this duct to exclude dust, etc.

The horse power of connected load is approximately five hundred and fifty H.P. direct current at one hundred and fifteen volts and four thousand H.P., alternating current at four hundred and forty volts. For the supply of the former, two-four hundred and sixty K.V.A. rotary converters, with necessary transformers and starting switches, are installed, the neutral being brought out from each transformer bank for the neutral of a one hundred and fifteen-two hundred and thirty volt three wire direct current system.

The switchboard for the control and distribution of this power consists of a main board of twenty-five blue Vermont marble panels on the turbine room floor. On this board is mounted the meters for measurements of outputs of

generators and loads on the feeders, also the direct current bus-bars both for exciters and direct current factory load, and control equipment for twenty-five solenoid operated feeder switches for alternating current distribution. These switches will be mounted on slate panels on a mezzanine floor under the turbine room floor. The alternating current four hundred and forty volt bus-bars and generator switches are also located here.

Generator switches are non-automatic with bell ringing attachment and feeder switches automatic, as mentioned above. All feeders leave the turbine room in a tunnel from which they branch off to the various buildings in three inch fibre conduits. These fibre conduits lead to cable pits from which risers of three inch conduits are carried to distributing panels. All alternating current cables are three conductor paper insulated, leaded; direct current cables being single conductor leaded. For lighting factory area, four light clusters, wired series parallel, are used. As mentioned above, the neutral point of generator windings are brought out. The lead sheath of the lighting feeder cables are bonded to the neutral bus and lighting circuits connect one wire to one of the three conductors, the other to the sheath giving approximately two hundred and sixty-six volts across two lamps in series. Lighting feed cables to distributing boxes on the third floor of each section from which circuits run to the panel boxes on the third and fifth floors.

All wiring except that in the general offices is open conduit. The general offices have outlets for fans, dictographs, annunciators and telephones, all wiring concealed in conduit.

An artesian well was drilled and is used for drinking water and for manufacturing purposes.

In addition to the fire protection system, a regular watchman's service is installed so that the building is patrolled at all times outside of the regular working hours.

For the convenience of watchmen and to avoid the use of oil lanterns in the plant, a certain number of electric lights are kept burning all night to form a pilot system so that in cases of emergency the workmen in the building can easily locate the fire apparatus and also the exits.

The following features in connection with the building are of interest:—

The total excavation amounted to some fifty thousand cubic yards. Over fourteen thousand cubic yards of concrete have been used for foundations. One hundred thousand square feet of glazing glass has been used and approximately one hundred thousand square feet hot water radiation service were required to be installed.

A Reinforced Concrete Warehouse

Illustrates The Latest Tendency in Warehouse Construction

A VERY modern and attractive warehouse building has recently been erected on John street, Toronto, by D. O. Roblin. This building is one hundred and ten feet in length by forty feet in width, four storeys and basement, and is of brick and reinforced concrete throughout, which make it absolutely fireproof. The front is of tapestry brick, and the side walls and rear of Don buff brick. The ceilings are of very artistic design, being of corrugated concrete.

The main floor contains the offices and a large shipping room. The office furniture is entirely of oak. The lighting is of the indirect system, the shades of a special corrugated design to match the ceiling. The remaining floors may be used as general stock rooms if necessary.

The entire basement, with the exception of a small portion bricked off for the heating plant, is devoted to a bonding room—all goods being shipped in original cases.

The warehouse carries the lowest rate of insurance, in view of the fireproof construction and the modern fire-fighting apparatus installed. Although the underwriters did not consider an automatic sprinkler system necessary there is a



FIREPROOF CONSTRUCTION FEATURES OF D. O. ROBLIN WAREHOUSE.

high pressure pipe running from basement to roof, which is capable of flooding the roof in a very short time in case of fire in the vicinity. All the doors are of fireproof type, as recommended by the underwriters, and in case of fire are automatically closed by a novel contrivance located in the front hall just above the door leading into the offices.

Much care was taken with the view to making this building as convenient as possible. Just inside the entrance is a winding steel staircase leading to all floors, and ample space has been left for the installation of an elevator should it ever be decided necessary. At the rear there are two electric elevators. Four large shipping lane at the side of the warehouse.

WASTE IN FOREST PROTECTION

Because of lack of field supervision, more money is wasted in fire protection to-day than is used economically. Fire wardens are nearly all temporary men, and if one does not give them supervision and training, and does not try to keep the good men from year to year, one cannot get the results desired. In the first fire protection services of Canada, far more wardens were wasting money than were making good use of it. Unless we have good permanent supervision of fire protection and have the same men as permanent rangers year after year we will not get the good results because we have large areas to protect with very small sums of money.—McMillan.



EXTERIOR OF D. O. ROBLIN WAREHOUSE
JOHN SMITH & SON, ARCHITECTS.



ARTISTIC INTERIOR SHOWROOM FIXTURES

CONSTRUCTION

A JOURNAL FOR THE ARCHITECTURAL
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FRASER S. KEITH - - - EDITOR AND MANAGER

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ARCHITECTURAL DIGEST

THE FENESTRATION OF FACTORY BUILDINGS.

There is no type of building in which windows play such an important part as in factories—both in matter of practical usage, and in regards to design. For a factory building, to be successful, must, first of all, be abundantly lighted. This is an arbitrary fact that dominates all other requirements and, also, that has given to buildings of this kind a decidedly individual character,—a character, of which, I fear, in times past we have not been inclined or justified to feel proud. I refer here, principally, to the well known style of factory building prevalent before the introduction of steel skeleton and reinforced concrete construction.

It has been one of the faults of our people, in times past, to devote little or no thought, much less money, to the aesthetic qualities, or development, of factory building design. Such structures have been considered from a purely utilitarian point of view, built for the most part, I believe, without the advice or guiding hand of an architect. And, as they were built for purely business reasons, cheapness of construction made an appeal to the owner that could not be denied. Being of the simplest construction, their creation could easily be entrusted to anyone with a superficial knowledge of the building trade. As for the appearance of the building, no thought was "wasted" on that. Beauty of design, that exists in relation to all other kinds of buildings, here found no part in the problem. A factory was only a factory, after all; in other words, a necessary evil, stuck off in some undesirable spot of a community that neither cared or dared to protest at the unsightly and unsanitary conditions that rendered such a portion of it an eyesore and a disgrace. Such was the condition of affairs in the not long since past, more or less contemporaneous and a counterpart of the mid-Victorian period—a period now appreciated as infamous for its bad taste and misdirected energies in matters of art.

It is gratifying that such a condition has passed and is passing; that, in a sense, we have come upon a renaissance; that business minds, of the higher intelligence, have perceived that it is to the benefit of their interests that their workshops and factories no longer be the disgraces as was formerly the case; that they be not only clean, perfectly lighted and ventilated, and truly healthy spots, where human beings can with self-

respect carry on their labors, but that these buildings should not be unpleasant to look at, as well; that a slightly appearance is a good business investment, which can be had as easily as not, and hence is in no sense an economic waste. It is good for our civilization that great industrial workers are realizing this. Whether it is the result of their own altruistic desires or whether it is their keen competition with their rivals, is beside the point. It probably could be shown to be both. In any case, the welcome stimulus is present, and is growing rapidly, and in various spheres of our industrial activities. This improved spirit in regards to factory buildings may, in a sense, be compared to that of a recently widely-read advertisement of a certain toilet preparation, in which the manufacturers state that, as it was impossible to improve the product itself, they had improved the box which contained it. Likewise, the factory building may be looked on as the container of the product manufactured within its walls, and the quality and appearance of the building taken as an indication of the excellence of that product. To have an attractive building is to be well advertised.

This idea has progressed even farther than the factory itself, as is shown by the interest now being taken by employers in providing improved living accommodations for their men and their families. Following the successful experiments that have been made in Germany and England, new model village communities are appearing occasionally throughout the country, as companion to the improved factory. Both are bound to exert an untold benefit and aid in the uplift of what it has been the custom to refer to as the "submerged tenth" of our population, and the time is at hand when these workers can rightfully take their respectful places in our industrial and social life.

Another benefit brought about by this change of attitude of our great manufacturers is one that is especially pertinent to our profession. To obtain these results, embodied in improved, more efficient and attractive building, that may serve as a business advertisement, it has been found advisable and necessary to entrust their creation into the hands of a trained specialist, namely, an architect. The builder who makes his own plans will no longer serve the purpose. This is a strong indication that the layman has taken a big step towards the just recognition of the architects' uses and talents.

All buildings are primarily utilitarian. That is their raison d'être. They are built not only for a purpose, but for a distinct purpose, and the better they fulfill the requirements of that purpose, the more successful buildings they will be. Although factory building may be of many and multifarious uses, the most important general requirements common to all are: unobstructed floor space, as far as this is possible, and maximum light with ample ventilation. The one is as obvious as the other.

Because of these paramount requirements, work-shops, as they existed in ages past and before they assumed the gigantic proportions so common to-day, remained out of doors, protected from the weather, if at all, by merely a sheltering hood. That was before the introduction of sheet glass and windows. After these were inaugurated and became cheap enough, glass being at first very prohibitive in price, they were used for work-shops, as well as for residences; and the factory building, with its numerous faults as described briefly above, was the result. Of course, in these buildings as many windows as possible were crowded into each wall. As the size of the window was limited because of its wood construction, and the walls of the building being simple masonry, which required a certain area to afford sufficient supporting strength, the facades produced a repetition of voids and solids of about equal widths,—at once uninteresting and extremely monotonous. No attempt, as I have said, was made to have them otherwise.

The appearance of steel and reinforced concrete construction has completely changed this state of things, as indeed it must. For the construction of a building, sooner or later, is bound to dominate the design. In most types of buildings, this revolution in construction, brought about by the steel column and I-beam, has proven a difficult one to adjust in regard to design, as, for instance, our modern "sky-scraper." Here the architect has found himself in a good deal of a muddle, because, having educated himself to know thoroughly the forms of architecture of the great past, that knowledge and those forms are his foundation on which he expects to build his own achievements. The loss, over night, as it might be said, of the whole system of construction as he had learned it, and an entirely new and fundamentally different one substituted for it, has not unreasonably produced a more or less chaotic state in the design of "skyscraper" buildings.

But with factory buildings, this has by no means been the case. In the first place, the ideal factory is located in open, unsettled country, or outskirts of some city where land is cheap, and air and sunlight plentiful. Therefore, unlike the "sky-scraper," which must economize space, they are usually not more than four stories in height. This affords the long, low horizontal lines in the design that we have always been accustomed to in old work, and hence we are more able to handle and appreciate.

The second reason wherein they differ from other kinds of buildings is that they have no past. There are no precedents for buildings of their requirements, to be dug from the remote past, and their immediate past is only worthy of being forgotten. Therefore, their design can be undertaken with a clean conscience and a "carte blanche." One's training need not here work a hardship or be a stumbling block. Taste alone must be the guide and the criterion.

A glance at the factory buildings of this new type, that have rapidly grown up around us, is convincing proof that their designers have been quick to appreciate the advantages offered by this new form of construction, which by principle, it seems, is ideally suited to factory requirements. Because of the superior strength of steel columns over masonry, the supporting members may be smaller in volume and wall surface, both of which facts tend to enlarge the space available for the all-important light. Also the less frequent occurrence and reduction in size of interior column, and the reduction in the number required, affords an increased percentage of unobstructed floor space.

The development of the steel and concrete factory as we know it to-day in its high standard of excellence attained, could not be possible except for the successful development of one of its most vital components,—namely, steel window frames and sash. It has been the invention of these windows that has really been the turning point in factory design. Steel columns reduced the wall area that afforded more open space in the wall but the old style of wood sash and frame were inadequate. Steel frames not only meet the new demands but also add

numerous advantages not possessed by wooden ones. They are strong, slightly, durable and fire resisting. It is their strength that is probably the most remarkable. Compared to wood sash, they can be used in much larger units, and form uninterrupted surfaces of glass area to almost any limit. The space between supporting piers, no matter if twenty feet in width, can be spanned as easily and as securely by their light and graceful steel webs, as was possible formerly with wood sash for only about four feet. Also, steel sash may much more easily be manipulated and adjusted, whereas wood sash are awkward and beset by many limitations, such as expansion from dampness, etc. The ease and convenience of action of steel sash enable the worker to have light and ventilation always under control. It is probable that the dirty, cobwebbed factory of the past was in a great measure due to inabilities in these respects of wood sash.

As the ideas governing these steel frames and windows are patented, there is keen competition in their manufacture, which naturally is a very great factor in attaining and sustaining their high standard of efficiency.

The slender supporting column and broad glass surfaces of a factory building are limitations that must be unconditionally accepted by its designer. The shell of the structure, by necessity, contains a great deal more glass than solid substance. But, while it is this latter which is usually understood by the term "architecture," its presence in but such a relatively small degree by no means removes this type of building out of the architect's sphere. These vast flat surfaces of window area, interspersed by slender bands of masonry where required by the supporting frame only, are affected by the governing laws of design as truly as is a State Capitol building or a public library. Material and expense are, in a sense, irrelevant. The important idea is that the building be suited in appearance to its purpose and be designed and constructed according to the sense of the proper fitness of things; which is really a sense of proportion. Unless a building presents to the eye the true character of its purpose it is insincere and cannot attain beauty. It would doubtless seem strange to hear a factory building referred to as beautiful. Yet, I cannot see why this should not be possible if it has true character, is simple and well proportioned as to form.—Jerauld Dahler in "Architecture."

THE EFFECT OF REINFORCED CONCRETE UPON ARCHITECTURAL DESIGN.

The influence of reinforced concrete upon architectural design can be traced in the design of any building of size or importance by comparing first, its plan in the spacing and size of the points of support of superincumbent loads; and second, its elevation in the setting out of horizontal and vertical proportions, fenestration, projections, ornamental and constructional, and general outline.

The use of steel in beams and stanchions left its mark in the greater spacing of the points of support in buildings in which the free use of the floor area was a consideration, and the same difference can be traced, but in a greater degree, to the use of reinforced concrete. Before the steel and concrete ages the transmission of loads over voids was effected by wood beams (plain and trussed) and arches of brick or stone, but their use limited the distances between points of vertical support to very small spans indeed, and these vertical supports were comparatively close together, of very large superficial area, and took up a large proportion of the available floor space.

With the advent of steel as a constructional material the areas of these points of support were reduced, and they were capable of being placed at greater distances apart owing to the further use of steel in girders to carry the loads over larger spans.

The objections to the use of steel in architectural design is that it is almost impossible to make it harmonize, in its plain constructional form, to aesthetic treatment. It has to be cased up in brick, stone, terra-cotta, wood, or other material. But for the fact that this covering up of the steel excludes it from atmospheric action, to which it is very susceptible, its use as a constructional member when cased up would be a sham and without a place in true architecture.

The introduction of reinforced concrete, however, has brought to hand a material which can be used in its original form without any covering, except perhaps paint or color when necessary for its decorative treatment. This combination of steel and concrete is sound construction, for here we have the concrete, which has a very high compressive resistance (600 lbs. per sq. in.), offering resistance to the crushing effect of the load, and the steel, having a tensional resistance of 16,000 lbs. per sq. in., embedded in the concrete, to take the tensional strain caused by the same loading. The embedding of the steel in the concrete effectively protects it from atmospheric action, and further, it can be so placed to advantage as to reduce to a minimum the quantity necessary effectively to resist the load to which the member may be subjected. Therefore the employment of these two materials, with opposite relative values, has resulted in a saving of metal as compared with the steel beam and stanchion, and also a saving of space, because the necessary covering for the steel is found in the construction of the member itself. The effect this has had upon architectural design is further to increase the spans of openings and distances between points of support by the introduction of reinforced concrete beams, and also to reduce the superficial area of vertical supports by the use of reinforced concrete pillars.

It is usual to design reinforced concrete beams so that there is a sufficient sectional area in the member to resist the crushing stress and to reinforce with steel, only for resistance to tensional strain; although steel reinforcement may be inserted into the compressive side where sufficient area of concrete is not provided. It is not, however, considered good design to reduce the size of a member so as to necessitate reinforcement on the compressive side, except where the exigencies of the design demand that the size of any beam must be kept within certain limits.

In vertical supports the steel is inserted into the position where it can most effectively resist the compressive load placed upon it, strengthen the pillar against buckling or lateral flexure, and at the same time reduce the superficial area of the pillar to a minimum.

The convenient forms with which the steel reinforcement can be obtained, i.e., in rods or bars, chiefly circular and of diameters varying in sixteenths of an inch from 3-16 in. to 2 in., and the comparative ease with which the steel can be embedded and made to assume its proper position in the work, and also the economic cost at which the work can be carried out, has given reinforced concrete its place as a constructive ma-

terial which must be considered by every architect in the design of buildings where it can be employed to advantage.

The general effect of reinforced concrete upon elevational design is to be seen in the tendency to breadth of treatment, due to the vertical lines of support being less in number than previously, as pointed out above, and also to the widening of spans of openings and an almost entire elimination of the arch as a constructive feature. The heads of openings are now almost always flat by reason of the use of reinforced concrete lintels. Previously, where flat-headed openings had been desired, they were of limited span, owing to the very small resistance of wood or stone to bending or tensional strain. Now they can be made as wide as necessary without in any way impairing the strength of the building.

Fenestration has also been modified by the same influence. Larger glass areas can be obtained with a minimum amount of walling; in fact, the infilling between the piers and beams of a modern reinforced concrete building might be all glass, should the necessity arise for such a consideration. The improvement in this direction is mainly to be observed in factories, schools, and buildings where the essential feature is the provision of ample light; but even in purely architectural building the influence is to be traced in a greater use of the flat-headed opening as compared with arched openings. True, some vitality of design may be lost by its employment, but with careful treatment the flat-headed opening may be equally an aid to beauty as the arch, and will certainly be an indication of the progress of thought in material.

It may be thought, perhaps, that reinforced concrete can have little or no influence upon the architectural ornament of a building, but its employment might greatly add to the grace of our building by producing a greater degree of light and shade upon elevational design by giving a large projection to strings, cornices, etc. The limits of stone or other granular material when in projection are well known, but ornamental reinforced concrete work could be employed to advantage where other materials fail. The Greek temples of old owe a great deal of their charm to the effects of light and shade cast by their projections. The sun, however, does not treat all lands alike. In southern Italy the proportioned cornice of the Orders produced the desired effect by reason of the high altitude of the sun, but the use of the same projection in England has an altogether different effect, due to the lower angle at which the light from the sun can produce shadows. Many of our monumental buildings are almost shadowless for that very reason. The architects of the Renaissance in Northern Italy recognized this fact and crowned their Palazzi with great overhanging cornices. The Americans, too, have seen the necessity for a deep shadow to give repose to their large scale buildings and obtain the same by the use of zinc or iron cornices of great projection, painted to imitate the material in which they are working. The use of reinforced concrete in decorative cornices would be legitimate construction if we recognize the material and give the member its true value in relation to the whole design, and the deeper shadow cast by greater projections on our building would be appreciated.

Reinforced concrete has helped to perpetuate the flat roof and its deadly effect upon the general outline and mass of architectural building. The use of the stately pitched roof, so beloved for its reposeful and sub-conscious effect upon architecture, has been usurped by the use of the flat roof; not but that a flat roof is sound construction, and essential in some instances, but it is not a natural product of the climatic conditions of this country. The real reason for its use may be found in its fire-resisting qualities; but an equal safety may be obtained by constructing pitched roofs with a shell of reinforced concrete. In place of the usual timber framing, and covering it with the slates or tiles most suitable to the district for which the building is designed. To gain this security from fire the architects of the Middle Ages carried up the stone barrel vaults of their churches in solid masonry to the rake of the gable ends and bedded slates or stone slabs thereon as a protection from the weather.

The almost perfect resistance offered by reinforced concrete to the effects of fire has had a great deal to do with its more general use in the design of buildings. It is essential that every architect should be well acquainted with all the properties of the many building materials at hand, so that he may be better able to make the best use of same.—"Concrete and Constructional Engineering."

GERMAN DESIGNS.

Our September editorial was directed against the vice of restoration, under any conditions—and especially and particularly the adding of insult to injury in the press notices announcing that Germany was proposing to lay profane hands on those architectural memorials of past ages of civilization, already violated by her barbarian hordes, by presuming to "restore" Belgium's architectural landmarks under the direction of an official "city architect" of little fame, and still more doubtful taste. Apparently color is lent to that statement by another recent "atrocity" chronicled in the following despatch:

"At St. Quentin, France, in the presence of the Emperor, the French municipal authorities, and the principal officers of the second army, there was dedicated a monument to German and French (!) warriors. The monument, built by Professor Wand-schneider after the Emperor's own design, stands in the new military cemetery."

This astonishing bit of "press-agentry" is dated as emanating from Berlin on October 27, 1915.

The overweening ambition of the Kaiser already has presumed to rule the art of his nation with a rod no more flexible than that he now extends over other and more thoroughly aesthetical lands. He has laid down the rules on which the Royal Opera was to be conducted; he has censored the operas of composers, both present and past; he has approved some dramas and disapproved others; he is even supposed himself to have written certain performances, whose presentation he has then enforced. The architectural "competition" has been equally at his mercy. Those designs accepted by the official judges have been arbitrarily set aside, and the execution of designs by his "court architect," or preferred favorite, has been "commanded" instead. Nevertheless, the effrontery of the action registered in this despatch will leave other and freer nations somewhat aghast. Is it not one of those straws showing which way the winds bloweth? We know not how many monuments, built efficiently in granite and enduring cements, have been placed as Teutonic milestones in the war-hacked and bleeding soils still belonging to other, and yet unconquered peoples. How many of these Kaiserentwerfen memorials will be found in existence a few years hence?—"Architectural Review."

AN ANALYSIS OF NINETEENTH CENTURY ARCHITECTURE.

In attempting this discussion we have in view a twofold purpose, first to state in simple terms the fluctuations of taste which a century of history called forth; and, secondly, to explain what is partially obscure to the generality of our readers, namely, the attitude of the architects of that period towards the great sources of inspiration with which they were familiar.

The lessons of the nineteenth century should be understood by everyone whose calling is connected with the art of building; for without some clear understanding of the period that directly precedes our own it is almost impossible to understand the position architecture occupies to-day; neither can we without some such reference determine future policy regarding design. The chief factors which arrested the refined formality of the eighteenth century were the Romantic Revival in literature and the phenomenal development of a vast industrial population; or, to be more precise, books and machinery. Architecture, of course, begets architecture, and from the convenient standpoint of to-day we are in a more advantageous position than our predecessors to criticize and appreciate the good qualities of the eighteenth century. Precisely where eighteenth-century ideals merge with those of the early nineteenth it is difficult to ascertain, but the period of George IV. forms a distinctive hiatus from which to begin our discussion.

Yet it is an established fact that the classic tradition lingered on through many dull and insipid years; that the spirit and scholarship of the "golden age of architecture" never quite lost its hold over the imagination of a few architects; and in the present tendency of the rising generation is to be seen the rekindling of the once despised Classic lamp. From 1830 to 1900 is fair ground for retrospect. We shall find a medley of conflicting theories, some men turning for inspiration to late models in their own language, other investigating the chapters of the Middle Ages, which had been neglected and despised in the march of time, and others studying the contemporary architecture of the Continent. The wonder is that with such an apparent confusion of tongues any extensive building development was accomplished at all. But architecture collectively is always wiser than any of its votaries, and, despite the division of architects into rival camps, new theories and buildings of original character sprang up on every side. For seventy years civic architecture was continued in the Classic spirit, whether drawn from Greek, Roman or Italian sources. Ecclesiastical architecture favored the whole gamut of mediæval taste, including the French scale; and domestic building, left practically to itself, fluctuated between awful Gothic and worse Classic. Gradually the pre-eminence accorded to civic architecture in the eighteenth century was banished; the outlook of the Gothic school was limited to the study of individual buildings in which isolated and picturesque settings alone received consideration. In time even the fervor of the Gothic coterie ceased to hold popular attention, and by 1880 domestic architecture became the universal idol which all were supposed to worship. There were many minor deviations from the dictates of sound taste and common sense, which were brought about by increased travelling facilities and the sketch-book habit.

On the Classic side we find the scholars, such as Professor Cockerell and his talented son, F. P. Cockerell, the two Smirkes, Sir Charles Barry, Elmes, and Sir William Tite, with a host of men of lesser repute who were influenced by these leaders. At Kensington, Captain Fowke's staff produced the Royal Albert Hall, the most remarkable building of the second half of the century, and the Royal College of Science. Professor Cockerell's attitude in particular to the development of Classic architecture presents a very interesting study. In addition to his profound knowledge of antique art, he held in great veneration the works of Sir Christopher Wren; he was in intimate touch with the contemporary French school, and thoroughly sympathized with the Italian Renaissance. All these influences appear in his own works. Cockerell's style stands head and shoulders above that of his contemporaries as regards finish and detail, but it sometimes reveals traits of over-complexity which show the conflicting influences of the period rather than the innate taste of this architect.

Barry, on the other hand, in his design for the Travellers' and Reform Clubs worked on the motif principle, and, seeking for a type best fitted to express club life, he selected the Palazzo model. His reconstruction of Soane's building in Whitehall and the Town Hall at Halifax show an impression of Italian work as seen through a Victorian magnifying-glass; and in the matter of elaborate and rich confusion of surface he was only rivalled by the exuberances of his pupil, John Gibson. The Gothic school of the Victorian Age was shaped by Rickman, educated by Pugin and Brandon, and exploited by Sir Gilbert Scott. In its decline Street was the poet of the movement, and Pearson and Bodley were the last of the race of minstrels. It is somewhat strange that the best works of the Gothic school should have been produced partly under the direction of Classic architects. But it is more remarkable that the best results were achieved by studying fifteenth-century architecture, as, for example, Pugin's contribution to Barry's Palace of Westminster, and the Library at Lincoln's Inn, which was erected by Hardwick, of Euston fame.

With the advent of Eden Nesfield and Norman Shaw, domestic architecture was rescued from the slough in which the Early Victorians had left it. In this, however, the sudden revulsion of taste against sober pomposity led the mass of the profession astray. At first the new school affected a parody of Queen Anne and Tudor features, which led to a virulent outbreak of gauged brickwork, picturesque gables, and contorted architraves; for the brickly shades of Queen Anne's reign were evoked with a vengeance. Experience proved to the enthusiasts how much their own work differed from the simple character of the models which they professed to follow. Hence the reaction which set in and the just praise bestowed on Norman Shaw's later work. Although architects at this time were among themselves satisfied as to the limitations of the Gothic Revival, the great bulk of the public still read Fergusson and Ruskin; but a few men, endowed with clarity of vision, saw through the fallacies of the pseudo-classic school and cautiously set to work to change current opinion. This explains why the work of the nineties carries with it such a timid note; the major portion of it was designed with hope overshadowed by fear. From 1890 to 1915 the domestic school has been in the ascendant; it stands for the highest expression of English taste. It has been acclaimed for its insular character, its suitability and charm. In reality it is not to be compared with its great forerunner of the eighteenth century, and its best examples merely represent a potpourri of seventeenth and eighteenth century taste, with a pinch of the Regency thrown in for seasoning. The architects of the nineteenth century worked in a period of artistic confusion; criticism and controversy were rife, the decline was

rapid; but there was at least a general standard of taste which the public understood, and the best of the buildings were, apart from the question of style, both satisfactory in the disposition of mass and the scale of their minor attributes. In the continuance of the Classic tradition under Cockerell and Barry and in the Romantic Revival of Pugin and Street the best taste of the Victorian epoch is reflected; architecture was still directed by men of scholarship and attainment, and it had not yet fallen into the hands of those whose commercial instincts were greater than their professional ability.

The present teaching of the universities and schools is directed towards a broader conception of architecture, quite logical and distinct from the trammels of fashion and style. The theory is now accepted that the study of town planning and civil architecture must be given the first place, and that domestic architecture is, after all, a matter of purely secondary importance. So complicated has the practice of architecture become to-day that engineers now carry out works formerly entrusted to architects, firms of decorators cater for the interior treatment and furnishing of houses; while specialists of every sort prepare schemes for various fittings, the architect being left to plan the brick walls and design the elevations to meet the changing whims of his client.

Were it not for the buildings of the past, this vast metropolis, and even vaster empire, would lose the greater part of its character.—"The Builder."

DAYLIGHTING THE FACTORY.

How many owners and architects consider a full measure of daylight in the factory in the same way as they do the convenience and purpose of the building, its architectural appearance, or its fire-proofness? Apparently not the majority of them, for one can visit plant after plant without finding this feature sufficiently studied and developed.

Light acts on the sensitized plate instantaneously with the exposure, the impression registered depending upon the amount of light available at the moment, while the result absolutely depends upon the light quality.

So in factory production the work and workmanship depends upon the light quality even more than upon the skill of the man, for whatever may be his experience, the amount of work and workmanship decreases or increases according to the light available at the time of the task. This also affects the workman. Eyestrain is one of the serious evils attending poor or bad lighting and should be prevented by all means.

Accidents are very often due to improper lighting and the reports of many investigating committees prove conclusively the value of good natural light from every viewpoint. Compensation commissioners' reports on accidents will do much to bring out this fact and no doubt will be the means of hastening the remedy in the form of laws.

It is important to bear in mind, when planning for sufficient daylight, the fact that only that portion of window or roof openings through which the sky is visible admits the proper light.

Skylights (overhead or direct light) probably provide the most direct means of daylighting, and by the use of ribbed glass, the glare from the sun which is objectionable can be minimized, and it is further reduced in buildings with unusual heights.

Therefore, why not be ahead of time when it will be a legal requirement, and be prepared. Let your factory be well daylighted.

Natural lights costs nothing, the problem presented is only that of selection, with an eye not to the first cost, but the weather-proof qualities and future maintenance factor.

The viewpoint of the practical man should, of course, be given due weight when considering the proper daylight of buildings, yet how often do we see the most elemental phases of light and its values ignored. How often is the shop superintendent or foreman called upon to suggest what, in accordance with his experience, would be the most practical solution in such and such a case, and find him recommending solutions that have long since been superseded by better methods. Sawtooth design, for example, is very fine indeed when used in the right way and place, but if wrongly applied can be made to defeat its purpose.

Adjacent buildings shutting off sky light must be taken into consideration; dark surfaces which absorb light are especially important to consider. A monitor with windows in the side and solid roof will well illustrate the point.

How often, where machines are in operation, even in the modern building, artificial light must be depended on to provide the necessary working light and particularly to avoid eyestrain at only reasonable distances from the windows. Doesn't this suggest limited output, less expert workmanship, which means less profits? Light diffusion oftentimes misleads one to think there is plenty of working light. Try taking photographs with these varying degrees of light and note the results. The further away, the longer the exposure. Does not this prove the argument from the workman standpoint, the eyestrain theory?

How to overcome this disadvantage is the problem confronting each building designer. Of course it depends somewhat on the amount and class of work to be performed. Some of the thoughts suggest windows carried to the height of the ceiling, ribbed glass for the extra diffusion of the light, shades operating from the bottom, instead of the top, light-colored walls above the eye vision and ceilings of a mat dullness, rather than a glary nature, skylights where possible, and, if necessary, artificial lighting of the proper sort. And don't forget (although this is a chief concern of the owner, it should be covered by the engineer or architect), that windows must be cleaned at regular intervals, else what avails the daylight provided. Dust and dirt, sediment settlements, deposits from operations inside or from neighboring works, quickly accumulate, and unless promptly cleared off adhere to the glass surface and decrease the illuminating value and the rate of glass deterioration.

Rules concerning lighting are set down in the report of the committees of the Illuminating Engineering Society in their "Code of Lighting," and again in an interesting study and report of Messrs. Marks and Woodwell, "Planning for Daylight and Sunlight in Buildings," which are forerunners of the new daylight era. Another evidence of the value of daylight, in addition to the number of daylighted factories constructed and now being built, was the recent action of the city of Cleveland in adopting Eastern time, in order to give its citizens one hour more of daylight throughout the greater part of the year, and which was followed by others doing likewise.—American Architect.

Construction News

The following information is obtained from our correspondents, from architects, engineers and local newspapers. These items are published in our Daily Report Service, and are herein compiled for the use of subscribers to the monthly issue of "Construction." Should any of our readers desire this information daily we will be pleased to submit prices upon request

BUSINESS BUILDINGS.

MONTREAL, QUE.—Bell Telephone Company have plans completed for a new building to cost \$53,000.

WELLAND, ONT.—Architect T. L. Nickolas, 18 Main street, is preparing plans for a business building for Ello Sogavac.

TORONTO, ONT.—Canadian Bank of Commerce are having plans prepared by Dominion Realty Co., for a new building to be erected corner of Vaughan road and St. Clair avenue.

CIVIL ENGINEERING.

BERLIN, ONT.—City of Berlin have called for tenders on pavements and engineering equipment.

CHARLOTTENBURG TWP.—Tenders have been called for bridge over the Beaudette River, clerk, G. Watson, Williams-town, Ont.

COLLINGWOOD, ONT.—Town Council have called for tenders on water works and equipment.

COOKSTOWN, ONT.—County of Simcoe have called for tenders on steel bridge on plans prepared by Engineer F. Barber, 57 Adelaide street east, who is also preparing plans for a concrete bridge to be erected later.

ELMO TOWNSHIP.—The town council have called for tenders on drains, clerk, Geo. Lockhead, Elmo, Ont.

GRANTHAM TOWNSHIP.—Town council have called for tenders on new culverts, Sec., L. S. Bessey.

HAMILTON, ONT.—City of Hamilton have plans completed for a steel viaduct.

NIAGARA FALLS, ONT.—A company composed of E. R. Wood, Toronto; A. Fraser, S. G. Sheppard and A. J. Sheppard, Niagara Falls, propose erecting a new bridge over Niagara River.

NEW BRUNSWICK PROV.—Contracts for bridges have been awarded as follows, by the Provincial Board of Works, York County Bridge, Canadian Steel Bridge Co., Haweig Bridge, Canadian Steel Bridge Co., Brook Mouth Bridge, Victoria County, W. R. Fawcett, Temperance Vale.

PEEL COUNTY, ONT.—Engineers Bowman and Connor, 31 Queen street west, have called for tenders on a bridge of reinforced concrete.

PORT HOPE, ONT.—Town Council have called for tenders on a bridge on Peter street from plans prepared by Bowman & Connor, 31 Queen street west.

RENFREW, ONT.—County of Renfrew have awarded contract for bridge over Indian River to J. M. Kennedy, Alice township.

TORONTO, ONT.—City of Toronto are having plans prepared for new subway on Ashdals avenue and G. T. R. Commissioner of Works, R. C. Harris.

VANCOUVER, B.C.—Richmond Council, B.C., have awarded contract for bridge over the Fraser River to Fraser River Pile Driving Co.

WARDSVILLE, ONT.—Elgin County have awarded contract for new bridge over the Thames River to the Petrolia Bridge Co.

WINNIPEG, MAN.—City of Winnipeg have called for tenders on cast iron pipe.

CLUBS, HOSPITALS, THEATRES AND HOTELS.

CALGARY, ALTA.—City of Calgary will build club building in connection with the golf links.

HAMILTON, ONT.—Architects Stewart & Witton have called for tenders on equipment for Barton street hospital.

HAMILTON, ONT.—Centre Mount Club will erect a new building.

HAMILTON, ONT.—Architect W. P. Witton is preparing plans for a new nurses' home in connection with Mount Hamilton hospital.

KINGSTON, ONT.—Dominion Government will build convalescent home on Fetter Cairn Island from plans prepared by Power & Son, Kingston.

LONDON, ONT.—F. R. Heakes, Provincial Architect, is preparing plans for the rebuilding of the local asylum. Architects McBride & Gilbert, Edge Block, are preparing plans for the erection of a club house on St. George street.

LONDON, ONT.—Architects Messrs. Watt & Blackwell are preparing estimates on cost of erecting a new theatre for C. E. Bernard on Wellington street.

OTTAWA, ONT.—J. P. MacLaren, 104 Sparks street, has plans for a new gymnasium.

QUEBEC, QUE.—Plans have been completed for new building of the Jeffrey Hale hospital, to cost \$70,000. Y.W.C.A. will erect a new building on Ann street; plans prepared. J. M. Bedard Grande, Allee Gardens, has purchased a site for a new theatre to be built on St. John street.

SAULT STE. MARIE, ONT.—S. W. Faucett has plans completed for new theatre.

TIMMINS, ONT.—Charles Pierce will erect a theatre; tenders called for.

TORONTO, ONT.—W. B. Charlton, 412 Indian road, has

secured general contract for alterations to building on Spadina avenue to be used as a hospital. Owners, Knox College.

TORONTO, ONT.—Plans for the rebuilding of the Princess Theatre in reinforced concrete are now being submitted by Architect B. C. Whitney, Detroit, and C. H. Read, Confederation Life Building.

UNION ON THE LAKE, ONT.—Architect J. C. Pennington, Windsor, is preparing plans for hospital addition to Essex Tuberculosis Hospital.

VANCOUVER, B.C.—National Amusement Co. have called for tenders on a new theatre to be erected on Broadway and Main streets.

VANCOUVER, B.C.—Architect W. F. Gardner has awarded contract (general) to Atkinson & Dill for new theatre of the National Amusement Co.

WINNIPEG, MAN.—Architect Paul M. Clements has completed plans for Royal Templars' lodge building, to be erected on Young street.

ELECTRICAL CONSTRUCTION.

CALGARY, ALTA.—City of Calgary have awarded contract for electrical equipment to Canadian Westinghouse Co., Hamilton.

DAVIN, SASK.—Davin Rural Telephone Co. will construct new lines; secretary, J. F. Parsons.

KINDERSLEY, ONT.—Toronto Suburban Railway will erect sub-station, to cost \$10,000. Toronto Hydro Electric Co. will erect sub-station on Ruskin avenue.

TORONTO, ONT.—Toronto Hydro Electric Commission have called for tenders on cableducts, transformer vaults and meters. Specifications may be obtained from the purchasing agent, 15 Wilton avenue.

FIRE LOSSES.

ARDEN, MAN.—Warehouse of Western Canada Flour Mills destroyed.

BLENHEIM, ONT.—Springsteen Co. garage and apartments destroyed; loss \$16,000.

BRANTFORD, ONT.—Warehouse of B. Bell & Son Co., damaged by fire; loss \$10,000.

CALGARY, ALTA.—West End Incinerator destroyed; loss \$50,000.

CAMPBELLTON, N.B.—Waverley Hotel was destroyed by fire; loss \$75,000.

COLLEGE BRIDGE, N.B.—Residence of P. D. Vienneau destroyed; loss \$5,000.

DAUPHIN, MAN.—Town hall damaged by fire; loss \$5,000.

DILKA, SASK.—Meat Market destroyed; loss \$22,000.

ELMIRA, ONT.—Bauman & Leason planing mill destroyed; loss \$15,000.

FORT WILLIAM, ONT.—Grain Growers' elevator, Hardesty street, destroyed; loss \$60,000.

GALT, ONT.—Imperial Hotel destroyed; loss \$40,000.

GLEICHEU, ONT.—Stores destroyed of Bray's, Beache's, Cosgrave's, Farmers' Supply and Masonic lodge rooms; loss \$100,000.

HALIFAX, N.S.—J. Rowe, 121 Lower street, soda water factory destroyed; loss \$14,000.

L. HAMPSTEAD, N.B.—School destroyed; loss \$1,000.

MAPLEHURST, MUSKOKA.—Hotel destroyed, of Mrs. Brown; loss \$30,000.

MARKHAM, ONT.—Rink and Fair building destroyed by fire; loss \$15,000.

MILL VALLEY, ONT.—D. H. Graham's mill destroyed; loss \$10,000.

MOOSE JAW, SASK.—J. Griffith residence destroyed; loss \$5,000.

MOOSE JAW, SASK.—Gordon Ironsides, packing plant damaged; loss \$50,000.

MONTREAL, QUE.—Canadian Rubber Co. plant damaged; loss \$15,000.

MONTREAL, P.Q.—Pauze & Goshier, sash factory destroyed by fire; loss \$10,000.

NAPANEE, ONT.—Curling Club building destroyed; loss \$20,000.

NEEPAWA, ONT.—John Brown's department store destroyed; loss \$10,000.

NIAGARA FALLS, ONT.—Marshall's, Ltd., candy factory destroyed; loss \$25,000.

OTTAWA, ONT.—Planing Mill of A. Charpentier, 141 Main street, destroyed; loss \$3,000.

OTTAWA, ONT.—Daughters of Wisdom Convent, destroyed; loss \$8,000.

PORT LAMPTON, ONT.—Residence of D. Hinnegan destroyed; loss \$3,000.

REGINA, SASK.—C. N. R. Roundhouse destroyed; loss \$14,000.

RENFREW, ONT.—O'Brien Mfg. Co., burnt out; loss \$30,000.

RENFREW, ONT.—Renfrew Machinery plant destroyed; loss \$100,000.

REVELSTOCK, B.C.—Taylor block and McRae Building destroyed by fire; loss \$40,000.

ROSE PLAINS, SASK.—Methodist Church destroyed by fire; loss \$12,000.

STRATFORD, ONT.—Office of MacDonald Thresher Co. destroyed; loss \$5,000.

STRATHROY, ONT.—Residence of J. Arrard, Albert street, destroyed; loss \$2,000.

ST. JOHN, N.B.—St. John Isolation Hospital destroyed.

ST. JOHN, N.B.—McLean Estate office damaged; loss \$5,000.

ST. JOHN, N.B.—Warehouse of Dearborn & Co. damaged; loss \$40,000.

ST. JOHN, N.B.—Jas. Griffiths' residence destroyed by fire; loss \$5,000.

ST. GEORGE, ONT.—H. Bell & Son's munition plant destroyed; loss \$10,000.

ST. THOMAS, ONT.—D. Wrightman residence destroyed; loss \$3,500.

SWIFT CURRENT, SASK.—Roller rink, owned by T. A. Roberts, destroyed; loss \$3,000.

TORONTO, ONT.—Brown & Stanton store damaged by fire; loss \$50,000.

TORONTO, ONT.—Residence of J. Whitehead, Stracona ave., destroyed; loss \$2,000.

TRENTON, ONT.—King George Hotel destroyed; loss \$40,000.

TRENTON, ONT.—Graydon & Clegg's Garage destroyed, and Ireland & McCaul machine shop damaged; loss \$10,000.

VANCOUVER, B.C.—R. V. Palmer, 2020 Fifth avenue, two hay sheds destroyed; loss \$10,000.

WELLAND, ONT.—Two houses on Deer street destroyed; loss \$4,000.

WESTVILLE, N.S.—Court House and Jail destroyed.

WHEATLEY, ONT.—Barn of Mr. Heatherington destroyed; loss \$3,500.

WINNIPEG, MAN.—Manitoba Photo Supply Co., burnt out; loss \$4,000.

PLANTS, FACTORIES AND WAREHOUSES.

BAY BULLS, NFD.—Newfoundland American Packing Co. are having plans prepared for a new plant to be erected here.

BERLIN, ONT.—Regal Auto Co. will erect a building.

BRANTFORD, ONT.—Waddell Preserving Co. will erect a factory. Architects Taylor & Bodley are preparing plans for warehouse to be erected for C. J. Mitchell.

DARTMOUTH, N.S.—Williston Steel Foundry Co. have called for tenders on new building.

HAMILTON, ONT.—Stanley Steel Co. will erect a new plant to cost \$200,000.

HAMILTON, ONT.—Steel Co. of Canada are having plans prepared for plant addition.

HAMILTON, ONT.—E. T. Wright Co. will make additions to their factory on Cathcart street.

HAMILTON, ONT.—Frost, Steel & Wire Co. are having plans prepared for a new steel plant to cost \$6,000,000. Directors, H. A. Frost, A. L. Page and C. A. Smith.

HAMILTON, ONT.—Mercury Mills, Ltd., 80 Park street, will make addition to factory. Peerless Weaving & Belting Co. will erect factory, interested Stephen & McKenney, Hamilton.

KINGSTON, ONT.—Newell Mfg. Co. will make addition to plant.

LINDSAY, ONT.—Hodgson & Hodgson Chemical Co. are erecting building.

LINDSAY, ONT.—F. R. Wilford & Co. have awarded contract for factory addition to R. Williams.

LONDON, ONT.—London Foundry Co. will erect a new factory plant.

LONDON, ONT.—A. A. Langford contemplates the erection of a new factory on King and Clarence streets to cost \$25,000.

MONTREAL, QUE.—Lyal Muniton Co., to make extensions to plant.

MONTREAL, QUE.—The Steel Company of Canada will erect a new building to cost \$24,000.

MONTREAL, QUE.—Darling Bros., 120 Prince street, have started the erection of a new factory addition.

NIAGARA FALLS, ONT.—Perfection Tire and Motor Co. will erect a large factory.

NIAGARA FALLS, ONT.—Niagara Power Co. will erect new buildings and make additions.

ORILLIA, ONT.—Canada Builders' Ltd., will prepare plans for a new factory to be erected on Matchedash street.

OTTAWA, ONT.—Grant, Holden & Graham, 147 Albert street, have awarded contract for factory addition to C. Holbrook & Son.

PETERBORO, ONT.—Bonner Worth Co. have awarded contract for addition to W. Langford.

REGINA, SASK.—Prairie Biscuit and Confectionery Co. have been incorporated and will erect a plant.

SASKATOON, SASK.—Alaska Beddington Co. will have plans prepared for their new factory.

ST. JOHN, N.B.—H. L. McGowan has purchased site for a paint factory.

TORONTO, ONT.—Robertson Bros. will make addition to plant, 103 Queen street east.

TORONTO, ONT.—The Ontario Motor Car Co., 20 Bloor street east, will make alterations to premises.

TORONTO, ONT.—Hydro Electric Commission have plans prepared for building corner of Front and Jefferson streets.

TORONTO, ONT.—Architect J. F. Brown has awarded contracts on new buildings for the York Knitting Mills, 993 Queen street west.

TORONTO, ONT.—"5 in 1" Envelope Co., Hayter street, will build factory. Neilsons, Ltd., Gladstone avenue, are making additions, plans prepared by Sproat & Rolph, 24 North street.

TORONTO, ONT.—Whitfield & Co., 33 Sherbourne street, will erect buildings. A. R. Clark, 633 Eastern avenue, will erect new shops to cost \$35,000. Comfort Soap Co. will make factory additions at West Toronto.

TORONTO, ONT.—A. W. Wolfe, 163 Adelaide street west, contemplates the erection of a factory building corner Wellington and Spadina. A. S. Dunbar, architect, 883 Shaw street, is preparing plans. Architect F. S. Baker has awarded the following contracts on new business premises being erected on Church street: Mason, Orr Bros.; electric work, Bennett & Wright; plaster work, Sparks Co.; steel work, Dominion Bridge Co.; plumbing, R. Jordan; roofing, R. Rennie.

VANCOUVER, B.C.—B. C. Fir and Cedar Mills will erect buildings.

VANCOUVER, B.C.—Vancouver Cresoting Co. are making additions.

WINNIPEG, MAN.—T. Eaton Co. have awarded contract for steel to Dominion Bridge Co.

WINNIPEG, MAN.—T. Eaton Co. have started the excavation work for their new store building. Architects, Gray & Burnham, Chicago.

WYOMING, ONT.—Wm. Travis will erect planing mill.

PUBLIC BUILDINGS AND STATIONS.

HALIFAX, N.S.—The County Council, Halifax, N.S., are considering the erection of a new court house. Clerk, E. E. Smith, Halifax, N.S.

MONTREAL, QUE.—Grand Trunk Railway Co. will rebuild Bonaventure Station recently destroyed by fire.

WINNIPEG, MAN.—Department of Public Works, Winnipeg, has called for tenders on the completion of the Parliament Buildings.

WINNIPEG, MAN.—City architect is preparing plans for addition to the city hall to cost \$200,000.

RESIDENCES, STORES AND FLATS.

BARRIE, ONT.—Bell Telephone Co., manager, A. G. Price, contemplate the erection of a new building.

BRANTFORD, ONT.—Royal Bank will make alterations to store for use as a bank.

BRANTFORD, ONT.—Dr. Chapin has awarded contract for new residence to N. Kew.

BRANTFORD, ONT.—Architects Barber & Tilley have plans completed for residence of E. L. Gould.

BRANTFORD, ONT.—Architects Barber & Tilley, Temple Building, have called for tenders on dwelling for R. Hutchinson.

COATSWORTH, ONT.—Levi Coatsworth will erect a new store, brick construction.

CODDEN, ONT.—J. McDermott has plans completed for a new store.

FENELON FALLS, ONT.—James Fraser will erect a block of three stores.

GALT, ONT.—C. L. Cant has awarded contract for addition to store to Thomas & Hancock.

HAMILTON, ONT.—Thompson & Thompson, 78 Garfield avenue, will erect two houses.

HAMILTON, ONT.—C. R. Roper, 249 Armoth avenue, has awarded contract for new residence to Isbister Bros. S. S. Forbes, 165 Sanford avenue, has plans for the erection of fifteen houses.

KINGSTON, ONT.—A. Andre has plans prepared for a new residence to be erected on Pine and Adelaide streets.

KINGSTON, ONT.—Wm. Newlands & Son have called for tenders on an apartment house to be erected on Barrie street.

KINGSTON, ONT.—Architects Wm. Newlands & Son have awarded contract on apartment house for Mrs. James Elder, as follows: Mason work, H. W. Watts; carpentering, H. Hunter; heating and plumbing, etc., Elliott Bros.; electric work, J. Halliday.

LONDON, ONT.—Plans have been prepared for the following dwellings: R. W. Carter, Wreay street; H. Dicey, Charles street; J. H. Nicolls, Edward street; to be erected this spring.

MCTAGGART, SASK.—McTaggart Rural Telephone Co. will erect a new office building.

MONTREAL, QUE.—Ernest De Nevers, Central Falls, Rhode Island, will erect three houses on Mount Royal avenue, East Montreal. F. L. Gagon, 6490 Lajennesse, will erect a store and residence, to cost \$5,500.

MONTREAL, QUE.—L. E. Judah, 81 Durocher street, will make repairs to an apartment house, to cost \$3,000. Miss D. Ludich, 829 St. Urbain, will erect stores and apartments, to cost \$50,000, on St. Dominique street. Alex. McKay, 498 Argyle, Westmount, will erect a new residence.

MONTREAL, QUE.—Jos. Huppe, 156 Duquesne, will build a dwelling house. A. P. Stuart, 42 St. Catherine street, will erect a residence. E. Martel, 31 Frontenac street, will erect a residence. W. C. Lawrence, 475 Second avenue, will build a residence. N. Rochon, 1011 St. Germain street, will build a residence.

MONTREAL, QUE.—A. Gaudieau, 155 Joliette street, will erect apartment house. L. Bischoff, 201 Wolfe street, will erect two dwellings, for which plans have been completed. Hector Vinet, 4615 Notre Dame east, will erect a residence, and has plans completed. A. Shapson, 1894 Papineau avenue, has plans completed for a new residence.

MONTREAL, QUE.—O. Ownstein, 276 St. Antoine, will erect a store and residence on Notre Dame street. J. M. Ponton, 29 Laval street, will erect two houses on that street. L. Gordeau, 192 Robertval street, will erect a store and flat building on Church street. Jos. Brossard, 522 Charlevoix street, will erect a store and residence on Rosede Lima. C. Brault, 3648 Casquin street, will erect a store and dwelling.

OTTAWA, ONT.—J. & F. Wilson, 8 Allan place, will erect store and apartments on Bank street.

OTTAWA, ONT.—Jackson Booth has secured a site for the erection of an office building on Bank and Slater streets.

OSHAWA, ONT.—Architects Darling & Pearson have called for tenders on the residence of S. McLaughlin, to cost \$75,000.

OTTAWA, ONT.—Architect W. E. Noffke has plans completed for addition to office building of Blackburn Bros., corner Rideau and Sussex.

PETROLEA, ONT.—Crown Loan & Savings Co. will erect office building.

PORT ARTHUR, ONT.—L. Walsh Co. have awarded contracts on store and office building as follows: Excavating, M. Mazucca; general contract, J. L. McRae.

PORT ELGIN, ONT.—Reeve Issard will erect a bungalow on Gustavus street. Charles Gilbert will erect a frame residence.

QUEBEC, P.Q.—L. Dolbec, Hermine street, will erect dwelling. Elz. Laracher, Acquaduct, will build residence.

QUEBEC, P.Q.—J. N. Rondeau, Lachevrotiere street, will erect a building on that street. E. Bertrand, 3rd Limilou, will erect a three-family apartment.

ROCK ISLAND, P.Q.—S. Murdock has awarded contract for a new residence to Wm. L. Smith.

SONGHEES RESERVE, B.C.—Department of Marine will erect a store, for which plans are being prepared; Marine Agent, Capt. G. E. Robertson, Victoria.

ST. CATHARINES, ONT.—W. H. McCordick, 199 St. Paul street, has called for tenders on a cottage to be erected on Woodlawn avenue.

ST. THOMAS, ONT.—T. Walley will erect a new residence on Myrtle avenue.

SUDBURY, ONT.—F. W. Woolworth Co. have awarded contract for store alterations to Evans & Co.

TORONTO, ONT.—Hon. T. Crawford, 404 Palmerston avenue, has awarded contract for addition to building to A. Wells, 48 Browning avenue.

TORONTO—R. J. Kirk, 9 Day avenue, has plans completed for addition to residence. Kilner & Banford, 177 Hiawatha road, will erect a pair of houses on Rhodes avenue.

TORONTO, ONT.—H. W. Boles, 151 Broadview avenue, will erect a residence on Kingswood road; plans completed. J. McMaster, 97 Woodcrest avenue, will erect three houses on King Edward avenue. W. Hughes, 59 Amroth avenue, will erect eight houses on that street.

TORONTO, ONT.—A. W. Wolfe, 163 Adelaide street west, is having alterations made to old premises at 101 Spadina avenue, by A. S. Dunbar, 883 Shaw street, for use as store and apartments. Architect W. B. Galbraith has called for tenders on a new residence to be erected in Laurence Park, to cost \$6,500. L. H. Larkin, 124 Hampton avenue, has completed plans for a new residence to be erected on Donlands avenue, to cost \$3,000.

TORONTO, ONT.—W. H. Gibbs, 449A Brock avenue, will erect a residence on Symington avenue. O. R. Lewis, 132 Hope avenue, has plans prepared for a new residence to be erected on that street. T. Miller, 96 Waverley road, will erect a pair of houses on Main street. Purton & Chennels, 153 Ellsworth avenue, will erect an apartment house on Frederica street. C. Bannister, 48 Cedarvale avenue, has commenced the erection of a house on that street.

TORONTO, ONT.—G. Miller, 12 Boothroyd avenue, will erect residence on Morley avenue. Imperial Trust Co. are making alterations to 19 Richmond street west. Owner, 205 McRoberts avenue, has called for tenders on house to be erected at Stop 48, Yonge street. Haywood & Whitehorn, 6 Hallam avenue, are preparing plans for house to be erected on Lauder avenue. J. D. Naylor, 1255 Glenholme avenue, has plans completed for house to be erected on that street.

TORONTO, ONT.—Architect J. A. Thatcher, 37 Cowan avenue, has called for tenders on a store and bakery to be erected on West King street, Toronto. Architect P. H. Finney, 79 Adelaide street east, is preparing plans for a new residence for G. Ferrier, 302 Danforth avenue. Architects Ellis & Ellis, Manning Chambers, have called for tenders on a new residence for Dr. Gilmour, to be erected on Radford avenue. S. C. Lauder, 99 Ontario street, will make addition to store on Queen street east. Architect P. H. Finney has completed plans for a residence to be erected at Kew Beach for E. Elliott.

TORONTO, ONT.—P. L. Spiers, 95 Glenholme avenue, will erect a residence on Thome crescent, also one on Glenholme avenue; preparing plans. W. Walker, 51 Frederica street, is preparing plans for residence to be erected on Glenholme avenue. Arch. W. G. Hunt, Confederation Life Building, has called for tenders on new residence for J. Harvey Bone, to be erected on St. Leonards avenue. A. Donaldson, 155 Silverthorn avenue, has plans completed for a new residence. C. Lauder, 265 Queen street east, will erect a new dwelling and store. Gipe Hazard Store Service Co., 97 Ontario street, will make alterations to store. T. Robinson, 89 Elm avenue, has plans completed for addition to residence. Venn & Evans, 776 Crawford street, will erect several houses in the St. Clair district. J. Lucas, 919 Carlaw avenue, will erect six stores and apartments.

TORONTO, ONT.—J. S. Geroux, 2185 Queen street east, will erect store and dwelling. J. Harris, 531 Rhodes avenue, will erect a pair of houses on Coxwell avenue. P. Morgan, 68 Bellefair avenue, will erect a residence and garage on Williams road. City Homes, Ltd., 48 Hogarth avenue, will erect a pair of houses on Millbrook crescent. G. A. Stoddart, Lumsden Bldg., will erect a residence at Hanlan's Point. Architect W. Connery, Manning Chambers, has called for tenders on residence of H. W. Cox, 105 Arthur street. Architects Gordon & Helliwell, Confederation Life Building have awarded contracts on alterations to residence of R. T. Gooderham, 331 Sherbourne street. R. Dale, 96 Castle Frank road, has plans for a new residence. C. James, Nanton Court Apartments, will build residence on Roxboro drive. P. L. Spiers, 95 Glenholme, will build residence on Burlington crescent. J. Carroll, 223 Garden avenue will build residence.

TORONTO, ONT.—W. Long, 406 Yonge street, is having plans prepared for the erection of an office building, corner Yonge and Gerrard streets, to cost \$100,000. Kennedy & Avison,

573 Indian road, have plans prepared for a residence on Renhold avenue. Dr. Gibson, 1228 St. Clair avenue, has called for tenders on stores and flats to be erected on that street. Lucy D. Rowell, Lonsdale and Westmount, will have a residence erected on Vaughan road. Architect Wright, 535 Lansdowne avenue, has called for tenders on three pairs of houses for J. Smith, 107 William street. Walker House Drug Store, 125 Front street west, have called for tenders on a store front. T. Millen, 96 Waverley road, has awarded contract for a pair of houses to J. A. Ward, 310 Lee avenue. E. Elliott, 77 Vermont avenue, has plans for three houses to be erected at Kew Beach. C. Cornelius, 50 Walker avenue, has plans completed for the erection of stores and apartments on St. Clair avenue. Smith & Turner, 535 Lansdowne avenue, have called for tenders on three pair of houses.

THOROLD, ONT.—Mrs. Baxter will erect a new residence on Brindle street.

VANCOUVER, B.C.—R. McDonald will erect a residence on Twelfth avenue west.

VANCOUVER, B.C.—Evans, Coleman & Evans, have prepared plans for alterations to apartment of Norfolk Rooms, 872 Granville street, to cost \$8,000.

WATERLOO, ONT.—Architects E. & W. Cowan are preparing plans for an office building for the Waterloo Fire insurance Co.

WELLAND, ONT.—Architect T. L. Nickolas has prepared plans for residence of S. L. Lambert.

WINDSOR, ONT.—Architects Leybourne & Sewell have awarded contract for residence of Mrs. G. Hallett to Lambert & Braithwaite.

WINNIPEG, MAN.—P. M. Clemens, 498 Maryland street, architect, is preparing plans for hall and office building for the Royal Templars Hall Co.

WOODSTOCK, ONT.—A. Patrick and J. D. McKenzie will erect store and offices.

WOODSTOCK, ONT.—Arch. B. Nichole has called for tenders on addition to store.

ZELMA, SASK.—Architects Seater & Parnell, Saskatoon, have called for tenders on residence of C. G. Hennicksen.

SCHOOLS, COLLEGES AND CHURCHES.

BRAMPTON, ONT.—School trustees will erect addition to school on Alexandra street; money has been voted by the Town Council.

CALGARY, ALTA.—Alterations are proposed to the Haultain School here.

CALGARY, ALTA.—Separate School Board contemplate the erection of a new school.

CAMERON, MAN.—School trustees will erect a new school; secretary, J. W. Halpenny, Minnedosa, Alta.

CAYUGA, ONT.—Board of Education will erect addition to school; secretary of Board, E. B. Davis.

COTE DES NEIGES, P.Q.—The R.C. School Board have called for tenders on a new school, from plans prepared by Architect G. A. Monette, Power Building, Montreal, Que.

DAIROY, ALTA.—School trustees, S.S. No. 2690, have called for tenders on new school; secretary, F. W. Gardner.

DELTA, B.C.—Department of Education propose the erection of a new school here.

DOMINION CITY, ONT.—Architect T. R. Evans, 1700 Pacific avenue, Winnipeg, is preparing plans for a new school, to cost \$18,000.

DOVER CENTRE, ONT.—Architect S. G. Kinsey, Chatham, has prepared plans for new Presbyterian church to be built here.

EASTVIEW, ONT.—A new school is to be erected here; secretary, J. W. Rostetter, Cummings Bridge, Ont.

ELMVALE, ONT.—School Section No. 5, Fld., secretary, W. J. McGuire, Elmvale, Ont., will receive tenders on new school to be erected.

EMERSON, ONT.—The School Board will make additions to school.

EXETER, ONT.—James Street Methodist Church will make alterations, to cost \$4,000.

FITCH BAY, QUE.—The School Board are having plans prepared for a new school; secretary, B. H. Rider.

FLOS TOWNSHIP, ONT.—Architect J. Wilson, Collingwood, Ont., is preparing plans of a new school for S.S. No. 5, Flos Township.

HALIFAX, N.S.—Architect H. E. GGates, Queens Building, has called for tenders on a new school.

HALIFAX, N.S.—St. Johns Presbyterian Church have purchased a site for the erection of a new church, on Windsor street.

HAMILTON, ONT.—Board of Education have purchased a site for new school on Wentworth street.

HAMILTON, ONT.—Gore Street Church to be remodelled and fitted up for use of Boy Scouts; W. F. Eaton, of the T. Eaton Co., interested.

HAMILTON, ONT.—Contracts have been awarded for new school by Architect C. J. Hutton as follows: Mason, G. F. Webb; carpentering, J. Poaf; plumbing, A. Clark; plastering, Silb Bros.; painting, W. Dodson; electric work, Electric Supply Co.; roofing, M. V. McLean; steel work, Hamilton Bridge Co.; hand rails, Canada Wire and Iron Goods.

HAZENMORE, SASK.—Architects Storey & Van Egmond, Regina, Sask., have completed plans for a new school containing two rooms.

HERSCHEL, SASK.—Engen School District have called for tenders on new school; secretary, W. H. Luke.

HESPELER, ONT.—R.C. congregation will erect a new stone church.

KINBURN, ONT.—Architect J. P. MacLaren, 104 Sparks street, Ottawa, is preparing plans for a new school.

KINGSTON, ONT.—St. Mary's R.C. congregation will build a church, parish hall and boarding school.

LAMINGTON COUNTY, ONT. School trustees have called for tenders on new school; chairman of committee, C. O'Connor, Pickford, Ont.

LOUISVILLE, QUE.—Architect Pierre Levesque, 115 St. John street, Quebec, P.Q., has called for tenders on a new R.C. church, to cost \$175,000.

LEAMINGTON, ONT. The County Council propose the erection of a Home for the Friendless; Superintendent, Daniel Kennedy, Leamington, Ont.

MARRIOTT, SASK. Tenders have been called on a new school for School District No. 3538 by chairman of the School Board, S. A. Richards.

MERLIN, ONT. Architects Adams & Adams have prepared plans for a new school to be erected in Tilbury Township.

MONCTON PARISH, N.B.—McQuades S.D., Moncton parish, have awarded contract for new school to G. Morton, contractor.

MONTREAL, QUE.—Architect Marchand, 164 St. James street, has awarded contracts on R.C. school as follows: General contract, J. Laurier, 355 Province street; heating, McGuire Co., Montreal.

MONTREAL, QUE.—Architect Monette, 83 Craig street west, is preparing plans for new school on Cote de Neiges. Architects Marchand & Haskell, 164 St. James street, have plans completed for new school on Papineau avenue. Architect Edgar Prairie, 502 St. Catherine street east, has prepared plans for a new school on St. Andrews street.

MOUNT BRYDGES, ONT.—Architect L. E. Carrothers, London, has completed plans for a new school for Union School Section No. 1. Plans may be obtained from H. A. McPhail, R.R. No. 2, Mount Brydges, Ont.

MOUNT DENNIS, ONT.—Architects S. B. Coon & Son have called for tenders on a school for S.S. 28, Mount Dennis.

MUIRKIRK, ONT.—Contract for new school has been awarded to Horton Bros., St. Thomas.

OXFORD TOWNSHIP, ONT.—School Section No. 7 have called for tenders on new school; information may be obtained from J. D. Angus, Muirkirk, Ont.

PONOKA, ALTA.—Trustees, Brooks S.D. 564, have called for tenders on a new school; secretary, T. Page Baker.

PORT COLBORNE, ONT.—Architect C. M. Borter has called for tenders on St. James Presbyterian Church.

PORTAGE LA PRAIRIE, MAN.—Architect F. E. Evans, 170 Pacific avenue, Winnipeg, is preparing plans for a new school to be erected in the east ward in this town.

QUEBEC, QUE.—Walls have been erected of St. Roch's Church.

QUEBEC, P.Q.—Architect P. Levesque, 115 St. John street, is preparing plans for new convent.

QUEBEC, QUE.—R.C. School Board will have plans prepared for a new school to be erected on St. Luc and St. Sauveur streets; secretary, J. B. Morissette.

RENFREW, ONT.—A by-law will be voted on to provide \$125,000 for erection of new high school.

RICHMOND HILL, ONT.—School Section will erect a new school.

RIMOUSKI, QUE.—Architect Pierre Levesque, Quebec, has awarded contracts for chapel for Sisters of the Holy Rosary, as follows: General contract, A. H. Morin, Trois Pistoles, Que.

ROCKY MOUNTAIN, ALTA.—School District No. 3176 has called for tenders on a new school.

SANDWICH, ONT.—Architect Gilbert Jacques, Windsor, is preparing plans for separate school.

SEVEN PERSONS, ALTA.—Architect J. Jarrett, 455 Tenth street, Medicine Hat, is calling for tenders on a new school, to be built here.

SMITH'S FALLS, ONT.—New school will be erected in Elgin Ward, to replace building recently destroyed by fire.

STRATFORD, ONT.—Architect J. Russell has completed plans for a school to be erected on Downie street.

ST. ALPHONSE DE THEDFORD, QUE.—Plans are being prepared for new school; secretary, Achille Therrien.

ST. AUGUSTIN, P.Q.—Architect L. Auger, 39 St. Jean street, Quebec, is preparing plans for a new school to be erected here.

ST. HILAIRE DE DORSET, P.Q.—R.C. congregation are having plans prepared by Architect L. Auger, 39 St. Jean street, Quebec, for a new church.

ST. THOMAS, ONT.—Board of Education will have plans prepared for school additions.

ST. THOMAS, ONT.—Centre Baptist Church will erect a mission building; architect, J. T. Findlay.

TINY TOWNSHIP, ONT.—School Section No. 5 will erect a new school; secretary W. A. Casselman, Wyebridge, Ont.

TORONTO, ONT.—Architects Burke, Horwood & White have called for tenders on a new building for the Somers School of Physical Training.

TORONTO, ONT.—Methodist churches will be erected in Earlscourt and Oakwood districts; pastors in charge, Rev. H. Lawson and Rev. R. Richard.

TORONTO, ONT.—Architect T. Hancock, 836 Dovercourt road, has prepared plans for the erection of Bellsizes Drive Presbyterian Church, Glebe Manor.

TORONTO, ONT.—Board of Education have called for tenders on plumbing, heating, tin work, electric work, cabinet work, inter 'phones and ash hoists.

VANCOUVER, B.C.—The School Board will make additions to school as recommended by Inspector Gordon.

WALES, ONT.—Tenders have been called for alterations to Presbyterian church by Secretary D. H. Meikle.

WATSON, ONT.—Contract has been awarded for new school to W. D. Shaw, Sarnia, Ont.

WEST LORNE, ONT.—Aldborough Township will erect a new school; secretary, D. McPherson.

WEST LORNE, ONT.—Architect W. G. Murray has plans completed for a new school to be erected, to cost \$7,000.

WESTBORO, ONT.—Architects Richards & Abra, Booth

Building, Ottawa, have called for tenders on school to be erected here.

WINDSOR JUNCTION, N.S.—Bedford Parish contemplate erecting a new church.

WINNIPEG, MAN.—Consolidated School District will have plans prepared for a four-room brick school, to cost \$17,000.

WINNIPEG, MAN.—Contractors Grey & Division have commenced work on St. Andrew's Church; heating and plumbing not let.

WOODROW, SASK.—Architects Storey & VanEgmond, Regina, have let contract for the new school to be built here to F. Rooney, Weyburn, Sask.

YORK COUNTY, ONT.—County of York will erect new school; secretary, F. Mulholland, Eglinton P.O.

MISCELLANEOUS.

ATHOL, ONT.—Everett Scott has awarded contract for new barn to Alva Scott, Picton.

BARRIE, ONT.—The Town Council have called for tenders on sewer pipes, cement, lumber, coal, hardware, oil, sand and gravel. Engineer, J. S. Laing.

BRANTFORD, ONT.—Lake Erie & Northern R.R. will erect station at Lorne Bridge.

BURLINGTON, ONT.—Town Council have called for tenders on 850 feet of 30-inch concrete pipe.

CALGARY, ALTA.—Alberta Farmers' Co-operative Co. will erect sixteen elevators.

CALGARY, ALTA.—City of Calgary will erect two comfort stations, to cost \$12,000.

CALGARY, ALTA.—City Council are having plans prepared for a new incinerator plant.

CLARKSON, ONT.—Architects Sproatt & Rolph, Toronto, are preparing plans for new barns to be erected for G. W. Gooderham.

DAUPHIN, MAN.—Department of Public Works, Ottawa, will erect court house; plans prepared by Architect J. H. Bossons, Dauphin.

EMILY TOWNSHIP, ONT.—G. H. Hopkins, Lindsay, will erect a new barn; tenders asked for.

FORT WILLIAM, ONT.—Architects Barrett & McQueen are preparing plans of a new flour mill for the Oglivie Flour Mills Co.

HALIFAX, N.S.—City of Halifax has called for tenders on supplies of granite, special casting, hardware, explosives, lumber, cement, brick, cart wheels, drain pipes, meters, oils, sand and gravel.

KEDGWICK, N.B.—Richards Manufacturing Co. have awarded contract for new lumber mill to R. McLean.

KENORA, ONT.—L.O.L. No. 1689 are having plans prepared by Architect F. A. Hudson for a new lodge building.

KINGSTON, ONT.—Architects Wm. Newlands & Son have called for tenders on city store-house.

LAKEFIELD, ONT.—H. G. Fitzgerald has called for tenders on a large quantity of lumber.

LONDON, ONT.—Architects Watt & Blackwell, Bank of Toronto Building, are preparing plans for arena to be erected on Richmond street north.

MARKHAM, ONT.—Markham Agricultural Society will rebuild the buildings recently destroyed by fire.

MONCTON, N.B.—City Council have called for tenders on new pavements.

MONTROSE, ONT.—Michigan Central Railway, St. Thomas, Ont., will erect a roundhouse to accommodate 20 engines; plans completed.

MONTREAL, QUE.—City of Montreal have called for tenders on bronze and iron castings.

MONTREAL, QUE.—Wm. Scully, 320 University street, will erect shed, to cost \$1,400.

MONTREAL, QUE.—Plans are being prepared by Architect L. J. Bigonnesse, 92 Notre Dame east, for sash factory to be erected on St. Catherine street east for Wesintainer & Son.

MONTREAL, QUE.—Board of Commissioners have called for tenders on cement, sand, concrete, stone, rails and angle bars; engineer, F. W. Cowie. Cavenhill Estate, 89 St. Peter street, have plans completed for a garage to be erected on St. Catherine street west.

NAPANEE, ONT.—Town Council have called for tenders on supplies; clerk, W. A. Grange.

NEWTONBROOK, ONT.—F. Summers will install hot water heating in his residence this year.

ORILLIA, ONT.—Architects Burke, Horwood & White have completed plans for town hall.

OTTAWA, ONT.—Ottawa Improvement Commission, 110 Wellington street, have called for tenders on supplies.

OTTAWA, ONT.—City of Ottawa have awarded contract for new pumping station to Thomas McLaughlin, to be erected on Leimeux Island.

OTTAWA, ONT.—City of Ottawa have awarded contract on pumping station to Doran & Devlin, 104 Spark street, who have commenced work.

PETERBORO, ONT.—Campbell Flour Mill Co., Toronto, will erect an elevator and storehouse building.

PORT ARTHUR, ONT.—Saskatchewan Co-operation Grain Association propose the erection of two elevators.

PORT ELGIN, ONT.—John Coulter will erect a new garage.

FORT WILLIAM, ONT.—Architect D. A. Gordan is preparing plans for new elevator for Guy & Co.

FORT WILLIAM, ONT.—Saskatoon, Sask., Co-operative Elevator Co., Regina, will erect an elevator.

QUEBEC, P.Q.—City of Quebec have called for tenders on supplies.

QUEBEC, P.Q.—Quebec Harbor Commission have called for tenders on freight sheds and grain galleries at Pointe a Carey wharf.

RAYMOND, ALTA.—Architect P. Van Waggoner will erect restaurant building on Broadway.

SARNIA, ONT.—Imperial Oil Co. will make additions to their refining plant. Grand Trunk Railway will erect grain elevators and freight sheds.

ST. THOMAS, ONT.—Hydro Commission have awarded contract for sub-station to A. E. Ponsford, Ltd.

STRATFORD, ONT.—City of Stratford contemplate the purchase of supplies for the fire department, consisting of signal boxes, hose, gasoline and storage tank.

TORONTO, ONT.—City of Toronto have awarded contract for 18,000 enamelled brick to the Don Valley Brick Co., Toronto. Contract has been awarded for chimney on Don Valley incinerator to Canadian Custodis Co., Toronto.

TORONTO, ONT.—City of Toronto have called for tenders on a new fire hall to be erected on Hendrick avenue. City of Toronto have called for tenders on wood blocks and crushed stone. C. C. Edwards, 24 King west, will erect a garage and boiler room on Hillington avenue, to cost \$2,500. Architect N. G. Beggs, Cosgrave Building, has plans completed for a garage to be erected on Simcoe street.

TORONTO, ONT.—City of Toronto will erect stables and sheds in connection with Island incinerator.

TORONTO, ONT.—Hydro Electric Commission, 226 Yonge street, have plans completed for addition to sub-station at West Toronto.

TABER AND DUNMORE, ALTA.—C.P.R. have called for tenders on pipe lines. Superintendent, J. M. McArthur, Lethbridge, Alta.

TORONTO, ONT.—Architect J. Mitchell, 55 Isabella street, has called for tenders on garage to be erected corner of Yonge and Baxter streets, for W. J. Fennell, 1550 Yonge street.

TORONTO, ONT.—City of Toronto have called for tenders on electrically-operated gear for 36-inch gate valve. City of Toronto have called for bulk tenders on the erection of a barn at the Industrial Farm and stables at the Island. Old Orchard Club, 375 Dovercourt road, will erect an arena. Sheet Metal Products, 199 River street, will erect garage; contract has been awarded to Brown & Cooper, 297 Carlton street.

TORONTO, ONT.—Contract for Hendrick street fire hall has been let to A. J. Penberthy, 292 Booth avenue. Empire Hippodrome Co. have purchased site bounded by Yonge, College and Terauley streets.

TORONTO, ONT.—Architect C. H. Bishop, of the Board of Education, will call for tenders on interior fittings for Administration Building shortly.

VICTORIA, B.C.—Department of Marine, Ottawa, will erect storage building.

VICTORIA, B.C.—L. E. Ross will erect a shingle mill and will purchase machinery for same.

VANCOUVER, B.C.—Our Ladies of the Sisters of Charity will erect a new laundry.

WESTON, ONT.—A. J. Baker contemplates the erection of a garage building on Main street.

WAINWRIGHT, ALTA.—The Wainwright Milling Co. will erect a flour mill, plans being prepared by Architects Bird & Co., Corn Exchange Building, Minneapolis, Minn.

WINDSOR, ONT.—The City Council will purchase motor fire apparatus, at a cost of \$15,000, for which a by-law has been passed.

WINNIPEG, MAN.—The City Council have called for tenders on hot water heating, storage tank and piping for Cornish Baths.

WALKERVILLE, ONT.—Architect J. C. Pennington, Windsor, is preparing plans for a garage to be erected on Lincoln road for A. E. Kerr.

WESTMOUNT, QUE.—City of Westmount have called for tenders on supplies.

Contractors & Sub-Contractors As Supplied by The Architects of Buildings Featured in This Issue

THE WM. WRIGLEY, JR., TORONTO.

Architects, Messrs. Prack & Perrine, Toronto.
Brick, Canada Sand-Lime Pressed Brick Co., Toronto.
Boilers, Gurney Foundry Co., Toronto.
Casements, Steel and Radiation Co., Toronto; Crittall Casement Co., Toronto.

Chimneys, Custodis Canadian Co., Toronto.
Electric Wiring and plumbing, Keiths, Ltd., Toronto.
Elevators, Otis-Fensom Elevator Co., Toronto.

Fire doors, A. B. Ormsby Co., Ltd., Toronto.
Glass, Toronto Plate Glass Importing Co., Toronto.
Hardware (Corbin brand), Rice Lewis Co., Toronto.

Marble, Canada Glass, Mantel and Tile Co., Toronto.
Ornamental iron, Toronto Structural Steel Co., Weston, Ont.

Paint, Adams & Elting Co., Toronto.
Plumbing fixtures, Standard Ideal Co., Toronto; Mueller Manufacturing Co., Sarnia, Ont.

Plastering, E. C. Cates, Toronto.
Roofing, Bird & Co., Hamilton, Ont.

Sprinkler equipment, Canadian General Fire Extinguisher Co., Toronto.

Terra cotta (Federal brand), John Lindsay, Toronto.

Varnish, Glidden Varnish Co., Toronto.
Water tank, Chicago Bridge and Iron Co., Chicago, Ill.

Contractors (general), H. G. Christman Co., Hamilton, Ont.

NATIONAL CASH REGISTER CO., TORONTO.

Architects, Page & Warrington, Toronto.

Boilers, Goldie-McCulloch Co., Ltd., Galt.

Brick, Port Credit Brick Co., Toronto.

Casements, Henry Hope & Sons, Toronto.

Chimneys, Custodis Canadian Co., Toronto.

Consulting structural engineers, James, Loudon & Hertzberg, Toronto.

Consulting heating engineers, Nygren, Tenny & Ohmes.
Elevators, Otis-Fensom Elevator Co., Toronto.
Fire doors, A. B. Ormsby Co., Toronto.
Fire escapes and ornamental iron, Eberhard-Wood Co., Toronto.
Flooring, Seaman Kent Co., Meaford.
Hardware, Canada Hardware Co., Toronto.
Interior woodwork, Beverley Wood Specialty Co., Toronto.
Marble and tile, Canada Glass Mantel and Tile Co., Toronto.
Painting, J. J. O'Hearn & Sons, Toronto.
Plumbing, Toronto Furnace and Crematory Co., Toronto.
Plumbing fixtures, Cluff Bros., Toronto.
Plaster work, Taylor & Nesbit, Toronto.
Radiators, Dominion Radiator Co., Toronto.
Sprinkler equipment, Keiths, Ltd., Toronto.
Stone, Cement Products, Ltd., Toronto.
Steel sash, Steel and Radiation Co., Ltd., Toronto.
Structural iron and steel, McGregor & McIntyre Co., Toronto.
Ventilation equipment, Sheldons, Ltd., Galt.
Contractors (general), Jackson-Lewis Co., Ltd., Toronto.

MCCORMICK MANUFACTURING CO.

Architects, Watt & Blackwell, London, Ont.
Brick, Chatham Brick Co., Chatham, Ont.
Boilers, Leonard & Sons, London, Ont.
Consulting Engineer, H. P. Elliott, London, Ont.
Casements, Trussed Steel Concrete Co., Walkerville, Ont.
Chimneys, Custodis Canadian Co., Toronto.
Chimneys, Weber Chimney Co., Chicago, Ill.
Electric fixtures, Geo. J. Beattie, Toronto.
Electric Fixtures, Crouse-Hinds Co. of Canada, Toronto.
Electric Wiring, etc., Westinghouse Co. of Canada, Hamilton.
Electric Conveyors, Thos. L. Green Co., Cincinnati, Ohio.
Electric Conveyors, Canadian Mathews Co., Toronto.
Elevators, Otis-Fensom Elevator Co., Toronto.
Fire Doors, Richards & Wilcox, London, Ont.
Fire Doors, Mecker & Co., New York City.
Fire Proof Partitions, Alabastine Co., Paris, Ont.
Fire Extinguishers, General Fire Extinguisher Co., Toronto.
Flooring, Wm. Leslie Co., Boston, Mass.
Heating Specialties, Darling Bros., Montreal, Que.
Interior Fittings, Canada Office & Desk Co., London, Ont.
Lockers, Denis Wire & Iron Co., London, Ont.
Overhead Conveyors, Herbert Morris Crane & Holt Co., Toronto.
Ovens, Walter Baker Co., New York City.
Paints, Brandham-Henderson Co., Montreal, Que.
Plumbing Fixtures, Empire Manufacturing Co., London, Ont.
Pipe Covering, H. W. Johns-Manville Co., Toronto.
Roofing, D. H. Howden, London, Ont.
Stokers, Murphy Iron Works, Detroit, Mich.
Structural Iron, Sarnia Bridge Co., Sarnia, Ont.
Terra Cotta, N. Y. Architectural Terra Cotta Co., New York City.
Temperature Regulators, Power Regulator Co., Toronto.

NORTHERN ELECTRIC CO., LTD., MONTREAL.

Architect, W. J. Carmichael, Montreal.
Artesian wells, Wallace Bell Co., Ltd., Montreal.
Brick, Laprairie Brick Co., Montreal.
Boilers, Babcock & Wilcox, Ltd., Montreal.
Carpets and rugs, Henry Morgan & Co., Ltd., Montreal.
Casements (office), Henry Hope & Sons, Peterboro, Ont.; (factory), Trussed Concrete Steel Co., Montreal.
Chimneys, Custodis Canadian Co., Toronto.
Conveyors (ash), Jeffrey Manufacturing Co., Montreal.
Conveyors (coal), Brown Hoisting Machinery Co., Montreal.
Electric wiring and apparatus, Northern Electric Co., Montreal.
Elevators, Otis-Fensom Elevator Co., Toronto.
Fire doors, Architectural Bronze and Iron Works, Toronto.
Flooring (wood), Siemons Bros., Wharton, Ont.; (Grueky tile), G. R. Locker Co., Montreal; (Welsh quarry tile), Robert Reid, Montreal.
Glass, Pilkington Bros., Ltd., Montreal.
Hardware (Corbin brand), Lariere Incorporee, Montreal.
Paint (R.I.W. brand), Dartnell, Ltd., Montreal.
Plumbing, Garth Co., Montreal.
Piping (underground), James Ballantyne, Montreal.
Power machinery (air compressors), Canadian Ingersoll Rand Co., Ltd., Montreal; (pumps), Peacock Bros., Montreal; (pumps), Alberger Pump and Condenser Co., Montreal.
Radiators, American Radiator Co., Brantford, Ont.
Roofing (Barrett brand), Metal Shingle and Siding Co., Montreal.
Sprinkler equipment, H. G. Vogel Co., Ltd., Montreal.
Structural iron and steel, Dominion Bridge Co., Dominion Station, Lachine, Que.
Stairs, John Watson & Sons, Montreal.
Terra cotta, National Fire Proofing Co., Montreal; Atlantic Terra Cotta Co., New York City.
Woodwork (interior), U. Pauze & Fils Co., Montreal; W. Ruthenford & Son, Montreal.

D. O. ROBLIN WAREHOUSE.

Architect, Eden Smith and Sons.
Boiler, Kewanee Tubular, Dominion Radiator Co., Toronto.
Casements, Henry Hope & Sons, Toronto.
Electric wiring, Windeler Bros., Toronto.
Elevators and hoists, Turnbull Elevator Co., Toronto.
Fire doors, Douglas Bros., Toronto.
Hardware, Aikenhead Hardware Co., Toronto.
Heating, Jos. Harrison & Co., Toronto.
Plumbing, B. Willett, Toronto.
Contractors (general), Jennings & Ross, Toronto.

MARKET FOR PLUMBING AND HEATING APPARATUS.

U.S. Consul-General Edwin S. Cunningham, Hankow, China, in a recent report stated that there was only three buildings in that city in which modern heating was installed, and that owners of many old buildings would be glad to install heating and plumbing if convinced that it could be done in a satisfactory manner. Mr. Cunningham suggests that firms desirous of this business should not only establish an agency, but should employ competent European help for the purpose of making the installations in such a manner that they would be efficient. A list of buildings is given by a firm of architects in which it is believed heating could be installed if the matter were properly presented. The officials of the British Municipal Council Building are considering the installation of new sanitation, on which tenders have been invited.

PERSONALS.

Lieut.-Col. Albrechtsen, architect, of Prince Albert, Sask., is to raise a battalion of Scandinavians in Western Canada.

George T. Evans, architect, of Hamilton, Ont., has received a commission in the C.A.S.C., and will go to Quebec to qualify.

Colonel Stewart, of the 86th Machine Gun Battery, now on active service, is the senior member of Stewart & Wiltson, architects, of Hamilton.

Mr. George Beverley, of the Beverley Wood Specialty Co., Toronto, has enlisted for active service with the 170th Battalion, and is now in training.

Lieut.-Col. Charles H. Mitchell, C. E. M. Can. Soc. C.E., Toronto, has received from the French Government the officer's cross of the Legion of Honor.

An address was given before a good attendance of the Building Exchange by Lieutenant Keith, of the 170th Battalion, who spoke on recruiting, after which the Exchange went on record as favoring registration of Canadian manhood eligible for military service in the interests of all concerned. The Exchange desires the co-operating of the Board of Trade and the Manufacturers' and Employers' Association in efforts to assist recruiting.

Following the example set by D. Forbes Keith, Vice-President of Keiths Limited, who is now Major of the 75th Battalion, and G. Alan Keith, Secretary of the company, who is a captain in the 170th Battalion, the following employees have enlisted for overseas service: T. Froud, A. Collins, T. Roberts, J. Murray, H. Honeycombe, W. Honeycombe, H. Cockcroft, J. Sherry, R. Lees, E. Marks, P. Jewer, G. Clarke, J. Dwan, F. Spain, E. H. Houldcroft, D. Adams, A. Chapman, A. Every, F. J. Pearse, W. Davis, W. Gray, M. O'Hearn, A. Clarke, J. King, N. Moore, H. Clifton, J. C. Salvaneschi, A. Wilson, S. Everett, H. Everett, W. Sterry, R. Gray, F. Cormack, F. Harrison, W. Brown, S. Richardson, J. Dent.

Lieut. Hugh Heaton, son of Ernest Heaton, 185 Balmoral avenue, prior to the war, was a student in the School of Practical Science in the 1916 class, and was serving his apprenticeship in the office of Mr. F. S. Baker. In May, 1914, he went to England to join Martin Baldwin, of the office of Sproutt & Rolph, and the two spent the early summer on a bicycle trip throughout England, sketching and studying architecture. On the day war broke out they were both in London and immediately enlisted as privates in the King Edward Horse. Early in 1915 Heaton obtained his commission in the 8th Battalion King's Own Royal Lancaster Regiment and Martin Baldwin obtained his commission in the 9th Lancashire Regiment, which is now at Salonica. Last September Lieut. Heaton went over to France and since then he has been stationed near Ypres. News has just been received giving particulars of his wounding at the Ypres Salient. His Battalion, after a long stay in the international trenches, had been relieved, and during their absence the relieving battalion lost the trenches. On their return the King's Own decided to retake the trenches and it was during these operations, on the 3rd March, that Lieut. Heaton was wounded. He was in command of a machine gun section. A memorandum has been received from a Tommy, who saw him fall. He says that he was on the edge of a dyke and fell, badly wounded, into water, which was knee deep. He offered to help him, but Heaton refused to allow him to remain and sent him on, fearing that the gun section was being cut off. He reported the accident, and Lieut. Heaton was taken to the Relieving Station at Abelle. He was badly wounded by several bullets across the stomach, in the buttocks and in the left arm, the elbow of which is fractured. For his conduct in these operations he has been awarded the Military Cross. For ten days he was reported by the War Office to be daily improving.



LIEUT. HUGH HEATON.



SUB-LIEUT. FRED ARMSTRONG.

Sub-Lieut. Fred Armstrong, a young Toronto aviator, now with the Royal Naval Aviation Corps stationed at Chingford, Essex, England. He received training at Toronto Island and Long Branch last year, and later left for England, where he is now finishing his course. He is a son of Mr. Fred Armstrong, of the Fred Armstrong Co., a prominent plumbing, heating and electrical contracting concern of this city.

A complimentary dinner was tendered Lieut.-Col. S. G. Becket and officers of the Seventy-fifth Battalion in the Carls-Rite Hotel, March 23rd, by the City of Toronto, at which Mayor Church presided. Many congratulatory addresses were made on the splendid and successful efforts of the guests of the evening in raising the battalion strength in record time. The Seventy-fifth is one of the senior regiments, and is due to leave Toronto very shortly.

The death occurred on April 4th of H. N. Dancy, President and Managing Director of H. N. Dancy & Son, Limited, at his residence, 53 Ellis avenue, Swansea. Mr. Dancy had been for many years identified with the building trade of Toronto as a mason contractor, and had to his credit many of the city's best buildings, including the new Wycliffe College, Hospital Administration Building and Knox College. Coming to Canada from England in 1846, Mr. Dancy had continued to reside here and built up the business which bears his name. He was a member of the Board of Trade and the Toronto Builders' Exchange.

PUBLICITY CAMPAIGN PROPOSED FOR TORONTO.

The Board of Control has authorized the Mayor to arrange a conference for the purpose of reporting on a publicity campaign to obtain more industries and extend the trade of the city, which, in Mayor Church's opinion, has great possibilities.

BUSINESS DEPENDS ON FARMERS' PROSPERITY.

Speaking at a dinner in the Ontario Club, Henry Detchon, general manager of the Canadian Credit Men's Association, stated: "There is one thing that this war has shown us, and that is that our country's business depends on the prosperity of the farmer. Banks and loan companies in the West have come to a realization of this, too, and a policy is being adopted whereby more cheap money would be available to the farmer."

ARCHITECT OF TWO PROMINENT BUILDINGS.

Writing to the London "Times," Mr. Vesey Knox gives the following information, which is of interest on account of the recent destruction of the Canadian Parliament Building: "It is curious that two of the finest buildings in the New World should both have been designed by the same architect and should both have been burnt down. Thomas Fuller was an Englishman, born at Bath, who emigrated to Canada in 1857. His design for the Parliament Building at Ottawa was accepted in competition in 1857. In 1867 his design (jointly with Augustus Laver) for the Capitol at Albany was accepted—also in competition. It would be difficult to imagine two buildings more unlike than the lavish structure which overlooked the Hudson, and the severe and simple building on an even finer site by the Ottawa. But both had great merits and it seems a little strange that this Thomas Fuller's name is not to be found in the Dictionary of National Biography."

PARLIAMENT BUILDINGS PLANS ARE EXHIBITED.

Draft plans of the remodelled Parliament Buildings have been completed by the architects in charge, Messrs. Pearson of Toronto and Marchand of Montreal. They have been at work steadily since the week following the fire, and to-day the resultant plans and profiles of the exterior and interior of the remodelled building were exhibited to the members of Parliament in the office of the Minister of Public Works, at the new temporary House of Parliament. The plans are, of course, more or less tentative, and have yet to receive the formal endorsement of the Cabinet and of Parliament, but it is probable that they will be carried out substantially without alteration. No definite estimate has yet been made as to cost, but it will probably be in the neighborhood of \$1,500,000, and it will probably require about a year and a half to carry out the work. Parliament will meet again next session in its present quarters.

Present Scheme Preserved.

The main features of the new plans are the preservation of the present architectural scheme of the whole front elevation as it now stands, the tearing down of the new west wing, which was undamaged by fire, but which did not preserve the original architectural harmony of the whole building; the construction of a new rear elevation following the lines of the original architectural scheme, but with a three-story elevation corresponding to the front; the construction of chambers for the Commons and Senate at the west and east sides respectively, of the building, instead of in the centre, as was the case before the fire; a rearrangement of the office space in the interior, which will give 38 per cent. increased accommodation without sacrificing light or ventilation, and a main entrance hall and Court of Fame extending from the main entrance beneath the central tower clear through to the Library in the rear. This latter wide corridor will give a much more imposing vista on entering, and will afford opportunity for a national gallery of statesmen in oils and in marble or bronze.

A Harmonious Architecture.

Externally, the new plans will provide for a harmonious architecture throughout. The front part of the building, as it stands at present with the walls intact, will be unchanged. The west wing, including the half-million-dollar addition built in 1909-10, will be almost completely replaced by a three-story wing following the lines of the original design, and eliminating the extra story which was put on, and which was out of keeping with the rest of the building. Where the Speaker's quarters were there will be a three-story instead of a two-story elevation on the Commons as well as on the Senate side.

New Commons Wing.

The new Commons chamber will occupy practically the whole of the new west wing. It will be considerably larger than the former chamber, being 102 x 63, and providing ample space for some 320 members. The Speaker's chair, instead of being in the centre of the west side as in the old chamber, will be at the north end, and the gallery seating will be much better arranged, both in regard to acoustics and in regard to accommodation for a much larger number of spectators.

The members' lobby and Postoffice will be along the front of the building, with a big lounging and smoking room running along the ground floor on the west side of the Commons chamber. Committee rooms and reading rooms will be situated on each side of the main entrance back of the Library.

The Senate Side.

On the Senate side the new chamber will be at the extreme east end, following the same line as the Commons chamber, but somewhat smaller. Fire-proof construction and an adequate system of ventilation are being provided for.

The plans will be gone over carefully by a committee of the House representing both sides before they are finally approved. It is expected that the work of reconstruction will be begun this spring.

ANNUAL MEETING OF THE ROYAL ARCHITECTURAL INSTITUTE OF CANADA.

The annual meeting of the Royal Architectural Institute of Canada will be held in the rooms of the Provincial Association, 96 King street west, Toronto, on April 22, 1916, when election of officers for the ensuing year will take place.

CANADIAN BANKING SYSTEM SOUND.

The London "Times" recently contained an appreciation of the Canadian banking system. Commenting at some length on Canada's aid to the Mother Country in this hour of her trial, it states that the Dominion's strong financial condition is "largely due to the soundness of the Canadian banking system and its successful combination of prudence and enterprise."

LUMBER TRADE ACTIVE.

Canadian lumber companies are doing a large export trade with Britain and France, particularly in spruce. Early last year the market was demoralized by the big advance in freight rates, but the continued demand has resulted in an entire change in the trend of prices, so that whereas early in 1915 selling prices were receding as freight rates increased, now quotations are advancing by leaps and bounds. The British Columbia lumber companies are enjoying the most profitable period in many years.

MARKET FOR DOUGLAS FIR IN INDIA.

In a communication to the Department, Mr. H. R. MacMillan, Special Trade Commissioner, states that a Bombay lumber house is very desirous of opening up connections with a suitable firm of exporters of Douglas fir. They would prefer to deal with a firm of brokers rather than with saw-mills. This firm, who wish to be put in touch with Canadian sources of supply, are important importers and do a great deal of railroad and Government business throughout India. Financial references can be given and an inquirer may secure information as to their financial standing from the National Bank of India. Canadians who may be interested in exporting timber to this market may obtain the name and address of the firm in question by applying to the Department of Trade and Commerce, Ottawa. (Refer File No. A-1499).

SANGUINE STRATFORD.

Reference to the large number of new houses and additions to the many manufacturing plants proposed or now under way in Stratford, would indicate the present as a year of activity in this city, which is one of the busiest manufacturing centres in Canada.

TORONTO GROWS.

The Might Directories, in their review of 1915, estimate the population of Toronto to be 544,456. The city contains 100,825 buildings of all varieties, situated on some 1,740 streets. The earnings of Toronto post office for the year were \$2,905,391, as compared with Montreal's \$1,590,395.

CANADA'S PROSPERITY.

Experts assert (says a cablegram received by the High Commissioner's Office from the Minister of the Interior, Ottawa) that Canada is on the threshold of perhaps the most prosperous era in her history. Prompt payments of interest on mortgages reflect prosperity. The unprecedented value of the factories working on munitions of war, has suddenly brought farm products for 1915, as well as the very large output of the Dominion into a financial position scarcely hoped for as a nation for years to come. Sir Robert Borden is the authority for the statement that there is less unemployment in Canada now than a year ago.

Labor conditions in Canada during December showed little change from those of November, though in some localities the last few weeks of the month were quiet owing to a number of factories closing down for the usual year-end repairs and stock-taking, says the official "Labor Gazette" for January, just received from Ottawa.

"On the whole, labor was well employed. Whilst there was a falling off in opportunities of employment in some districts due to the interruption of certain outside operations by the usual cold weather, this falling off was offset in some districts by other opportunities of employment. There was little in the way of unemployment, except in some parts of the West and in British Columbia; and even in localities where unemployment was reported the number out of work was much lower than at the same time last year.

"In parts of the country the weather continued fairly mild, and building operations were proceeded with to a considerable extent; and even in parts where severe winter weather set in, some outside building and interior work was carried on. A fair amount of business activity was reported from some country districts in the West where farmers were erecting houses and barns. Lumbering operations continued fairly brisk, with dullness in a few quarters. Activity in mining, both coal and metalliferous, continued. Manufacturing establishments were fairly busy in general lines. In some special branches exceptional activity prevailed."

LOGIC IN ARCHITECTURE.

Mr. Harry Gill, M.S.A., the President of the Nottingham and Derby Architectural Society, in his address to the members, expressed the view that the Gothic revival was a mistake, because it revived the outward forms without having grasped the inward spirit.

Of how many modern buildings of an ecclesiastical character, more particularly those which might be classified as typical of Nonconformist architecture, might it not be said "our church at the front is as fine as an abbey, but seen from the rear 'tis remarkably shabby."

He points out the inconsistency of the practice of providing Gothic niches and leaving them vacant, and humorously suggests that after the war they might be made commemorative by placing in them representations of leading statesmen distributing rare and refreshing fruit to the English, or providing iron rations for the Germ-huns, much as the saints of old were depicted in some characteristic act.

Places of worship are nowadays a strange study, for generally speaking the more logical the creed, the less logical the architecture, whereas it should be vice versa.

His advice to the student is to study but not to copy Gothic architecture. The methods of construction and the materials now at our disposal are not so restricted as in days of old. Archaeology should not be made a fetish.—"Journal Society of Architects."

Timber Bulletins.—In pursuance of the policy of market expansion in the interests of the lumber industry, undertaken by the Hon. the Minister of Lands of British Columbia, two further bulletins, prepared for the information of lumber consumers, have recently been printed. They are entitled, "British Columbia Douglas Fir Dimension," and "British Columbia Western Soft Pine," respectively. The former publication deals with the qualities of Douglas fir for structural purposes, and cannot fail to be of interest to architects, contractors, and others. The bulletin is well illustrated, the claims to durability being supported by pertinent references to such buildings as the Craigflower Farm near Victoria, erected in 1851, and the Craigflower public school, built in 1853, Douglas fir having been used throughout except for the roof of red cedar shingles, and practically no parts of the buildings having had to be repaired. Modern uses of Douglas fir for structural purposes are instanced by reference to the Arcade building on Government and View streets, Victoria, erected in 1915, and the new wharf reception room, C.P.R. dock, Vancouver. Another striking reference is to the Niagara Gulch trestle on the Esquimalt and Nanaimo Railway, built in 1896. Four hundred feet long, one hundred and twenty feet high, and on a ten degree curve, containing three-quarters of a million feet of Douglas fir, the trestle was still in excellent condition and good for further years of service when it was abandoned sixteen years later, owing to the alteration in grade. The wood known variously as Western soft pine, Mountain Western pine, Arizona white pine, and California white pine, is described in a similar manner in the publication "British Columbia Western Soft Pine." This pine, which is distributed throughout the southern interior of the province, is equal in working and finishing qualities to the well known Eastern white pine, and is now being sold for the same purposes in the same markets.

REVIEW.

Burning fuel oil by the Fess Rotary Oil Burner System is illustrated and described in a catalogue just received, which states that the many installations in Toronto and elsewhere are giving complete satisfaction, operating without smoke, ashes, dust or noise, and showing a considerable saving in cost of operation as compared with coal. This apparatus burns crude or refuse oil, a supply of which is always obtainable for delivery to a tank usually placed underground, either within or without the building, and in dispensing with the coal pile, laborious handling of coal and ashes is eliminated. Installations can be made in any boiler or furnace, and a further advantage in this system is that in mild weather the opening or closing of a valve controls the heat desired and affects a saving, impossible where coal is used. The Fess Company, 121 Carlton street, Toronto, will be glad to demonstrate their system in operation and to furnish estimates and specifications.

The Granite Concrete Block Company are issuing a new catalogue descriptive of granite veneered cement building blocks of various kinds as manufactured by them. This product provides a durable and handsome building material warm in winter and cool in summer, easily handled and laid and comparing favorably with other materials in cost. The company invite the inspection of their plant and material by architects, contractors, and others interested and will be glad to furnish information as to the many buildings where this material has been the satisfactory material used. Formerly located at the corner of Yonge and St. Clair ave., the expansion of their business has made necessary the acquiring of some thirteen acres of land on Weston Road, where a new plant has been installed and provision made for future extension.

The W. E. Clark Company have issued a catalogue illustrating and describing the specialties manufactured by them in Canada for the automatic control of water and steam heating plants. These specialties comprise the Clark Air Line Valve, Clark Vacuum Trap and the Clark "Nopack" Graduated relief valve, all of which are of merit and an advantage where heating is required, as explained fully in this booklet. The Clark Temperature Booster as used on hot water heating systems will, it is claimed, not only remedy defective installations, but will make any system of hot water heating better by increasing the circulation with no extra fuel consumption.

"More Hot Water for Less Gas" is the title of a neat folder issued by The James Morrison Brass Manufacturing Co., Limited, Toronto, which illustrates and describes at length the Stack Water Heater as manufactured by this company. This heater is guaranteed to give hot water in one minute from the time of lighting the gas, and to continue same as long as the gas is used, on account of the larger copper radiating surface which is placed perpendicularly in the heater causing the flame to circle around the tubes. The claim is made that for this reason also less gas is required per gallon of water heated.

The Canadian Laundry Machinery Co., Ltd., Stirling Road, Toronto, have issued for distribution to architects and those interested an extensive and well-prepared catalogue covering the wide range of laundry equipment manufactured by them, as illustrated in the 226 pages comprised in the book. Detail drawings are included, with complete descriptions, and should prove a ready reference when the equipment of the laundry is being decided on. In writing for a copy, ask for catalogue "B."

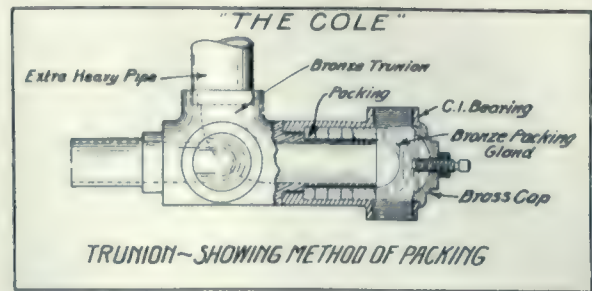
The Canadian Forestry Association have issued for free distribution a booklet entitled "Boy Scouts' Forest Book," with descriptive matter concerning Canada's forests, for the purpose of interesting the youth of the country in the many and varied trees to be found here, with information as to the preservation of same.

The Powers Regulator Co. have issued for distribution to architects and engineers a most ingenious device for calculating the size of hot water tanks, etc. This calculator is made of good quality celluloid, durable, and convenient in size, and will be prized by those receiving a copy.

The Richards-Wilcox Canadian Co., Limited, of London, Ont., have issued literature illustrating and describing the "Stewart" Electric Door Opener and Closer. This attachment is a time and labor-saver, as by merely pressing a button placed in any part of a building the doors open or close to any degree as may be desired, operated by a small motor placed overhead and out of the way. Public garages will find this attachment valuable to operate the doors for incoming and outgoing traffic without requiring the time of the attendants who are at times not available, and thereby causing delay and congestion of traffic. The illustration herewith shows an installation of this type, the doors being controlled by the office clerk.



ELECTRICALLY OPERATED GARAGE DOOR.



IMPROVEMENT IN STEAM TRAP.

The accompanying cut shows a new system of packing on trunions for tilting steam traps invented by Geo. W. Cole, and used by his company on all their different types of traps. Note the offset in bronze trunion where packing makes a joint as well as the long sleeve, and forced in place by a set screw against end of bronze gland then backed off making tight the lock nut. The steam pressure keeps it tight and allows same to expand without causing extra friction. By the use of the self-adjusting packing allows them to place a counter on the trap, therefore registering all the water returned back to boiler, or open tank. It is an ideal device for a combined metre and trap to be used on district heating plant.

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May, 1916

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MONTREAL

BRANCH OFFICES

NEW YORK



HOTEL VANCOUVER, VANCOUVER, B.C.

FRANCIS S. SWALES, ARCHITECT.

Vancouver's Unique Hotel

The Hotel Beautiful of The Canadian Pacific Railway at Vancouver

PIERCING the skyline as its sixteen stories soar upwards from the crest of the Granville street incline, the new Hotel Vancouver, the largest building in Canada, stands an architectural triumph of development on the Pacific Coast. The palatial building is an indication of what Vancouver has risen to be and what she is expected to be; proof conclusive, also, of the enterprise of the company operating the greatest transcontinental railroad on the American continent. The hotel is the central edifice dominating a fine group of lofty and substantial buildings—the Vancouver Block, the ornate Birks Building and the massive new store of the Hudson's Bay Company. It stands pre-eminent among the city's skyscrapers, now becoming quite numerous. During the past decade Vancouver has developed a metropolitan skyline which is the pride of residents, and which immediately thrusts itself upon the attention of the stranger arriving by sea, as the boats emerge from the Narrows and enter the spacious natural harbor of Burrard Inlet. Towering above all else is the huge hotel building, a monument of optimism; a trifle quaint, perhaps, in architectural design, it is beautiful indeed in its entirety. The design is unique, the object being to give all the rooms outside light. With seven hundred and fifty odd rooms, this was quite a task, but from the photo it will be seen that in this case the architect achieved his desire.

Certain features in connection with the building stand out with prominence. Throughout all, the aim has been to utilize in the building, as far as possible, material to be obtained in British Columbia, or, failing that, in the Dominion or other parts of the British Empire. The fine grade of pressed brick used on the exterior was manufactured at Clayburn, only a short distance from Vancouver. This brick, of which a huge quantity was needed, is declared by the architect to be equal in quality to the best Scotch

brick, acclaimed the world's standard; this statement is of considerable import in view of the fact that Mr. Francis S. Swales, the architect, has had prolific experience in building in the great centres of the world. British Columbia fir and cedar is used in the upper stories; the structural steel for the framework was supplied and assembled by a Vancouver firm. British Columbia granite was used in the construction of the basement story. Belgian, Italian and African marbles were used in parts of the interior, but were all worked in the city. All interior woodwork, oak and mahogany, in the lower stories, was executed by local firms; the kalameined bronze work and practically all of

the electric fixtures were also manufactured in Vancouver. In brief, it is a Made-in-Canada building throughout, and is striking evidence of what can be achieved in the Dominion. One of the best views of the hotel is that obtained from the Hudson Bay store, in Granville street, of the north-west corner. From this vantage point the great height and massiveness of the building are very apparent, while its varying skyline appears to advantage. Its size alone would render it impressive, but the architect has risen to his opportunities and has skillfully handled its large

masses in a way that appeals to the aesthetic taste of the observer. Jointly with Lord Shaughnessy, President of the C.P.R., and Mr. George M. Bosworth, the Vice-President in charge of the Hotel System, credit for the undertaking and completion of this great enterprise at the present time of financial stringency is due to Mr. Richard Marpole, the C.P.R. executive at Vancouver.

THE MAIN ENTRANCE OF THE HOTEL.

Approaching the hotel from Granville street, one sees first the adequate carriage entrance, with a nicely curved driveway. This entrance has been made a prominent feature, and the



ARCHITECTURAL DETAIL OF FRONT FACADE, HOTEL VANCOUVER.



BALL ROOM, HOTEL VANCOUVER, VANCOUVER, B.C.

windowed rooms above, treated in ornamental terra cotta, with a roof of red Roman tiles, have enabled the architect to introduce a pleasing variety in the front of the building. The spacious lobbies leading from the entrance present vistas of an imposing character.

THE LOBBIES.

The first impression upon entering is one of soft and pleasing color harmony on walls, floors

of the scheme has been specially designed for the Hotel Vancouver.

THE LADIES' TEA ROOM.

At the right of the main lobby a few steps lead to the shaded precincts of the large palm room, with its plentitude of occasional tables and chairs, and its restful air of quiet and repose. On the interior side of the corridor is a spacious writing room. The lobby running east and west is wide and lofty; to the right is the main office and accounting department, while on the left is the cigar stand and news agent's stall.

COMMUNICATION SERVICES.

Behind the accounting department of the main office are a number of telephone booths for the use of the patrons, with a cable and marconigram receiving station. An added convenience is the large ticket office occupying the corner of Granville and Georgia streets, where railroad and steamship accommodation may be reserved through the C.P. R.'s own staff.

BANQUET HALL.

A lofty and spacious



ROTUNDA, HOTEL VANCOUVER, VANCOUVER, B.C.

hall, for banquets, etc., sixty-six by one hundred and twenty feet and forty feet high, richly decorated and fitted for use as a convention hall, forms the central room to the left of the main lobby. This is expected to be of great service to the city by attracting a number of conventions which are held every year at different points in the United States and Canada on the Pacific coast. The bronze balconies at the mezzanine floor level and the splendid decorative glass ceiling lights and chandeliers are among the most notable ornaments of this splendid hotel.



THE MANAGERIAL SANCTUM.

OVAL ROOM, SHOWING FINE STAINED GLASS ROOF, HOTEL VANCOUVER, VANCOUVER, B.C.

A feature of the main lobby, with its comfortable settees and usual appointments of the foyer, is a mezzanine gallery reached by massive staircases from either side of the entrance, and finished with a balustrade over which one can view the busy scene below. Solidity and simplicity is the keynote of construction here, and where ornamentation is used it is bold and adequate.

Off the east gallery open the suite of managerial offices, where W. A. Turquand guides the helm and conducts the administration and onerous business of the large hostelry, with its accompanying burden of cares and responsibilities.

THE ROOF GARDEN.

The visitor is still further agreeably impressed if he takes one of the many elevators and emerges amid the verdant beauty of the roof garden. Two hundred feet above the street pavement the traveller steps out of the elevator lobby upon the tiled floor of the garden—the flat roof of the hotel transfigured by gorgeous blossoms, and furnished with an army of luxurious armchairs. Here ivy grows and fragrant

flowers bloom in profusion. One is up in the air indeed; looking over the parapet, the city spreads away out below like a huge map in perspective, with the people moving on the streets below reduced to pigmy proportions. From this elevated viewpoint the city shows to fine advantage, while the snow-crested and sun-lighted mountains to the north, and the sparkling waters of the Gulf of Georgia to the west offer natural vistas picturesque and bewitching in the extreme.



PRIVATE DINING ROOM, HOTEL VANCOUVER, VANCOUVER, B.C.



MAIN LOBBY, LOOKING TOWARDS MAIN ENTRANCE,
HOTEL VANCOUVER.

THE HOTEL'S TOWERING PROPORTIONS.

The great size of the hotel is observed from several directions. The ten thousand square yards occupied by its main block, bounded on three sides by Granville, Georgia and Howe streets, would comfortably accommodate a good many fine residences. But below the level of the main floor, and extending towards Robson street, are what might be termed the manufacturing and storage departments. Here are the immense boilers, steam engines, etc., used in the electric light and power service of the hotel. Here also is the refrigerating machinery, turning the sparkling Capilano water into frozen blocks of ice; cooling the drinking water in the pipes to the rooms, and reducing the temperature to near the freezing point in the fifty rooms where food supplies arrive and depart. Also on this level are the spotless and commodious kitchens, fitted with the largest cooking range in the world, and a first-class bakery, which has already earned the new hotel a special reputation for the excellence of its rolls and bread. The pastry and ice cream departments are models of the best that can be produced for and by the artists who preside over them.

Behind the hotel proper is a fully modern laundry, equipped with the latest devices that the art of the machinist can supply; here scores of skillful workers transform dirty linen into spotless white, wash acres upon acres of sheets per diem, and seem wantonly lavish with towels and pillow-cases, etc. When the visitor has wandered around these lower halls of industry

he gains some impression of the great size of the hotel. The subterranean passages and plethora of rooms remind one of the interior recesses of a mammoth ocean liner.

TRAVELLERS' CLUB.

The lower ground floor of the Granville street wing, four feet below the level, styled by a misnomer "the basement," is a series of rooms forming what is practically a club for travellers. It consists of a suite of rooms, inclusive of grill room, sixty by sixty feet, called the British Columbia, or "B.C.," room. It is panelled in B. C. cedar and maple, and decorated with B. C. "big game" heads. A billiard hall, sixty by one hundred feet, with eight tables; a bar one hundred feet long, with walls of Circassian walnut, reminiscent of the fine observation cars on the C.P.R. system; a smoking and writing room, twenty by sixty-five feet; a spacious and well-furnished barber shop with ten chairs, and a continuous suite of large, well-lighted sample rooms—all arranged for the convenience of the commercial "drummer." The premier decoration of this extensive suite of rooms is a continuous dado of panels, illustrative of the scenic spots and fine hotels along the route of the company's railroad.

"The bar" is a room of fine proportions, with the woodwork and color scheme of a rather dark treatment. It is equipped with the latest devices and conveniences for the thirsty one, and the atmosphere is restful and cozy. The main decorative feature is an exquisite mural paint-



ROTUNDA, LOOKING FROM GRANVILLE STREET ENTRANCE,
HOTEL VANCOUVER.

ing, eight by seventeen feet, representing Captain Vancouver taking over the Island of Vancouver. The story of the picture carries one back to the final decade of the eighteenth century, when both the British and Spanish explorers were on this coast. Captain George Vancouver left England on April 1, 1791; the following year he landed at Nootka Sound, the Spanish headquarters on what is now known as Vancouver Island, to inform Governor Quadra that the British expected to take possession of this territory. The courtly Spaniard was quite agreeable to departing, and there was a farewell love feast, at which the Spanish Governor entertained the English captain at a repast that

and efficient. The bedrooms themselves are carpeted in pleasing hues. The plumbing fixtures include remarkably fine bath tubs and a porcelain pedestal supporting the wash basin and its accessories; in addition to the usual hot and cold water taps is a central one, long and tapering, which supplies iced water and relieves the bell boys of a great volume of labor, especially during the rush of summer travel. Needless to add, the four hundred and fifty odd bathrooms in conjunction are furnished with fittings of the latest and most sanitary pattern available. An ingenious electrical arrangement is incorporated in the clothes cupboards, whereby the mere opening of the door turns on the current and



BILLIARD ROOM, HOTEL VANCOUVER, VANCOUVER, B.C.

caused remarks of amazement at its sumptuousness to be recorded by Captain Vancouver. This scene the artist, Marion Powers Kirkpatrick, commemorates in a spirited and very vivid fashion, adopting a gay and brilliant color treatment which harmonizes well with the surroundings of this underground palace.

THE BEDROOM APPOINTMENTS.

The seven hundred odd bedrooms are guaranteed effective for the successful wooing of the god Morpheus. They are models of cleanliness, simplicity and comfort, opening off wide, airy corridors, covered with carpet of a restful and subdued color. The elevator service is speedy

gives a brilliant illumination, which in turn is broken by the closing of the door. An excellent fan service from the engineering department keeps the air circulating and prevents that stuffy feeling so often experienced in big hotels.

The special suites comprise a combination of sitting room, bedrooms with bathroom to each.

THE MAID SIGNAL SYSTEM.

Everything that is usually done or can be done in a kitchen is performed in the kitchens of the Hotel Vancouver, but with a special regard to the just fame that this hotel earned for the delicious products of its culinary departments. The vast range already referred to is of the

"island" type—that is to say, it stands like a table in the centre of the kitchen and the cooks can work all around it, which saves many steps to the cooks and reduces labor in the kitchen. Surrounding the range and forming a counter which separates the cooks' departments from the waiters' passages are the heated cupboards in which china and silver dishes, cups, etc., are warmed ready for use on the tables. All the kitchen equipment and numerous labor-saving arrangements were designed by the architect, Mr. Swales, along lines similar to that in the best hotels in London and Paris, incorporating a few improvements even over those.

THE LAUNDRY.

The first thing that meets the gaze of the

and deftly folded by two stolid-looking Chinamen with the inevitable almond eyes peculiar to their race. Another couple of Orientals are rapidly receiving and folding sheets as they come from revolving drums. In the ironing room the electric iron is king, dozens of these handy accessories being in use, and tables close by are piled high with mounds of linen belonging to guests of the hostelry. System is the motto of the laundry, itself quite an industry, and the number of operatives is a revelation.

UNSEEN SUPPLIES AND INDUSTRIES.

The ordinary hotel guest is usually ignorant of the extent and importance of what may be termed the commissariat department, which caters to his comfort while under the roof as a



PRIVATE SITTING ROOM, HOTEL VANCOUVER, VANCOUVER, B.C.

visitor to the laundry, with its smokestack piercing the clouds, is the trio of rapidly revolving copper cylinders. Perforated like a huge circular colander, they complete the circuit at a speed of one thousand four hundred times per minute. Linen, dripping from the tub, on these rollers loses most of its moisture, and from thence is put into drying closets, the temperature of which would almost qualify them for use as supplementary baking ovens. Huge drums are revolving, dimly visible through the pervading steam, and mangles are issuing towels enough for an army. These latter are caught

guest. It is worth while to visit the basement and rear of the building to inspect the facilities, from the heavy motor wagon which carries the baggage to the automatic egg boiler in the kitchen that will cook the hen fruit to any turn that may be desired by the most fastidious epicure. First comes the light and power plant; here two immense oil burners supply steam to supplementary engines, ultimately passing power to huge dynamos and refrigerating machines. An extensive switchboard dominates the whole, and the plant looks powerful enough for a small city.

The butcher shop, with its chopping blocks, its meats and scores of juicy-looking chops ready for the kitchen, has a familiar appearance. In the vast cold storage meat store, whole legs of mutton and great sides of beef hang in prodigal array; in the poultry store, scores of bipeds have been denuded of their feathery dress and now repose in serried ranks, awaiting the advent of the chef. The fish store is more like a fine exhibit of the choice aquaria of British Columbia than an ordinary fish shop. The grocery store is another marvel of the application of science to the care of food; everything is stored in dust-proof cupboards. All the supplies are in full view of the stewards. Nothing can spoil or get upset without being noticed by the man in charge. Temperatures and ven-

in the Dominion, and is equalled in convenience by those in only a few of the larger cities of the United States.

Among the new features incorporated in the switchboard equipment tending towards the facilitation of the hotel business and accelerating the service of the guests, are the teloutograph and the maids' signal service.

The telautograph system is for use among the heads of departments and the switchboard operators. It is a most ingenious electrical invention, by which messages written at one station in handwriting are reproduced by electrical means at one or more stations. The reproductions are made at the time the message is written, all the characteristics of the original being faithfully portrayed. The Hotel Vancouver is



BED ROOM, HOTEL VANCOUVER, VANCOUVER, B.C.

tilation are perfect. In the silver and cutlery store is ample provision for a veritable army of guests. Everything is spotless, and the utmost method and system prevails in the underground ramifications of the big hostelry. After a visit to the kitchen departments of the Hotel Vancouver one develops an appetite and wants to go to the dining room next. How seldom does one have such an experience!

TELEPHONE AND TELAUTOGRAPH.

The private branch exchange switchboard of the Hotel Vancouver is the largest of its kind

the only hotel in Canada, or on the whole of the Pacific coast equipped with the telautograph system. The only other hotels using the system are the larger ones in the leading American cities, such as New York, Chicago, and Detroit.

The telephone switchboard is twenty-four feet long, with line equipment for seven hundred and sixty stations, twenty in and twenty out trunks from central office, all multiplied throughout the switchboard and associated with the telautograph and the maids' signal equipment.

In a large hotel such as this, a problem which

has often confronted the management concerns the location of a maid during the time they are supposed to be making up the guests' rooms. To overcome this difficulty there has been installed in the Hotel Vancouver what is termed the "maids' signal service," so that, should any guest desire the services of a maid, the nearest maid can immediately be located and advised of the guest's wishes. The advantages of thus getting promptly into communication with any one of the forty-five maids is one that will be easily appreciated.

The system is worked in conjunction with the 'phone switchboard, the operators of which know at all times the location of every maid on duty in the building. On the switchboard are inserted hundreds of tiny lamps, numbered to correspond with the guest rooms of the hotel. Each maid on entering upon her duties is provided with a small portable lamp which, upon entering a guest room, she inserts in a special socket mounted in the door trim of that particular room; this action on her part makes a corresponding connection with the numbered lamp on the switchboard, lighting the latter and thus notifying the operator that there is a maid in the room bearing that number. Should a guest desire the services of a maid, he or she expresses the wish to the 'phone operator, who according-

ly calls up the maid nearest to that room and notifies her that she is required at room so-and-so. Upon vacating a room, the maid detaches and carries with her the portable lamp, thus severing the switchboard connection until she enters another room and inserts the lamp-plug in the socket provided, notifying the operators as before of her location. As a convenience in the successful operation of the hotel, and as a guarantee of quick and effective service in the interests of the guests, this signal service is a most valuable asset and ally of the management.

The hotel, apart from its use as a mere hostelry for the transient, offers facilities for public use which make it an exceedingly valuable adjunct to the city's buildings. The large oval room, exquisite in design, with its chaste panelled walls and ceiling, a particular feature of elegance, is really the principal drawing room of the hotel, but is largely used for society and other functions of a like nature. It is provided with a well-equipped serving room, and behind an ornamental bronze grill to the side is a musicians' gallery. The central features of the oval room is a large open fireplace, flanked by marble columns and beautiful bronze grill doors. The scheme of carving and decoration is striking and original.



POWER PLANT, HOTEL VANCOUVER, VANCOUVER, B.C.

Hotel Macdonald, Edmonton, Alberta

Latest Addition to The Grand Trunk Railway's Chain of Hotels

IN July, 1915, the Grand Trunk Railway System opened the third of a chain of hotels, which, when complete, will be a considerable factor in connection with the development of the Northwest territory and the city of Edmonton and vicinity in particular. Edmonton has quietly but speedily emerged from an outpost to a most important agricultural, mining and railroad centre; the agricultural and mining development have necessitated railroad development, and the certainty of the future has justified the Grand Trunk Pacific Development Company to undertake and complete the construction of one of the finest hotels on the continent, considering purpose and location.

The site chosen for the hotel is possibly unequaled anywhere in Western Canada, for it combines convenience to the business centre with a wonderful outlook over the valley of the Saskatchewan River. The building is located on MacDougall street, almost at the crossing of Jasper avenue, and directly opposite to the Edmonton Club. The building is planned in such a manner as to take full advantage of the view across and beyond the beautiful ravine of the river, which bounds the entire southerly exposure of the property.

The building architecturally is distinctly of the Chateau type, modified to suit its purpose as a modern hotel, and to take advantage of its unique and commanding views. The exterior is entirely of stone, the base of Stanstead granite, the superstructure of Indiana limestone, and roof of copper. The building is fireproof throughout, the frame being of steel, skeleton type, the floors of rein-

forced concrete and interior partitions of terracotta.

The main entrance has been placed at the corner of MacDougall street and a private thoroughfare, which has been widened sufficiently to provide a splendid outlook for rooms along the north side of the hotel. In order to take full advantage of the wonderful site, and at the same time provide the most pleasing approach from the city side of the building, the entrances have been set back some distance from the corner, and are approached through a large forecourt and covered loggia.

From this loggia access to the building can be had directly into the rotunda, or for the convenience of lady patrons, through a smaller entry leading directly into a ladies' reception room, with office and elevators adjoining.

From the rotunda a spacious corridor leads right and left, the former to the palm room, the latter to the cafe and main dining room, while midway along this corridor on either side is the coat room and the ante room, the latter leading to the buffet, barber shop and toilets.

Directly beyond the rotunda is the lounge, lighted by large segmental windows and doors leading to the broad terrace, from which a full magnificent

view of the river and the country beyond can be had. A portion of the MacDougall street facade on this floor is given to stores, which have direct communication with the hotel proper.

Between the ground floor and the first bedroom floor a mezzanine gallery provides space for ladies' parlor and drawing room, a banquet room, and a series of private dining rooms.

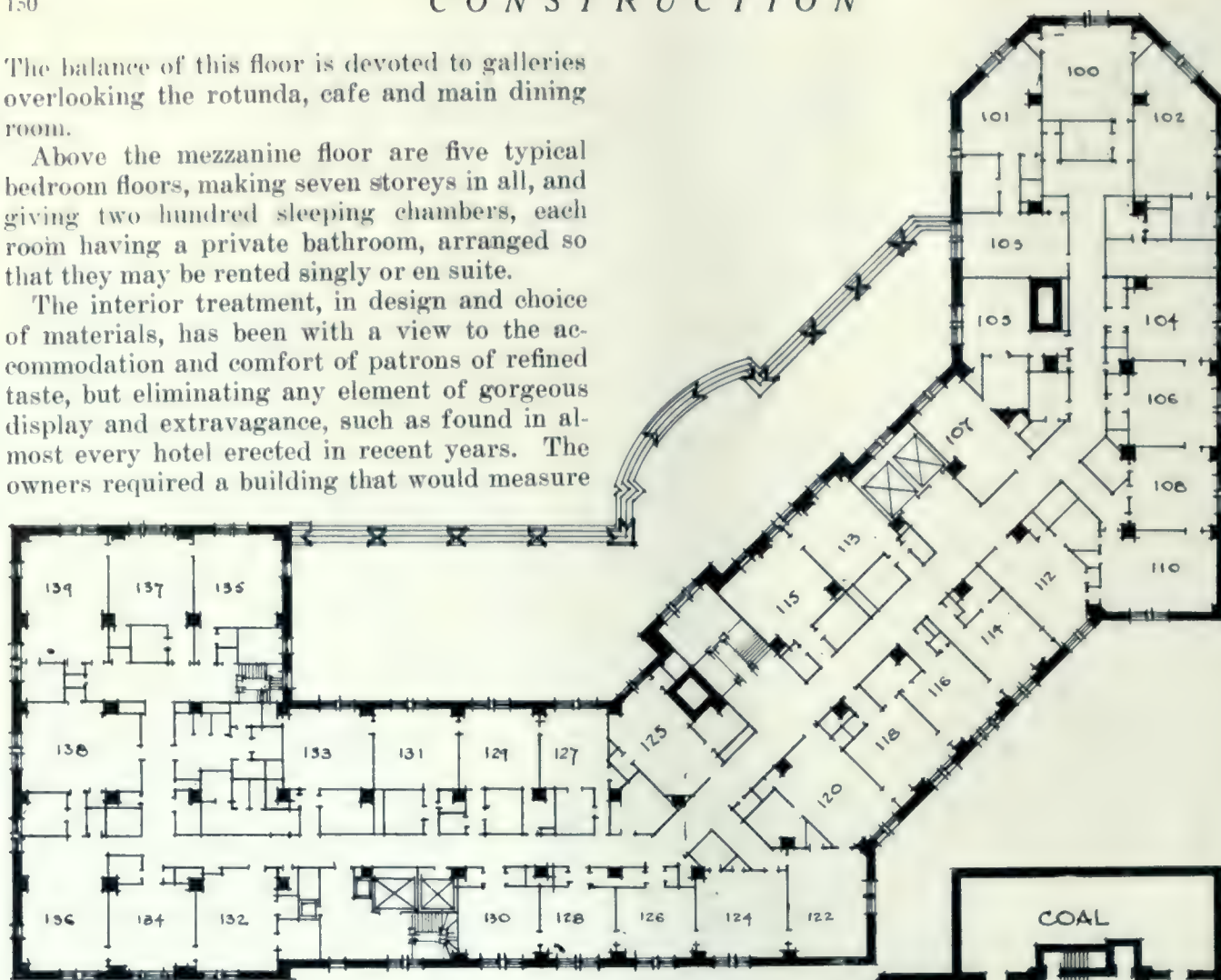


HOTEL MACDONALD, EDMONTON, ALBERTA,
SHOWING MAGNIFICENT LOCATION.

The balance of this floor is devoted to galleries overlooking the rotunda, cafe and main dining room.

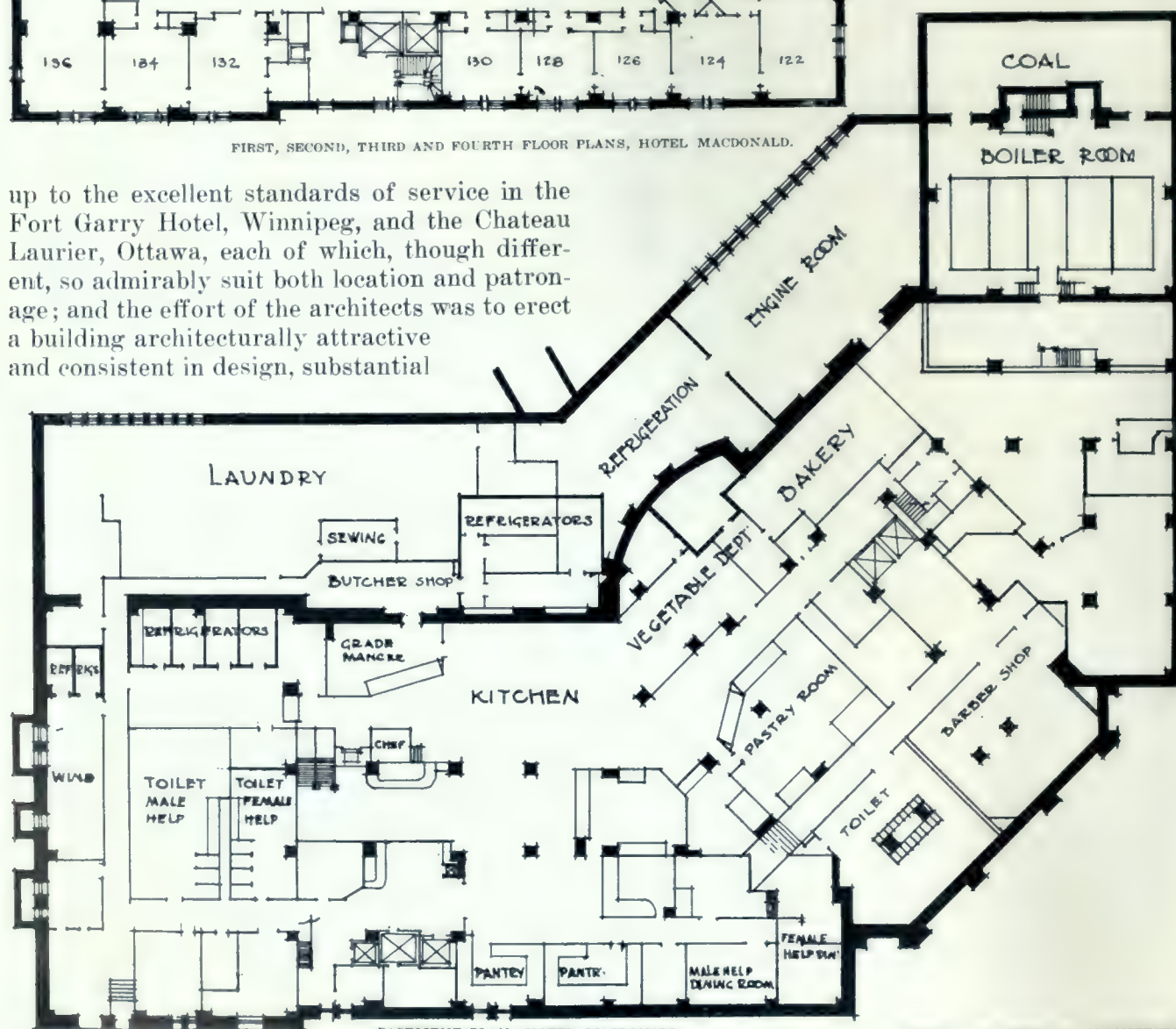
Above the mezzanine floor are five typical bedroom floors, making seven storeys in all, and giving two hundred sleeping chambers, each room having a private bathroom, arranged so that they may be rented singly or en suite.

The interior treatment, in design and choice of materials, has been with a view to the accommodation and comfort of patrons of refined taste, but eliminating any element of gorgeous display and extravagance, such as found in almost every hotel erected in recent years. The owners required a building that would measure



FIRST, SECOND, THIRD AND FOURTH FLOOR PLANS, HOTEL MACDONALD.

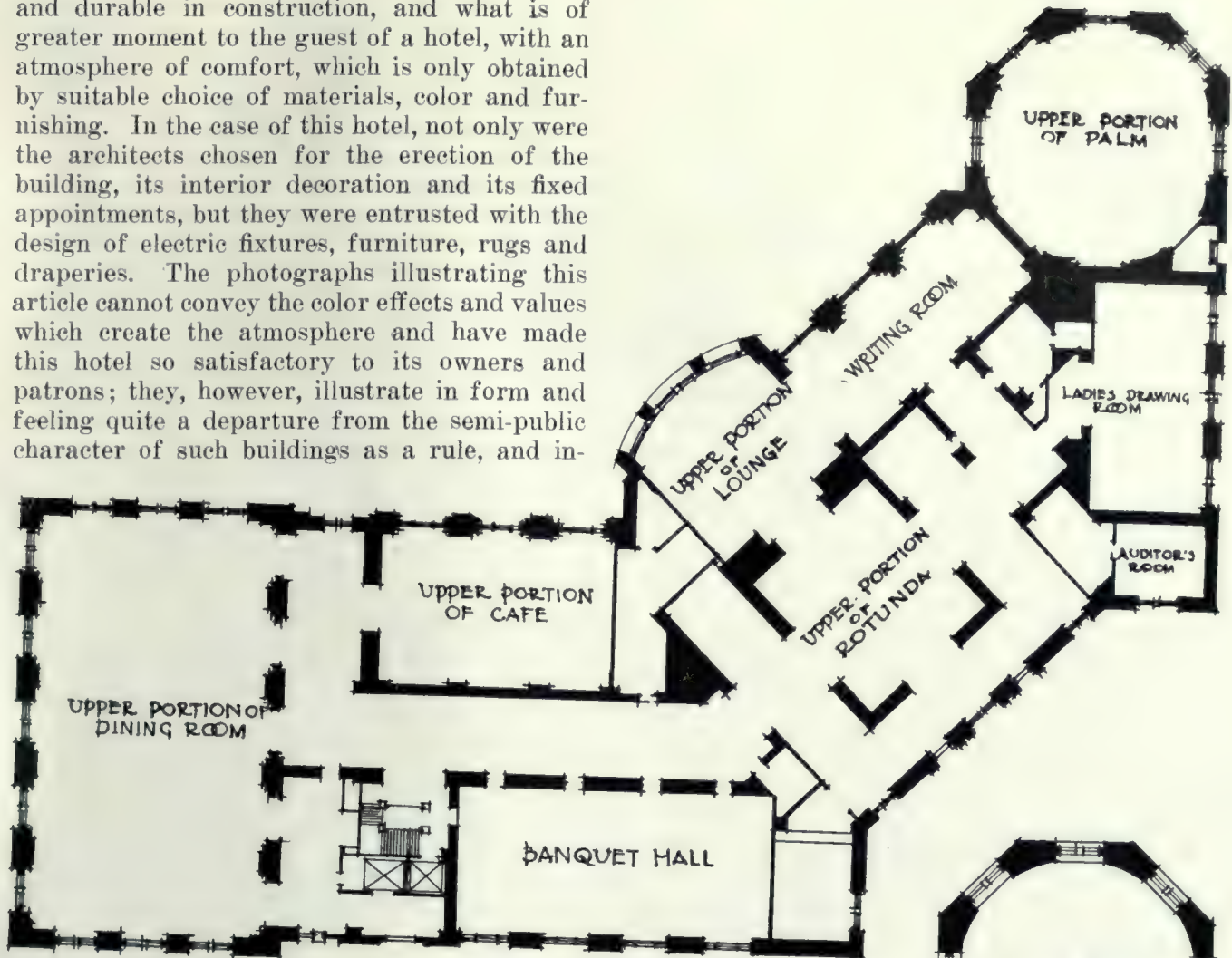
up to the excellent standards of service in the Fort Garry Hotel, Winnipeg, and the Chateau Laurier, Ottawa, each of which, though different, so admirably suit both location and patronage; and the effort of the architects was to erect a building architecturally attractive and consistent in design, substantial



BASEMENT PLAN, HOTEL MACDONALD.

ROSS & MACDONALD, ARCHITECTS.

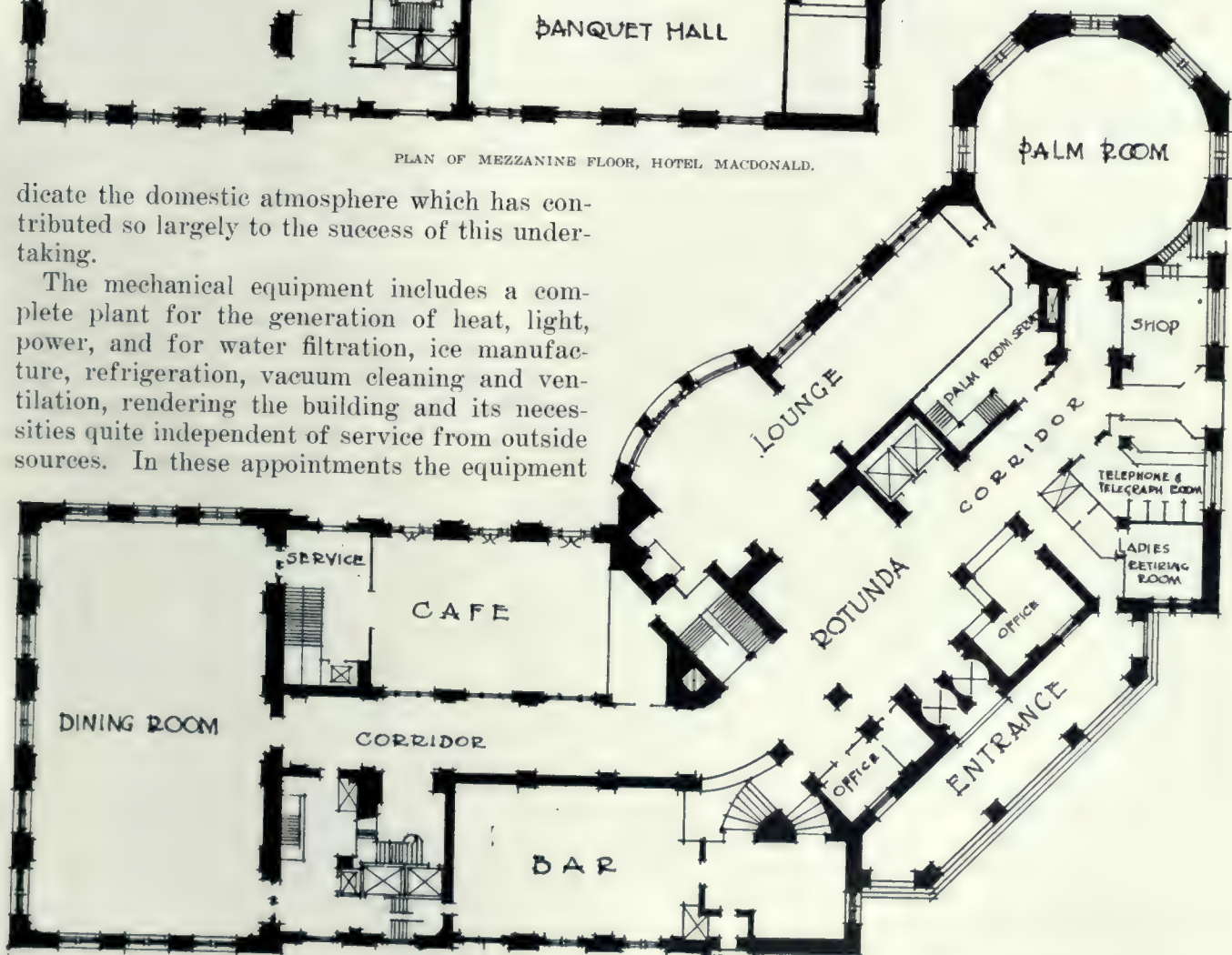
and durable in construction, and what is of greater moment to the guest of a hotel, with an atmosphere of comfort, which is only obtained by suitable choice of materials, color and furnishing. In the case of this hotel, not only were the architects chosen for the erection of the building, its interior decoration and its fixed appointments, but they were entrusted with the design of electric fixtures, furniture, rugs and draperies. The photographs illustrating this article cannot convey the color effects and values which create the atmosphere and have made this hotel so satisfactory to its owners and patrons; they, however, illustrate in form and feeling quite a departure from the semi-public character of such buildings as a rule, and in-



PLAN OF MEZZANINE FLOOR, HOTEL MACDONALD.

dicating the domestic atmosphere which has contributed so largely to the success of this undertaking.

The mechanical equipment includes a complete plant for the generation of heat, light, power, and for water filtration, ice manufacture, refrigeration, vacuum cleaning and ventilation, rendering the building and its necessities quite independent of service from outside sources. In these appointments the equipment



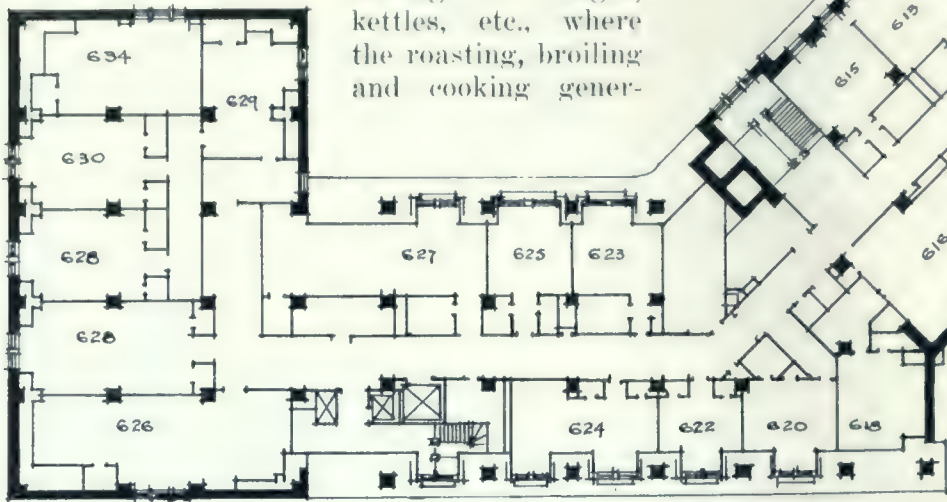
GROUND FLOOR PLAN, HOTEL MACDONALD.

ROSS & MACDONALD, ARCHITECTS.

is complete and installed with auxiliaries as stand by, thus affording protection against breakdown of any kind, and to facilitate speedy renewal and replacement of parts.

The kitchen is most conveniently placed with relation to the service requirements of the main dining room, cafe and palm room, all of which either separately or together, may be in commission and making simultaneous demand upon kitchen service. This department is well ventilated, furnished with the best equipment obtainable, and from the standpoint of efficiency and cleanliness cannot be surpassed. It includes rooms for silver, glass and dish washing, the still room with coffee, tea and hot water urns, egg boilers, toasters, etc., the main portion containing the ranges, kettles, etc., where the roasting, broiling and cooking gener-

connection with the operation of the hotel to the most delicate work entrusted to it by the most fastidious guest. Machine work and hand work, steam and mechanically operated dryers, and

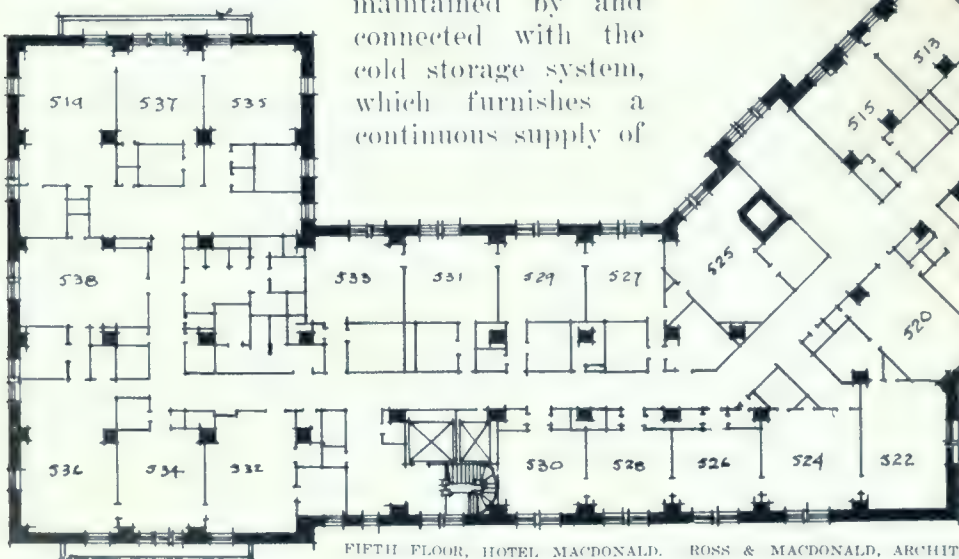


SIXTH FLOOR PLAN, HOTEL MACDONALD.

ally is done, the baking department for bread and pastry, the butcher shop and general stores.

Throughout the kitchen are refrigerators for meats, fish, oysters, milk and cream, butter and cheese, fruit, vegetables and ices; the whole maintained by and connected with the cold storage system, which furnishes a continuous supply of

every other necessary appointment to meet the fullest demand.



FIFTH FLOOR, HOTEL MACDONALD. ROSS & MACDONALD, ARCHITECTS.

cold brine throughout the kitchen and to other parts throughout the hotel where local refrigeration is required.

The laundry includes complete equipment for every class of work, from the heavy work in

of the site were taken advantage of. The building was erected and completed under the direction of the architects for the Grand Trunk Railway System, Ross & Macdonald, of Montreal and Toronto.

Floor plans showing the disposition and arrangement accompany this description and illustrate the means by which the peculiarities

The Engineer and Standards of Beauty

By G. R. G. CONWAY, C. E.

IN a recent address on "Idealism and Art in Engineering," Professor Marx, president of the American Society of Civil Engineers, asked this question: "Is it profitable to beautify engineering structures?" He goes on to say, "Here we stand before a momentous question. If the answer be given by the engineer, or by one who holds that the status of a people is determined not merely by the accumulated wealth of the nation, the quantity of goods produced, and of articles manufactured, then it will be in the positive, ten times over; but if the man of low ideals and mercenary motives gives answer it is likely to be an emphatic 'no.'" This answer has been given too often in our own country, and the blame for the deep scars in the face of Nature, the ugly dams and rugged cuts, must

ways remain beautiful, but beauty and the appreciation of beauty are inherent in ourselves. The creation of beautiful structures can only be attained by a full and true knowledge of the kind of materials used, and by certain subtle distinctions born of integrity of purpose and refinement in handling those materials. Ruskin's well-known aphorism, in which he defines "architecture as the art which so disposes and adorns the edifices raised by man, for whatsoever uses, that the sight of them may contribute to his mental health, power and pleasure," has a meaning for us as engineers.

THE ARCHITECT AND THE ENGINEER.

This is an age of specialization. That, of course, is an idle platitude, for no man can say



HOTEL MACDONALD, EDMONTON, ALTA. ROSS & MACDONALD, ARCHITECTS.

not be laid on the shoulders of the engineer who fain would heal with loving hand and protecting sword the wounds he has struck. Where broad-minded liberality and farseeing policy govern the construction of engineering works, as is the case in countries older than our own, these works stand as worthy art products of the spirit of the times, symbolical of the best and highest in the life of to-day."

The standards of beauty are enlarged with the growth of knowledge. Many of the works of the ancients are of great beauty, and will al-

to-day as Lord Bacon said, "I will take all knowledge to be my province." Even the most versatile engineer can attempt to master but one branch of his profession. In our own society we have among those directing the "great sources of power in Nature for the use and convenience of man," engineers engaged in bridge design, railroads, canals, hydraulics, water supply, and sewerage; electrical, mining, municipal, mechanical and chemical engineers; but in olden days the sister professions of engineering and architecture were practised in many cases by



ENTRANCE FROM TERRACE, HOTEL MACDONALD.

the same individual. Roman engineers, designers of the Claudian Aqueduct and the Pont du Gard, produced great engineering works, which are among the finest architectural remains of that great race, and in the Renaissance period were not such artists as Michelangelo, Leonardo da Vinci and Palladio great both in architecture and engineering? In mediæval ages bridges, churches, cathedrals and dwelling houses were designed under the supervision of the priests and clergy, but during the sixteenth and seventeenth centuries these supervisors of craftsmen became more interested in doctrinal controversies, and so both architectural and engineering problems passed from their control, and the new profession of the civil engineer arose, with such pioneers as Brindley, Smea-

ton, Telford and Rennie. *With the development of steam and all the discoveries of modern science and engineering the separation of the two professions became wider, but I think to-day there is a new spirit that is drawing them together again. The question, then, of the aesthetic treatment of engineering structures is to-day more fully appreciated by an enlarging circle, and it is one in which the engineer needs and desires the co-operation of the architect. This co-operation of the engineer and architect will have the effect of stimulating a healthy public interest in the need for great engineering structures being made as beautiful as possible. It has been said by a well-known engineer that if two designs are submitted to a board of directors, the one beautiful and the other ugly, the directors will always choose the ugly one, but this, I think, is untrue to-day, and many great corporations are setting a worthy example in encouraging the co-operation of the engineer and the architect.*

Why should not even the humblest railway station be a beautiful object? We no longer believe in Ruskin's fierce denunciation of railway stations, and in these days of constant travel the comfort and beauty of well-designed railway terminals are a delight to travelling man. Why

cannot we have beautiful designs for the buildings and chimneys of steam-power plants, for a water tower, for all our bridges, for service reservoirs, and valve houses? We should, though, in every case let these structures speak for themselves and express by their design their meaning, stating plainly, without pretension, what they represent. We do not want a railway terminal to look like a temple for the worship of Minerva, nor a steam plant chimney to resemble Cleopatra's needle.



WRITING ROOM, HOTEL MACDONALD.

BRIDGE DESIGN.

Probably most of the discussion upon this subject has arisen in connection with the design of bridges, and I have noted with pleasure recently the influential engineering press' stimulating thought in this direction. Let us, therefore, examine first the evolutionary changes in bridge design by referring to some old and modern types of bridges. The earliest method of crossing a river was, perhaps, by stepping stones, by logs thrown across the stream, or, where the span was wide, by a bridge of boats. It is, though, outside the scope of my paper to discuss the origin of the several types upon which all modern bridges are designed. Many beautiful bridges have been designed in wood. We have records of some of the earliest that combined great ingenuity with beauty, and to-day in Switzerland and Japan are many notable examples.

For two thousand years the engineer has been able to make masonry bridges beautiful, and although his opportunities in Canada for constructing such bridges are few, a study of the older designs is of great assistance in dealing with reinforced concrete structures, which are in our country taking the place of the cut-stone structures of Europe.

In the Pont du Gard, built by Agrippa, the son-in-law of Augustus, in 19 B.C., you will notice the grand combination produced by the form and proportion of the arches, and the varied effect of dressed and undressed masonry. In this structure, as well as in the Claudian Aqueduct, and the aqueduct at Tarragona in Spain, the engineering skill is remarkable, proving that the Romans were highly skilled in mechanics and hydraulics. In these structures we see the harmony of science and art, twin



BEDROOM AND BATH, HOTEL MACDONALD.

sisters who should never be separated, and the result stands to-day a triumph of fine building.

In the bridge of Augustus at Rimini the piers are very massive, equal in thickness to one-half of the arch openings. There still remain traces of decoration on the keystones and the ruined cornice indicates that the bridge was one of great beauty. Judging from its massive proportions it is probable that over the piers were elaborate architectural details combined with noble statuary. Structurally it is excellent engineering, and even now, after the lapse of nearly 2,000 years, can be seen the fine workmanship of the old masons.

In the Renaissance period in Italy we could select many types for illustration of beautiful bridges which were erected by architects and



BANQUET ROOM, HOTEL MACDONALD.



MAIN DINING ROOM, HOTEL MACDONALD, EDMONTON, ALBERTA. ROSS & MACDONALD, ARCHITECTS.

engineers. One of the best known, and one which well repays careful study, is Bartholomew Ammanati's famous bridge, which was rebuilt

in 1566-1569, called the Ponte della Trinata over the Arno at Florence. Ammanati's genius as an architect and sculptor is well known, and in this



THE LOUNGE, HOTEL MACDONALD, EDMONTON, ALBERTA. ROSS & MACDONALD, ARCHITECTS.

bridge we find careful study given to the engineering details that go to make up a successful structure. There are three spans, the centre ninety feet ten inches, and the two side spans eighty-seven feet seven inches. The arches are two parabolic curves meeting at a centre with a slight angle, which is obscured by an ornamental escutcheon. The arch ring is very heavily moulded, and the spandril panelled, a method which requires very careful treatment to prevent the scale of the design being lost.

During mediæval times many beautiful bridges were built in Great Britain, which are standing to-day more beautiful than ever with the "golden stain of time" upon them.

IRON AND STEEL STRUCTURES.

It is, however, when we come to consider the modern development of bridge building, and the introduction of iron and steel, that the æsthetic problems assume a different character from those of simple masonry structures. The development of the use of iron and steel in bridge building has been, to use Herbert Spencer's line of progress in organic evolution, "from simplicity to complexity of structure, and from obscure complexity to a defined simplicity of function." It is this simplicity of function which is the prevailing note of all well-designed steel structures. Michelangelo maintained that to an architect a knowledge of anatomy was essential. Can we not also say that to those who examine iron and steel structures from the purely æsthetic viewpoint a knowledge of the anatomy of a bridge is necessary, and an understanding of the relationship and the functions of all its separate parts? Metal bridges include the majority of all long-spanned arches. The longest single masonry span in existence is two hundred and ninety-five feet, and bridges of reinforced concrete have already been constructed with spans up to three hundred and twenty-five feet. The longest single steel span, as you all know, is that of the Quebec bridge, which is one thousand eight hundred feet. In such structures, therefore, the addition of ornament would be entirely false and foreign to the fundamental principle of their design, and its application, if done at all, could only be carried out consistently by a great increase of weight and sacrifice of economy.

The standard of æsthetic criticism to be adopted must depend, therefore, upon whether the most suitable application of the material used has been made, and when it is possible to select an optional design the choice must lie with the most beautiful outline consistent with economy. The sweeping condemnation of all iron and steel structures that has sometimes been made by artists and architects is due to a false and unfair appeal to standards, which, however true

they may be when applied to masonry bridges, cannot be applied to structures which have forms and functions of an entirely different nature.

The first consideration, therefore, in designing all engineering structures after the questions of strength and stability have been satisfied, is that the form of the structure should be determined essentially by the material of which it is composed, and should not copy in some strange fantastic form in some of its details the design of older forms of architectural ornament.

In a discussion which took place some sixteen or seventeen years ago at the Institution of Civil Engineers, Professor Pite said that as a practical designer he would like earnestly and heart-



THE CAFE, HOTEL MACDONAED.

ily to press home the fact that artistic simplicity would be achieved by disassociating from the mind all architectural phraseology, all architectural ornament, all architectural traditions, such fantasies as the curve and compound curve lines of beauty, and by aiming in metal bridge building at exactly the same beauty of workmanship, beauty of economy of material, beauty of accomplishment that please the mind in any form of mechanical effort. In that way engineers would keep clear of the changing whims of artistic fashion, keep clear in metal of the traditions of an architectural art of stone, of the traditions of an architectural art in wood, and work out in iron with its different qualities and



PARAPETS, PONT ALEXANDRE, PARIS. DESIGNED IN COLLABORATION WITH ARCHITECTS AND SCULPTORS.

stresses an æsthetic style based on the absolute scientific necessities of engineering practice, which would, without doubt, afford infinite satisfaction to generations to come.

The earliest attempt to build an iron bridge was made at Lyons in 1755. The arches were actually cast, but the attempt was abandoned as too costly, and the real introducers of iron in bridge building were two ironmasters, in Coalbrook Dale, Reynolds and Derby.

In many simple bridges constructed in Canada to-day to open highways in inaccessible places, a note of simplicity has often been successfully struck. As an example of this the suspension bridge over the Bulkley River at Hagwillgate, B.C., with the simple treatment of the suspension piers, is, I think, entirely satisfactory.

An example of the most perfect collaboration of the architect and engineer appears, I think, in the Pont Alexandre bridge at Paris. This is a three-hinge steel arch, and the whole structure is, to my mind, one of the most beautiful that has been built at any time. It is the work of two engineers, two architects, and two sculptors working in collaboration.

DAMS.

In the construction of dams for the storage of water, for city water supplies, power purposes, and irrigation works, many opportunities occur for the collaboration of architect and engineer. I remember that when the drawings were being prepared in the office of James

Mansergh for those wonderful dams in the Elam Valley for the supply of water for Birmingham, Mr. Mansergh asked Professor Pite and Sir Alfred East, the one an architect, the other an artist, to study the site and make suggestions to him upon their architectural treatment. The result is magnificent, and no one who has seen those works since their completion can fail to be impressed with the beautiful designs and their

fitness with the surroundings. In this case, and also in the case of the Vyrnwy Dam for the storage of water for Liverpool, the utilitarian work of the engineer has created a beauty spot accessible to tourists.

POWER HOUSES.

Canada, in proportion to her population, has in recent years made enormous strides in the development of water power, and from the Atlantic to the Pacific great developments have taken place. In the design of water power plants there is a great opportunity for the engineer to dignify his work by paying more attention to the design of power house buildings and their surroundings. Often these power plants are situated amidst magnificent scenery, and the only blots upon the landscape are the buildings and pipe lines. There are, of course, notable exceptions, such as the power houses at Niagara (on the Canadian side), where an attempt has been made to harmonize these plants



PONT ALEXANDRE, PARIS. EXAMPLE OF THE COLLABORATION OF ENGINEERS, ARCHITECTS AND SCULPTORS.

in such a way as not to detract from the beauty of the Falls. But too little consideration has been given so far by power companies to erection of buildings that will be a delight to the public. I am glad to note that the water power branch of the Department of the Interior has recently taken a great interest in this particular matter, and has been encouraging the idea by offering prizes for the best designs for proposed power houses on the Bow and Winnipeg Rivers. This is an excellent step forward, and I think when plans are forwarded to the Government department for approval the question of the design of power house exteriors should also be considered by the responsible officials. That the architect can successfully make a beautiful power house, even if constructed of reinforced concrete without other material, is shown, I think in the design of Lake Buntzen power house No. 2. This plant has been built upon a site visible for seven or eight miles on an arm of the sea that is a favorite yachting resort, and the design is an imposing one from every point of view, the simple lines and massive proportions harmonizing with the precipitous mountains in the background. This matter is largely in the hands of the engineer, who is not often hampered in his desire to produce a fine building, and in many cases by a careful study of proportions and the economical use of material, no extra cost will be incurred.



THE NEW GRAND CENTRAL RAILWAY STATION, NEW YORK. EXAMPLE OF COLLABORATION OF ENGINEERS AND ARCHITECTS.

MUNICIPAL WATER SUPPLIES.

In municipal water supplies many opportunities occur on a small scale for graceful treatment of such works as service reservoirs, water towers, aqueducts, etc. In Europe and many places in the United States there are numbers of fine works, showing that municipalities are becoming proud of their property, and while they are seeking to make them permanent, they are also attempting to make them beautiful.

RAILWAY TERMINALS.

In the design of railway terminals to-day it is the generally accepted practice for great railway corporations to employ architects to collaborate with the engineering staff; but often the architectural style adopted is a severely classic one, which does not seem to the engineer to be an expression of twentieth century railway progress. Perhaps some day, under the influence of the engineer, the architect will free him-

self from the traditions of archaeology and classic architecture, and give us a railway architecture that will be an expression of our modern spirit. Examples of the collaboration of the two professions may be seen in the Grand Central and Pennsylvania railway terminals of New York, the Union Terminal at Washington, D.C., and as you are aware, the collaboration of the



MAIN DAM OF THE ASHOKAN RESERVOIR, BROWN STATION, N.Y., LENGTH 1,000 FEET. SHOWS A STRUCTURE THAT REQUIRES NO ORNAMENT BUT CARE IN DESIGNING PARAPETS.

architect and engineer has been carried out in many of the terminals of the three great trans-continental railways in Canada.

MODERN STEEL FRAME AND REINFORCED CONCRETE BUILDINGS.

In the design of modern steel frame and reinforced concrete buildings the modern engineer and architect in Canada have in collaboration one of the most magnificent opportunities of evolving an architectural treatment of their structures unhampered by European traditions. We may, perhaps, criticise the architect for his neglect of a proper study of the main principles involved in the design of great buildings, as he is in danger of becoming merely the adorning or decorator of structures for which he is not primarily responsible. We feel, as I have already

engineers engaged in many different branches of the profession, and it would be well if we as engineers would cordially support and assist the efforts of the new Civic Improvement League in Canada, so as to make our cities healthier and more beautiful in the future.

I have already stated that the canons of beauty change with the advance of knowledge. Old George Herbert, in one of his beautiful poems, has said:

"Man is all symmetry.

Full of proportions, one limb to another,
And to all the world besides,

Each part may call the farthest brother."

So, too, in every well-designed engineering work, be it a bridge, a dam, or a steel building, each part has some duty to perform, some special dependence one part on another, and it is in the



CRAIG GOCH, FROM RIGHT BANK, WALES. DAM OF BIRMINGHAM WATER SUPPLY.

said, that the ornament on a building should accentuate and add to the beauty of its proportions, and in the complete design the architect and engineer should be in closest sympathy. To the engineer it seems incongruous to pile row on row of classic orders and details one on top of the other in the facade of a modern steel structure when there is an opportunity of maintaining the leading lines of the construction.

TOWN PLANNING.

In another field of activity there is great scope for the co-operation of the two professions, namely, that of town planning. The civic idea is a very ancient one, and has always dominated the progressive spirit of a great race, and in the creation of beautiful cities this cannot be accomplished by the landscape gardener or architect alone, but by the co-operation of en-

proper study of their functions alone that beautiful designs can be produced.

Our citizens should take a keener interest in their great public structures, and aspire to something beyond mere utility. Before we can expect them to do so we must consider our own attitude, and endeavor to educate the public so that the standards of taste and ideals are raised until art in its highest expression pervades every part of our civic and national life. We need a truer education of the public, and of those chief citizens whom the people, in their collective wisdom, send to represent them in council chambers and in the Legislature. As a result of such education we ourselves will create structures which will stand as permanent monuments of a people that endeavored not only to produce great works of utility, but works of beauty, in the service of man.

Some Elements of Smokeless Furnace Design

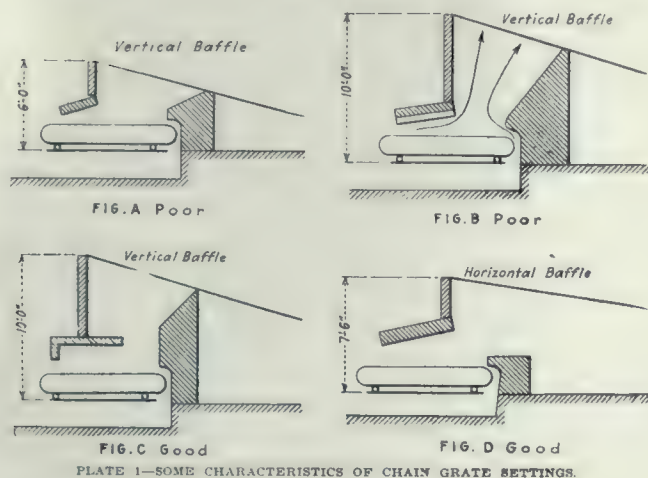
By OSBORN MONNETT.*

IT is the purpose of this paper to call attention to the characteristics of a few conventional settings which have been used in the past, and to point out ways in which they may be improved from a smoke standpoint for territories using high volatile, long flaming coal.

HIGH PRESSURE POWER BOILERS.

With the many types and shapes of boilers on the market to-day boiler practice gives opportunity for innumerable combination of stokers and furnaces. The type selected, either of boiler or furnace, does not have as much bearing on the smoke performance as does the manner in which the combination is put together. It is sometimes quite a problem to get a boiler and furnace connected in such a manner that both will have a chance to give the best results.

Chain Grate.—Plate 1, Fig. A, shows in out-



line an old type, chain-grate setting with a three and one-half feet ignition arch, the stoker being set under the boiler with a clearance of six feet from floor to front header. This setting is typical of the older practice in chain-grate setting, with low, short, flat arch, poor ignition and low capacity. Such an outfit cannot be considered smokeless when carrying any considerable load. The deadening effect of the bank of tubes is such as to extinguish the flame before combustion has become complete, in the same manner that a wire netting will kill the flame from a gas burner, the result being a great deal of smoke. While this setting gives very short flame travel, it must not be inferred that mere length of flame travel is always enough to insure a satisfactory setting. It has been found that on a long gas pass, unless some positive means are taken to cause a mixture, the gases frequently become stratified and do not

mix, in which case the combustion cannot be complete.

In Fig. B, Plate 1, the boiler has been raised to ten feet under the header; the ignition arch lengthened to five feet and set full extension. This allows more flame travel, but the setting still has some of the defects of the first one and is not good for high capacities. One of the principal defects is that the flow of rich volatile matter may pass into the bank of tubes in an uninterrupted current in the front part of the furnace, while most of the oxygen necessary to burn this volatile matter is passing in at the back part. There is a lack of mixture, and consequently incomplete combustion and low economy.

Fig. C, Plate 1, corrects the above defects by using a longer arch, setting the stoker farther under the boiler, decreasing the floor space occupied and narrowing up the furnace throat opening so that the volatile gases and air mix in a high temperature zone, which easily completes combustion on a ten-foot setting. Experiments have been made to determine the best throat opening for commercial use. Openings from eighteen inches to thirty-six inches have been tried with success, the smaller ones being high in maintenance; thirty inches is about the most satisfactory opening for all around use.

Another factor, which has had a marked effect on the performance of the later chain-grate settings, has been the height of the ignition arch at the gate; where eleven inches was formerly the standard height for a flat arch, it has now been increased to fifteen inches, and the slope of the arch has been increased to two inches or three inches per foot. Where the arch is sprung across the furnace, it is now set level, nine inches above the grate at the skewback, with a nine-inch spring, making eighteen inches in the centre of the arch.

For the horizontal baffle little need be said from the smoke standpoint, as this combination is always satisfactory. Fig. D, Plate 1, shows a setting with seven feet six inches head room, which can be considered ideal for a chain-grate. This dimension may vary considerably without affecting the performance. Six feet six inches may be considered the minimum head room allowable.

It sometimes happens that, with a tile-roof furnace and a low setting, the furnace gets so hot as to have a bad effect on the life of the brick work. This can be offset in many instances by baring the lower row of tubes, using T tile instead of box tile. This allows more

*Presented at a meeting of the Ohio Society of Mechanical, Electrical and Steam Engineers.

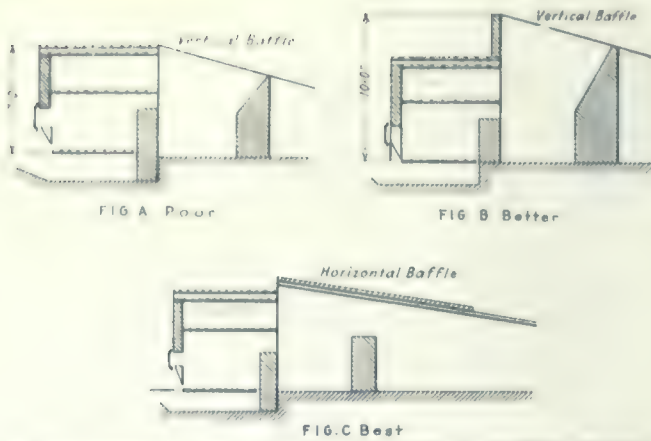


PLATE 2—DOUBLE INCLINED STOKERS AND HORIZONTAL WATER-TUBE BOILERS.

rapid heat absorption into the boiler, increasing the life of the brick work and resulting in a better operating furnace.

Double Inclined Stokers.—For the double inclined type of stoker the short length of flame, discharging directly into the bank of tubes, is undesirable when the fire is being worked. This type of setting is frequently found installed in a seven-foot head room, as in Fig. A, Plate 2. The human element enters strongly into the matter with such a setting, owing to the possibility of having considerable volatile matter pass off rapidly through carelessness. With a case of this kind it is better to set the boiler with a clearance of ten feet, as in B, giving more opportunity for the gases to complete their combustion. One of the safest arrangements is to provide a tile-roof setting with an auxiliary bridge wall, Plate 2, Fig. C, breaking up the current of gases and insuring the mixture of any excess amount of volatile matter which may pass off for any cause whatever. The importance of setting this type of furnace with maximum flame travel is not always realized.

In Plate 3, two different types of boilers are shown with good and bad combustion of double inclined furnaces. It is a safe rule to get a full extension on this type of furnace and never resort to the flush front setting. In the case of Fig. A, Plate 3, the defect of short flame travel is corrected by providing a five-foot dog-house extension between the boiler and furnace and by raising the boiler to get the full benefit of the heating surface as shown in Fig. B. Typical Stirling settings are shown in C and D with flush front and full extension furnaces.

Front Feed Stokers.—With the front-feed stoker the same practice should be observed as regards flame travel. A clearance of seven feet is not sufficient to get good results with this type of stoker and vertically baffled, water-tube boilers. A very much improved furnace can be obtained by using a head room of ten feet, as in Fig. B, Plate 4, a combination resulting very satisfactorily from every standpoint. This design also gives an opportunity for employing a vertical bridge wall, which is nearly always

found to be a desirable feature wherever it can be used, as the radiating surface of the hot brick helps to keep the gases hot as they pass out of the furnace.

With a horizontal baffle it is a simple matter to combine this type of stoker successfully. Sufficient head room only is required to get the stoker under the front header. If this cannot be secured in the head room available, it does not alter the effectiveness of the design to excavate as shown in Fig. C. Sometimes piers, or deflection arches, are used with this setting to break up the current of gases. Where a free opening in such a setting does not go below fifty per cent. of the grate surface of the stoker, such construction is desirable. On a vertical boiler always get the maximum extension possible within reason.

Underfeed Stokers.—Underfeed stokers of different types require different head rooms. See Plate 5. The Jones and American types can give excellent results with a head room of eight feet six inches for a vertically baffled boiler, Fig. B, and seven feet for a horizontally baffled boiler. In the case of the former the effort should be to provide enough flame travel to minimize the danger of unconsumed volatile matter passing into the bank tubes.

In the case of tubular boilers the above named types of stokers can be installed with forty-two inches from the dead plate to the shell, Fig. C, and the combination will result in a satisfactory performance. With stokers of the Taylor type, Fig. D, a ten-foot clearance under the front header makes an ideal combination.

Hand-Fired Settings.—One of the most common types of boiler setting encountered is the ordinary hand-fired, return-tubular setting, such as is indicated in Fig. A, Plate 6. In this setting there is no attempt made to accomplish a mixture of the gases after they have passed the bridge wall. The setting, while fairly efficient commercially, is very smoky with high volatile coal, and many attempts have been made to im-

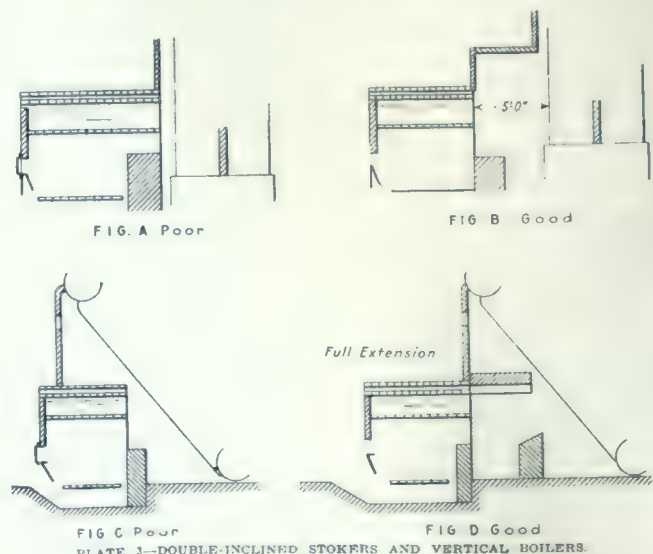


PLATE 3—DOUBLE INCLINED STOKERS AND VERTICAL BOILERS.

prove it. Fig. B, Plate 6, shows a full-extension, Dutch-oven setting, by which it was attempted to improve the plain, hand-firing setting. From a smoke standpoint the Dutch-oven setting is a poor combination. Contrary to stoker practice where the fuel is introduced slowly and in small quantities, there is a considerable quantity of coal thrown on the fire at once. The strong radiation from the brick work above the fire has the effect of distilling the gases so rapidly that puffs of dense smoke will be made after firing in spite of every effort to prevent them. Fig. C, Plate 6, shows how to correct this defect by baring the shell to the direct radiation of the fire. This increases the steaming capacity and provides a high temperature zone back of the bridge wall where the gases must mix positively against the deflection arch, which breaks up the stratification and so promotes combustion.

It is not practical to combine a hand-fired, coal-burning furnace with a vertically baffled, water-tube boiler, but it is a simple matter to arrange such a furnace with a horizontal baffle, carrying out the same idea as in Fig. C. The ordinary hand-fired, horizontally-baffled, water-tube boiler furnace is covered with box tile and has nearly all the defects of the Dutch-oven shown in Fig. B, as it is practically a fire-brick enclosed furnace from which the volatile gases will be distilled at a very rapid rate. Fig. D indicates how this can be overcome. The changes indicated are, first, baring the first two rows of tubes over the fire by putting T tile on the second row, thereby avoiding the radiating effect of a mass of fire brick; second, installing a two-span deflection arch to break up the current of gases, as in the case of the return tubular boiler. In both of these furnaces a few simple proportions should be carried out to insure satisfactory results. There should be from twenty to twenty-five per cent. of the grate surface in free opening above the bridge wall. The free opening from the back of the bridge wall to the deflection arch should not be less than forty per

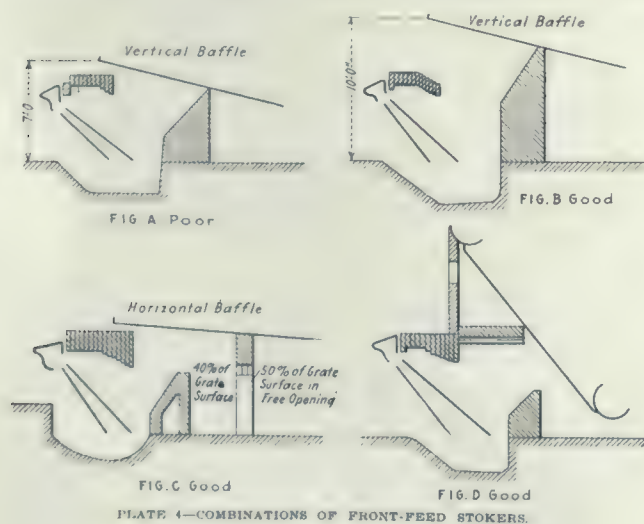


PLATE 4—COMBINATIONS OF FRONT-FEED STOKERS.

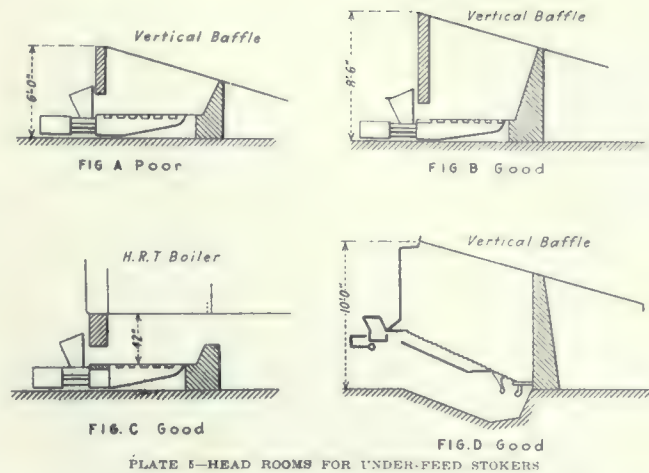


PLATE 5—HEAD ROOMS FOR UNDER-FEED STOKERS

cent. of the grate surface, while the free opening under the deflection arch should be fifty per cent. of the grate surface. Hand-fired furnaces for high pressure work should be fitted with four air-syphon steam jets, spaced across the furnace above the fire doors, to be used when necessary.

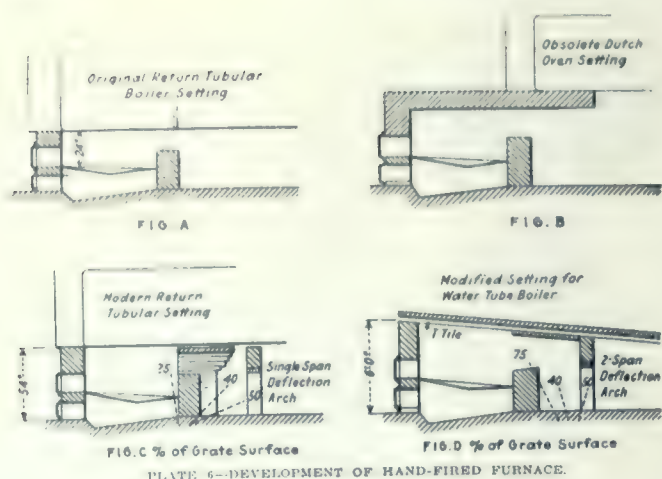
LOW PRESSURE HEATING PLANTS.

The foregoing discussion has been with reference to high pressure power work. The low pressure heating plant presents a problem that in some respects is more difficult than any encountered in high pressure work. The plants are not ordinarily large enough to justify stokers, and, even if such was the case, the character of the attendance is not such as would do justice to the equipment. The temperatures are lower and no steam is available for steam jets or for power to drive apparatus. With such conditions as these to meet it has been found that the down draft principle works out very well.

A little study will show why this is so. The danger of making smoke on a down draft furnace comes from getting green coal on the lower grate, so the longer the fire can remain undisturbed the less chance of making smoke. The rate of combustion on heating loads is low, and allows for long periods during which the fires are not disturbed and no smoke is made. During these undisturbed periods there is accumulating on the water grate a thick bed of coked coal, which, when sliced down to the lower grate, does not make smoke because the volatile matter has all been distilled off. After slicing, the fire can be heavily charged with fresh coal, without disturbing the fuel bed and consequently without causing smoke. It is then in shape for another long undisturbed period.

Another advantage of the down draft principle on heating loads comes from the fact that although the rate of combustion may be at times extremely low, yet the water element directly in the fire furnishes a proportionate amount of steam no matter how low the combustion; so the system is more responsive than would be possible with a plain grate boiler.

The down draft principle can be applied to re-



turn tubular or water tube boilers in the larger units. In these units it is advisable to spring an arch in the path of the gas as shown in Figs. A and B, Plate 7. As the rate of combustion on these large units at times approximates power conditions, it is desirable to guard against any excessive amount of volatile matter, which might pass over during these periods, by breaking up the current of gases and giving them an opportunity to burn.

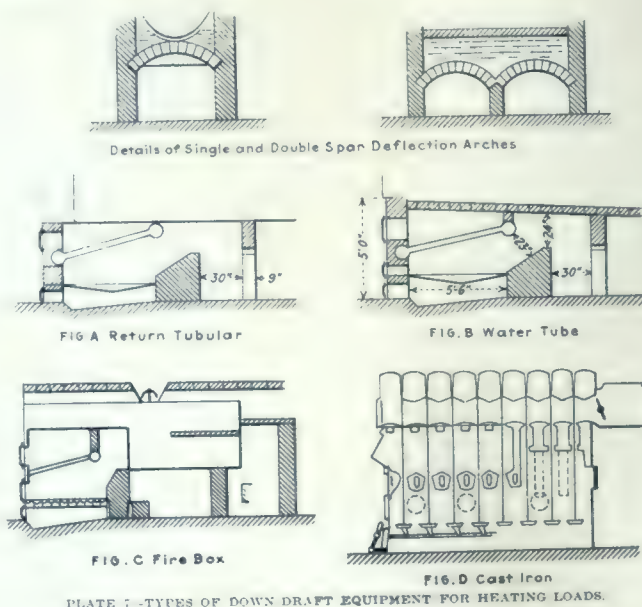
For small units there has been developed in the past few years a number of types of self-contained, steel and cast-iron boilers embodying the down draft principle. In the former type the water element consists of water tubes or pipes extended into headers in the ordinary manner and located in the fire box of a locomotive-type boiler. In the cast-iron, down draft type the water element is cast integrally with each section, forming the upper grate, the shape of the elements being such as to facilitate the slicing of coked coal down to the lower grate without disturbing the main body of fuel before the volatile matter has been distilled from it. This type is made in sizes up to ten thousand square feet of radiation in one unit, and can be installed several in a battery.

In conclusion, I wish to call attention to the necessity of being in possession of all the facts before attempting to work out any given smoke problem. There are so many variables, such as head room, floor space, character of attendants, fuel, etc., to be taken into consideration that each job requires careful study before any recommendation can be made. When proper attention is given to the matter there is no question but what an installation can be obtained which will meet the local conditions.

GREEK ART

Professor Harrower recently delivered a lecture on the "Unity of Greek Art" at the Aberdeen Architectural Association, in the course of which he stated that anyone desirous of illustrating all the unifying influences of the art of

the Greeks would naturally choose sculpture, but some characteristics were presented even more clearly in their architecture, such as clarity, lucidity, balance, simplicity, harmony and proportion, as well as strong conservatism, organic growth, and the discouragement of chaotic individualism, and, above all, the appeal to sense and intellect rather than to emotion. All these qualities were to be found in Greek literature, and it was not too much to say that the fundamental principles of Sophoclean tragedy took concrete form in the Parthenon. Greek theorists did not regard architecture as one of the fine arts, for it was not mimetic and did not represent anything, least of all that which the Greeks considered as the proper object of artistic representation, the human form and the human spirit. Plato united architecture with music as possessing an ethical value and influence. It was a common Greek belief that a man could ruin himself body and soul by bad music as surely as by drunkenness or any other vice. Professor Harrower went on to say that he himself was insensitive to architecture, and if any architect chose to put two hopelessly degraded copies of the Choragic monument of Lysicrates one above the other to form a tower, he did not gnash his teeth, but supposed it was classic and right! Not the least entertaining suggestion of a clever paper was the reference to Mr. Andrew Carnegie, who said they would not find one ennobling thought in Homer's barbarisms. "This criticism," the professor said, "should be listened to with the respect due to Mr. Carnegie's well-known critical eminence and fine literary taste." Such addresses, though they convey little fact, are useful and illuminating to the architectural student, showing as they do the range of mental images which is only possessed by those whose education is not bounded by the limits of their calling.



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CONTRIBUTIONS.—The Editor will be glad to consider contributions dealing with matters of general interest to the readers of this Journal. When payment is desired, this fact should be stated. We are always glad to receive the loan of photographs and plans of interesting Canadian work. The originals will be carefully preserved and duly returned.

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FRASER S. KEITH - - - EDITOR AND MANAGER

Vol. IX Toronto, May, 1916 No. 5

CANADIAN HOTELS

Canada owes much to the great railway corporations in establishing a system of hotels that, for appearance and comfort, are not surpassed anywhere in the world. The two most recent additions to this group, the Hotel Vancouver at Vancouver, B.C., and the Hotel MacDonald at Edmonton, which are featured in this issue, are not only noteworthy examples of the architecture of the country, but exemplify in a striking manner the faith of the railway companies in our Canadian West. They have both been built at a period when in most lines, both on the Prairies and in British Columbia, development was at a standstill. There is no doubt but that the early future, if not the immediate present, will amply justify the enterprise displayed in the erection of these two superior structures.

ARCHITECTS AND ENGINEERS IN COLLABORATION

The article in this issue by Mr. G. R. G. Conway, entitled "The Engineer and Standards of Beauty," is of more than passing interest to all

architects and engineers, and strikes a chord that reaches the very heart of a situation that calls for consideration and action. In this article the author makes a plea for closer co-operation between these two important professions and points out a number of notable achievements the result of the collaboration of the architect and the engineer. It is a lamentable fact that many engineering structures possess a degree of ugliness that make them an eyesore to the neighborhood in which they are situated, and which would not have been erected had the services of an architect been secured to act in conjunction with the engineer. That the two professions can work in close harmony and sympathy are exemplified in the Grand Central and Pennsylvania railway terminals in New York, and the Woolworth building of the same city, and in Canada by the Birks building in Vancouver and the Lake Buntzen power house, to which might be added other examples showing conclusively that this procedure is the proper one to follow. This question was discussed by Professor W. R. Lethaby, F.R.I.B.A., in an address, which shows the extreme attitude of the architect towards the engineer, in which he says in part "I feel strongly that the engineer and the architect are clearly called to the reform of one another. Perhaps as the more pleasant side of the dual problem we may speak of the reform of the engineer first. Now, it seems to me that there is a scientific cant about which is every whit as harmful as artistic cant. The engineer seems to take it for granted that his is the high destiny to make the world hideous. He stands above human considerations; the powers with which he deals have 'come to stay,' and so on. As far as we can see he looks forward to a time when England shall be like Clapham Junction all over. He does not seem to stop to inquire whether it be desirable or not, nor, having made up his mind that it is desirable, does he stand on the order of his doing. He loves to run at odd angles, to wriggle about as in the tube passages, to strap girder to girder, and trig and hitch them up in the most (it seems to a mere architect) shabby and awkward way he can think of. Witness the wonderful air tubes lately added to the train tubes. It is all haphazard.

On the other hand, the average engineer is apt to look upon the architect as an idealist, whose first requirement is appearance, utility being a secondary consideration. These viewpoints show that there is ample room for a better understanding between the architect and the engineer. It is obvious that by working one with the other they can achieve results which neither one could alone, enriching both architecture and engineering, and producing examples of construction which will be highly efficient and have every requirement as to appearance that may be desired.

Architectural Digest

Articles of More Than Passing Interest From Our Contemporaries

LIVING ART.

A review of the great architectural periods of history reveals a fact which we believe is frequently lost sight of now, and which partially accounts for the poverty of the architectural results which distinguish the work of the present day. In the past the architect, whether in the form of a master mason or master craftsman of mediæval times, or in that of the architects of the early Renaissance period, trained in a bottega and familiar with the allied arts, both in practice and theory, may be said to have held the view that art was one and indivisible. We cannot imagine the designers of the great works of mediæval France employing sculpture as an accessory feature; they were rather working, in conjunction with the imagers, to create a masterpiece by the means of the common fund of skill, which was the heritage of the craftsmen of the day.

The Mediæval cathedral and the mediæval bridge were alike the expression of the greatest engineering knowledge of the age; in fact, it is very questionable whether, given stone alone as a means of structure, the most skilful modern engineer could produce anything more scientific than the vaults and supports of Reims, Amiens, and Beauvais, or more intricate than Henry VII.'s Chapel. The mediæval builders a the culmination of the Gothic period, whether we call them master masons, architects, imagers, or sculptors, put the whole knowledge and skill of the times into the solution of the problems before them, with the result that the buildings erected surpass those of later ages in unity of conception and the expression of power.

The Greeks consciously limited their constructive problems, which were neither complicated nor difficult; but their architecture, divorced from its sculptural accessories, would be incomplete compared with the results which were produced. The Greek temple without its sculptured pediment would never have impressed the world with the sense of matchless perfection which we admire, nor can there be a doubt that the exponents of the two arts worked side by side in absolute co-operation and understanding of each other's objects.

In Egyptian architecture it is painting rather than sculpture which was called to the aid of architecture, but the pages of Champollion show how much the Egyptian painters added to the meaning of architecture, and how completely the two arts were interdependent on one another; and in the days of the Renaissance we see the added effect given to architecture by the men who more thoroughly than any other understood the correlation and interdependence of the arts. In the case of Alfred Stevens we see how the systematic study of the three arts enabled a man who lived in a nadir of European artistic history to produce a work such as the Wellington Memorial, in which we have the expression of architectural and sculptural art as one indivisible unit, not as accessory additions to one another; whereas now architect and sculptor pursue their ways independently, calling upon each other's help when the essential lines of structure are too far advanced to permit the combined expression of art as a whole. So in our bridge building the architect is eliminated except in a subordinate capacity, in which he is called in to tone down mistakes which are ineradicable and which absolutely mar a whole conception. It is difficult in the complexity and specialisation of our modern life to suggest an adequate remedy. Few of our architects have the means or the enthusiasm and love for art which can replace means to follow in the steps of Stevens and give the best years of their lives, not to gaining connection and clients, but to acquiring such a knowledge of art as a whole as will enable them to deal with its greater problems; nor, it must be added, could many achieve the results produced of a great genius like Stevens; though, on the other hand, we doubt not that if forty architectural students followed in his footsteps year by year the whole history of modern English architecture would be revolutionized.

The other alternative seems to require specialization in the direction of effort and determination to seek fortune along certain considered lines, and involves the architect whose bent is to undertake the solution of great constructional problems like bridge building, factory and warehouse construction, and railway architecture, associating himself not with another architect but with an engineer. No man can call in and work in perfect harmony with an expert in another calling—which is what satisfactory design necessitates; but if he undertakes his life work in partnership with such a man the two will learn to understand each other's principles and will know exactly where and how they can best employ their joint efforts. In the same way the architect who seeks his fortune in the direction of the solution of monumental design would be immensely aided by working in partnership with a sculptor, a painter, or with both: it is, we feel, in some such manner alone that we can again produce living art. Mr. T. P. Bennett, A.R.I.B.A., has written a useful little book entitled "The Relation of Sculpture to Architecture" which should serve a useful purpose in calling attention to a very important subject which is little understood. The greater architectural success of modern French work is due not alone to the better education acquired by the average French architect, but also to the recognition that architect and sculptor should understand the principles of each other's arts and work together for a common end. The design of the modern French monument is the result of the closeness of this co-operation, and in many cases they are worthy successors of the great works of the Renaissance; whereas in this country if all the monuments erected during last century could be swept away we should be gainers and not losers on a balance.

But no manuals for the architect can enable him to dispense with the personal co-operation of the sculptor, and it may be suggested that if our students spent a year or a year and a half studying side by side with sculptors in the schools they would fully understand this themselves. It is only the uninitiated and the ignorant who will ever underrate the complexity and intricacy of the problems of another art or imagine that in their own person they can ever be absolute arbiters in matters of

aesthetics. The genius of Stevens, stimulated by years of training, enabled him to design and carry out a great monument which belongs to architectural and sculptural art alike; but the training he had would not have enabled him to cope with a practical problem without a further long period of apprenticeship. Our work must always be undertaken with a knowledge that we are handicapped by the short span of human life, that limitation which prevented the genius of Stevens from being of the service, it might have been to humanity and art.

Only the co-operation and understanding can we emulate the work of the artists of the past, which was the result of the collective work of artists in different types; only in that way can living art be produced and the sum of beauty increased in spite of the eternal truth of the saying, "Ars longa, vita brevis est."—"The Builder."

IMPORTANCE OF LINSEED OIL.

Of all the materials which obtain mention in an architect's specification there are few that receive so little attention in the supervision of work in execution as linseed oil. Specifications too often require that all the paint is to be mixed with "best linseed oil." Others, whose authors are acquainted with the fact that in the trade "best" linseed oil is not the highest quality, stipulate that "genuine" linseed oil is to be used. As very much of the satisfaction of an architect's clients is affected by the behavior of the paint, it seems worth while to give some further consideration to the humble and neglected component, linseed oil.

There are few branches of the building trade in which indifferent and scamped work are more prevalent than the painter's, and much of the difference between good and bad work is due to the great variations in quality, and hence in durability, of paint that are possible in the vehicle. These variations are due, first, to the nature of the raw material from which the oil is expressed; second, to numerous alternatives that may be adopted in the preparation; third, to the degree of purity that is to be found in the finished product.

The property which gives linseed oil its special value as a vehicle in paint is that when exposed to the air it gradually dries and hardens into a solid substance, more or less transparent, somewhat elastic, and insoluble in water. This drying and hardening is the result of absorption from the atmosphere of a large quantity of oxygen, forming a body known as linoxyn, the final oxidation product of linseed oil when exposed to the air. The criterion of quality as a component of paint distinguishing various specimens of oil may be stated as the relative proportion of oxygen that each will absorb.

The raw material from which linseed oil is expressed is the seed of the flax plant, and the quality of the oil depends in the first instance on the source from which the seed is obtained. Baltic seed comes from Riga and other ports on the Baltic coast of Russia, and is the seed of flax grown in the north of Russia; Black Sea seed comes from Odessa and other ports on the Black Sea and is grown in the south of Russia; American seed comes chiefly from the Argentine, and East India seed is exported from Calcutta and Bombay. The relative excellence of the oil obtained from these sources is denoted by the number of cubic centimetres of oxygen absorbed by one gramme of each, which is given as: Baltic oil, 191; Black Sea oil, 186; American oil, 156; East Indian (Bombay), 130; Calcutta, 126.

The seed as imported is seldom free from dirt and other seeds, such as those of hemp and rape, the oils from which are very inferior in drying property to linseed. These seeds are usually smaller than linseed, and can therefore be separated by sieving, and the first variant of quality, due to manufacture, depends upon the thoroughness of this preliminary operation.

Oil is obtained from the seed by crushing and pressing, and in these operations there are again variations which affect the quality of the oil. The very best is the result of crushing and pressing cold, but commercial oil is nowadays practically always prepared by hot pressing, which is far more economical and secures a more thorough expression, though the oil contains a much larger proportion of mucilaginous matter, chlorophyll, etc., which impair its quality. Two systems of oil extraction are used, the English and the Anglo-American. These do not differ greatly, and their results do not materially vary in quality.

The oil, as it comes from the press, is known as raw or unrefined linseed oil. It is not clear and bright, but cloudy, and contains impurities detrimental to its employment as a paint component, and these must therefore be removed as far as possible to produce "refined linseed oil." Refining formerly was effected by exposing the oil to sunlight for some months in glass vessels or shallow tanks; but this method is slow and costly, and for commercial oil is now superseded by treatment with heat and sulphuric acid. The sun-refined oil is, however, undoubtedly much superior in quality, and for picture-painting should always be preferred.

High as is the capacity of raw linseed oil in its pure and natural state for drying by the absorption of oxygen, this capability can be increased by heating the oil to a temperature of 400 deg. to 500 deg. F. for a few hours, and still further by the addition of certain bodies known as "driers." Oil thus treated is described as boiled linseed oil. The boiling may be effected by direct action of fire upon the containing vessel or by steam heating, or boiled oil can be produced by chemical process, aided by moderate heat and the injection of air. By whatever method it is produced, boiled oil is thicker and dries more rapidly than raw oil to a hard, lustrous coat. It is, however, usually darker in color, and the extent of the darkening is in the fire-heating process determined by the degree of temperature and time expended on the operation. As for painter's use a light-colored oil is usually preferable, the alternative methods have been introduced with the object of attaining this desideratum. A very satisfactory pale, quick-drying oil can be pro-

duced by the action of concentrated actinic light from Uviol lamps on raw oil kept at a temperature of about 180 deg. F. whilst oxygen is passed through it in a fine stream. For the manufacture of enamel paints a very much thickened oil is prepared by keeping the raw linseed oil at a high temperature for a considerable time in the presence of air, but without the addition of driers—i.e., by boiling to excess, so to speak.

It will thus be seen that there are in the manufacture of linseed oil, whether raw or boiled, many operations which may be more or less carefully and skilfully performed, as well as variant methods which affect the result, so that manufacture as well as raw material is a determining factor of ultimate quality. In the preliminary process of manufacture it was shown that incomplete cleansing of the seed might entail the presence of inferior oils in the finished product. We are, however, subject to the possibility of inferior oils being also added as adulterants. Boiled oil is in addition open to substitution of many varied mixtures, some of which nearly approach good genuine oil in quality, though the majority are very inferior.

Adulterants of linseed oil are chiefly mineral and rosin oils. The latter is particularly objectionable by reason of a peculiar feature in its drying properties. It dries, but in the course of a few weeks the coat becomes soft and tacky again, and even if rosin oil is used for a bottom coat and good linseed oil paint laid over it, the defect will make itself apparent. As the drying oils are highly complex organic substances, and their value as components of paint depends upon certain ill-defined and little understood properties, accurate valuation is a matter of some difficulty, and only to be attempted by expert oil chemists.

A simple test for the presence of rosin or of mineral oils in either raw or boiled linseed oil is to boil a small quantity with an alcoholic solution of caustic potash until it is completely saponified, then pour the solution into water; if the oil be pure, a clear mixture will be obtained; if it contains either of the oils named, it will be cloudy and turbid.

The flash point is also a good test for detecting the adulteration of linseed oil with mineral or rosin oils. Linseed oil, whether raw or boiled, flashes at about 570 deg. F. Mineral oils, such as are used for its adulteration, flash at from 380 deg. to 420 deg. F., and rosin oil at from 300 deg. to 330 deg. F.

As the value of an oil for use in paint depends very largely upon the extent to which it can absorb oxygen, it is fortunate that this can be determined by the amount of bromine or iodine that will combine with the oil to form derivatives, and this amount is expressed by what is termed the iodine value. This for linseed oil is 173-200, that of rosin oil is 28, and of mineral oil practically nil, whilst hemp, rape and other usual accidental adulterants of lesser drying quality all have lower figures than linseed. If, therefore, a sample of drying oil has a low iodine value, it indicates a poor quality or adulteration with non-drying oil.—The Architect.

PERSONAL.

E. R. Beckwith, architect, Kingston, Ont., is about to leave for England for a visit of a few months.

C. L. Gibbs, architect, of Edmonton, Alta., has enlisted and will go overseas with the University of Alberta Company.

Messrs. Leonard Foulds and A. B. Bowes, structural and civil engineers, are now located in their new office, 166 Bay street, Toronto.

W. J. T. Wright, formerly of Wright & Howard, consulting engineers, 121 Simcoe street, is now Senior Lieutenant of the 67th Overseas Depot Battery.

Messrs. Wm. Steele Sons Co., Philadelphia, Pa., architects and engineers, have opened a Canadian office in the Ryrie Building, Yonge and Shuter streets, Toronto.

The office of Eustace G. Bird, architect, formerly in the Bank of Toronto Building, is now located in the Grand Trunk Building, corner of King and Yonge streets, Toronto.

John T. Howard, formerly of Wright and Howard, consulting engineers, 121 Simcoe street, is now with the firm of James, Loudon & Hertzberg, Excelsior Life Building, Toronto.

Captain Hertzberg, of James, Loudon & Hertzberg, Toronto, who is now with the Canadian Engineers in France, has been awarded the Military Cross for distinguished conduct.

Mr. Clare McGiffin, of W. R. McGiffin & Co., Ltd., general contractors, Toronto, was married on April 26th, and, after an extended trip to American cities, will reside in a new home recently completed near the Old Mill on the Humber river.

H. Tyler Kay, who has been advertising manager of the Consolidated Engineering Company, Chicago, Ill., and formerly of the Flintkote Mfg. Co., Boston, Mass., has accepted the position of advertising manager of the National Radiator Company, Johnstown, Pa.

Messrs. Vallance, Archibald and Chausse, architects, of Montreal, and J. W. H. Watts, architect, of Ottawa, representing the executive committee of the Royal Architectural Institute of Canada, were entertained at a luncheon given by the Toronto Chapter, at the National Club on April 22nd.

The International Time Recording Company of Canada, Ltd., has recently moved into their new home, corner of William and Anderson streets, Toronto. Mr. F. E. Mutton, late of the National Cash Register Co., where he occupied the position of Canadian District Manager, has been appointed general manager.

A "World's Salesmanship Congress" will be held in Detroit, July 9th to 12th, inclusive, which will be attended by delegates from all parts of the world. It is expected that President Wilson will deliver the opening address, and to insure his attendance, a monster petition has been presented at the White House, bearing the signatures of five thousand Detroit business men.

Because Hugh Watkins, quantity surveyor, of London, Eng., for the new Parliament Buildings, Winnipeg, is of military age, he was unable to secure a passport to this country, in order to work in connection with the local structure, and the Department of Public Works had to write to the Canadian High Commissioner in London, asking that the expert be allowed to come to Canada. The plans for the new dome are completed in London. The final assembling of the material in Winnipeg will be done by Mr. Watkins, and he will get the quantities surveyed and put into shape before tenders for the construction of the dome are called.

REVIEW.

The Canadian Kaustine Co., C.P.R. Building, Toronto, are interesting the Canadian architects and others in their system of sewage disposal, as described in literature recently issued, which explains their apparatus for contributing to the health and comfort of the rural home, school or other buildings situated in districts lacking sewers. The claim is made of superiority over septic tanks or other means of sewage disposal.

Victoria, B.C.—The Minister of Lands announces the issue of Timber Series Bulletin No. 16, entitled "British Columbia Western Larch." Known variously as tamarack, red American larch, larch, Western tamarack and hackmatack, the sterling qualities of this species are described in the bulletin for the information of lumber dealers and wood-users. The annual cut in British Columbia of late years has averaged sixty-two million feet board measure, the range of Western larch being between the Rockies and the Cascades, south of the main line of the C.P.R. Suitable for many uses, and in some unsurpassed, Western larch supplies material for dimension, poles, piles and posts, ties, framing, outside and interior finish, tanks, troughs, grain elevators, refrigerators, silo stock, wood-paving, telephone cross arms, fencing, etc. Copies will be mailed upon application to the Forest Branch, Victoria, B.C.

WILL ADVERTISE TORONTO.

The Publicity Committee, which was recently appointed to prepare a report on the advancing of Toronto's interests as a manufacturing and commercial centre, has recommended the creation of a Central Bureau, with the duty of reception of visitors and delegates to conventions, the advertising of the city, and showing to prospective investors the industrial sites and commercial activities of Toronto.

TECHNICAL SOCIETIES.

ALBERTA ASSOCIATION OF ARCHITECTS.—President, Jas. A. Henderson, F.R.I., B.A., Edmonton; Hon. Secretary, W. D. Cromarty, Edmonton.

ARCHITECTURAL INSTITUTE OF BRITISH COLUMBIA.—President, R. Mackay Frigg; Secretary, Fred L. Townley, 325 Homer St., Vancouver, B.C.

CANADIAN CEMENT AND CONCRETE ASSOCIATION.—President, Peter Gillespie, Toronto, Ont.; Secretary-Treasurer, Wm. Snaith, The Thor Iron Works, Toronto, Ont.

CANADIAN CLAY PRODUCTS' MANUFACTURERS' ASSOCIATION.—President, J. E. Frid, Hamilton; Secretary-Treasurer, G. C. Keith, Toronto.

CANADIAN ELECTRICAL ASSOCIATION.—President, Col. D. R. Street, Ottawa, Secretary, Alan Sullivan, Confederation Life Building, Toronto.

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CANADIAN INSTITUTE.—198 College Street, Toronto. President, J. B. Tyrrell; Secretary, Mr. J. Patterson.

CANADIAN NATIONAL ASSOCIATION OF BUILDERS' EXCHANGES.—Western Section—President, C. R. Frost, 609 Second St., Edmonton, Alta.; Secretary-Treasurer, A. M. Frith, 224 McDougall Ave., Winnipeg. Eastern Section—President, Geo. Gander, Toronto; Secretary-Treasurer, P. L. Fraser, Builders' Exchange, Toronto.

CANADIAN SOCIETY OF CIVIL ENGINEERS.—President, G. H. Duggan, Montreal; Secretary, Prof. C. H. McLeod, Montreal.

LONDON BUILDERS' EXCHANGE.—President, A. C. Nobbs; Secretary-Treasurer, F. S. Barclay.

ONTARIO ASSOCIATION BUILDERS' EXCHANGE.—President, T. R. Wright, London, Ont.; 1st Vice-Pres., C. T. Pearce, Hamilton; 2nd Vice-Pres., A. Tomlinson, Chatham; Treasurer, Geo. Oakley, Jr., Toronto; Secretary, A. E. Flower, Toronto.

MANITOBA ASSOCIATION OF ARCHITECTS.—President, Col. J. B. Mitchell, Winnipeg; Secretary-Treasurer, R. G. Hanford.

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ONTARIO ASSOCIATION OF ARCHITECTS.—President, C. H. Acton Bond, Toronto; Treasurer, J. P. Hynes, Toronto; Secretary, R. L. Wolsey, Toronto.

PROVINCE OF QUEBEC ASSOCIATION OF ARCHITECTS.—President, E. B. Staveley, Quebec; Treasurer, N. MacVicar, Montreal; Secretary, J. Emile Vanier, 5 Beaver Hall Square, Montreal.

QUEBEC BUILDERS' EXCHANGE.—President, J. A. Marier; Secretary-Treasurer, Alf. Cote.

ROYAL ARCHITECTURAL INSTITUTE OF CANADA.—President, H. C. Russell, Winnipeg, Man.; Hon. Secretary, Alcide Chausse, No. 5, Beaver Hall Square, Montreal, Que.

SASKATCHEWAN ASSOCIATION OF ARCHITECTS.—President, W. G. VanEgmond, Regina; vice-presidents, A. G. Creighton, Prince Albert, R. M. Thompson, Saskatoon; secretary, F. W. Knight, care of Storey & VanEgmond, Regina; Council, Prof. A. R. Greig, Saskatoon, R. G. Bunyard, Moose Jaw, H. Cooper, Saskatoon.

SOCIETY OF CHEMICAL INDUSTRY.—Wallace P. Cohoe, Chairman; Alfred Burton, Toronto, Secretary.

TECHNICAL SOCIETY OF PETERBORO.—Bank of Commerce Building, Peterboro. President, N. C. Mills, P.O. Box 995, Peterborough, Ont.

TORONTO BUILDERS' EXCHANGE.—President, S. R. Hughes; Secretary, A. E. Flower.

UNION OF CANADIAN MUNICIPALITIES.—President, T. L. Church, Mayor of Toronto, Ont.; Hon. Secretary-Treasurer, W. D. Lighthall, K.C. Ex-Mayor of Westmount; Asst. Secretary, G. S. Wilson, 62 Coristine Bldg., Montreal.

Construction News

The following information is obtained from our correspondents, from architects, engineers and local newspapers. These items are published in our Daily Report Service, and are herein compiled for the use of subscribers to the monthly issue of "Construction." Should any of our readers desire this information daily we will be pleased to submit prices upon request

BUSINESS BUILDINGS.

BRANDON, MAN.—C. Crawford will erect business building and flats on Rosser avenue.

GALT, ONT.—Willard Estate will erect addition to business block.

MONTREAL, QUE.—Bell Telephone Co. have awarded contracts for office building.

OTTAWA, ONT.—Architect W. E. Noffke has awarded contract on Blackburn Bros.' office building.

CIVIL ENGINEERING.

EAST ANGUS, QUE.—Westbury, East Angus, Que., have called for tenders on bridge.

EAST OXFORD, ONT.—F. J. Ure, Woodstock, has called for tenders on drains.

LANSDOWNE, MAN.—Bridge to be erected over Mud River, plans by M. E. Boughton, Arden, Man.

MERRITTON, ONT.—Riordan Pulp & Paper Co. will erect a bridge.

OTTAWA, ONT.—Dominion Government are preparing plans for asphalt road, Quebec to Valcartier; Engineer F. C. Askwith has called for tenders on concrete equipment, also on asphalt and wood block paving.

PARIS, ONT.—Town Council have called for tenders on bridge of concrete construction.

PERTH, ONT.—Town Council have called for tenders on bridge.

RATHO, ONT.—Township of Blandford have called for tenders on bridge.

SANDWICH, ONT.—Tenders have been called for concrete pavement on Belle Island and reinforced concrete drain by Owen McKay, engineer, Walkerville.

TORONTO, ONT.—Toronto Harbor Commission have called for tenders on concrete work.

WOODSTOCK, ONT.—F. J. Ure, engineer, has called for tenders for sewers, pavings and drains.

CLUBS, HOSPITALS, THEATRES, HOTELS.

BAYSWATER, ONT.—Knights of Columbus have secured site for building.

MONTREAL, QUE.—Hervey Institute will erect building on Windsor street and Claremont avenue.

MOOSE JAW, SASK.—Canadian Film Corporation are erecting a theatre.

MT. DENIS, ONT.—National Sanitarium Association will erect building. Architects Denison & Stephenson, Toronto, have called for tenders.

ORILLIA, ONT.—Architect W. H. Croker is preparing plans for hospital addition.

PICTOU, N.S.—Architect L. R. Ryan, Aglesford, N.S., has called for tenders on hospital addition.

QUEBEC, P.Q.—D. Brochu, 63 St. John street, has plans for a new theatre.

SAULT STE. MARIE, ONT.—Architects Walker & McPhail, Windsor, are preparing plans for theatre of F. W. Fawcett.

ST. JOHN, N.B.—Board of Health will erect isolation hospital at Howe's Lake.

ST. MARY'S, ONT.—G. Norris, Grand Central Hotel, will make alterations to building.

TORONTO, ONT.—Revised plans are being prepared for Masonic Temple on Spadina road; R. H. Campbell, 100 Yorkville avenue, has awarded contract for sun room addition to hospital.

TRAIL, B.C.—Knights of Pythias will erect club building.

WINNIPEG, MAN.—Alex. MacDonald has provided site, etc., for Home for Friendless; Architect J. D. Atchison, Trust and Loan Building, is preparing plans for addition to sanitarium.

ELECTRICAL CONSTRUCTION.

REGINA, SASK.—Department of Telephones have called for tenders on equipment.

ROSETOWN, SASK.—Rosetown Northern Rural Telephone Co. will make extensions.

SASKATOON, SASK.—City Council have called for tenders on power house extensions.

SAULT STE. MARIE, ONT.—City Council have called for tenders on sub-station.

TORONTO, ONT.—Hydro Electric Co. have called for tenders on sub-station.

WELLAND, ONT.—Hydro Electric Commission will erect power house addition.

FIRE LOSSES.

BEEETON, ONT.—Public school destroyed, loss \$6,000.

BROUGHTON, N.S.—Soldiers' quarters building destroyed. CHARLO STATION, N.B.—Store of J. A. Reid destroyed, loss \$8,000.

COMBERMERE, ONT.—Hudson House destroyed, loss \$20,000.

DRUMHELLER, ALTA.—W. E. McDonald, store destroyed, loss \$10,000.

ETZIKON, ALTA.—Surgeant & McKenzie, store destroyed, loss \$25,000.

FREDERICTON, N.B.—Fredericton Steam Laundry, damaged, loss \$5,000.

HAMILTON, ONT.—Carling Brewing Co., warehouse destroyed, loss \$1,000.

KINGSVILLE, ONT.—Erie Tobacco building destroyed, loss \$20,000.

MONTREAL, QUE.—R. G. Dun & Co., premises damaged. Board of Trade Building.

PETROLEA, ONT.—Richmond's livery building destroyed, loss \$3,000.

PORT McNICOLL, ONT.—P. H. Beattie, drug store destroyed, loss \$3,500.

QUEBEC, P.Q.—E. Myrand, St. Foy road, residence destroyed, loss \$3,500; Frs. Rossignol, Ninth avenue, destroyed, loss \$3,000; E. Tremblay, 102 Cremazie street, building burned, loss \$3,000; A. Faucher, Arago street, house and stable damaged, loss \$2,100; J. M. Dore, First avenue, residence damaged, loss \$2,500.

RUSSELL, MAN.—Union Bank building destroyed, loss \$15,000.

SPEERS, SASK.—L. Huyck, store destroyed, loss \$3,000.

ST. JOHN, N.B.—McLean, Holt & Co., foundry damaged, loss \$5,000.

ST. THOMAS, ONT.—Residence of F. J. Moore destroyed.

THREE RIVERS, QUE.—G. Morissette and H. P. Gourin, building destroyed, loss \$75,000.

TODMORDEN, ONT.—Residence of Mr. Reeves, 3 Bee street, destroyed, loss \$3,500.

TORONTO, ONT.—F. Leber, 283 Rhodes avenue, store destroyed, loss \$3,000.

WINDSOR, ONT.—Neal Co., bakery destroyed, loss \$30,000.

PLANTS, FACTORIES AND WAREHOUSES.

BERLIN, ONT.—Regal Motor Co., 433 King east, will build. Architect W. C. Cowan has plans; Onward Manufacturing Co. will erect new building.

BRANDON, ONT.—Imperial Oil Co. will erect warehouse here.

BRANTFORD, ONT.—Hartley Foundry Co. will make additions to buildings.

BROCKVILLE, ONT.—Canada Foundry & Forging Co. will make plant additions.

DONNACONA, QUE.—Donnacona Pulp & Paper Co. will erect mill, work started.

GALT, ONT.—Perfect Machinery Co. will erect factory.

GUELPH, ONT.—Guelph Carpet Co. have called for tenders on additions; Guelph Stove Co. will make factory additions, Architect W. H. Mahoney has plans.

HAMILTON, ONT.—Maple Leaf Garage propose erecting building; Corundum Hart Wheel Co. have awarded contract for new factory; Ford & Featherstone, King street north, propose erecting new factory; Imperial Cotton Co. will make factory additions; Grasselli Chemical Co., Ottawa street, will make factory addition; Dominion Sheet Metal Co. will erect addition.

HARROW, ONT.—W. R. Clark Canning Co., Montreal, will build canning factory.

KILLARNEY, MAN.—Crescent Creamery Co., Winnipeg, will build creamery building here.

LEAMINGTON, ONT.—Rock City Tobacco Co., Quebec, will erect tobacco factory.

LONDON, ONT.—Architect J. M. Moore is preparing plans for warehouse of Webster & Harvey.

MONTREAL, QUE.—Architect A. Mahoney, Guelph, Ont., is preparing plans for addition to plant of the Canada Stove Co., Main road and St. Laurent.

NIAGARA FALLS, ONT.—Pollard Manufacturing Co. have awarded contract for new factory; Blystone Manufacturing Co., Cambridge Springs, Pa., have secured site for factory here.

PETERBORO, ONT.—Quaker Oats Co. will make factory additions.

PETROLIA, ONT.—Architect T. A. Gordan, Sarnia, is preparing plans for building of the Lambton Flax Co.

RENFREW, ONT.—Renfrew Machinery Co. will rebuild burned buildings.

ROULEAU, SASK.—A. C. Hunt, Calgary, Alta., will erect flax mill here.

SIMCOE, ONT.—Unique Shoe Co., Toronto, will erect factory here; architect not selected yet.

ST. THOMAS, ONT.—St. Thomas Pure Milk Co. will erect creamery building.

STRATFORD, ONT.—Avon Knitting Co. have awarded contract for factory addition; McLagan Furniture Co. have started work on factory addition.

TORONTO, ONT.—Canada Nitro Product, 911 C.P.R. Building, are preparing plans for plant; A. R. Clark Co. have awarded contract for factory additions; Architect W. G. Hunt has plans prepared for Gurney Foundry factory additions; F. S. Mallory, architect, is preparing plans for munition plant; Cooley Machine Co., 321 Howland avenue, are having plans drawn by Architect J. W. Siddall for new warehouse; T. Eaton Co. have plans for new building to be erected.

WINDSOR, ONT.—Heintzman Co. will make alterations, Architects Walker & McPhail; Maxwell Motor Car Co. will erect buildings.

PUBLIC BUILDINGS AND STATIONS.

BIRCHCLIFFE, ONT.—Village Council will erect public building.

EDEN MILLS, ONT.—Village Council will erect public hall.

HAMILTON, ONT.—Grand Trunk Railway will erect new station; Superintendent Gordon in charge.

LINDSAY, ONT.—Town of Lindsay will erect town hall tower.

MARKHAM, ONT.—Agricultural Society will erect hall and rink.

NIAGARA FALLS, ONT.—Town Council will erect addition to fire hall.

ORILLIA, ONT.—Municipal Building will be reconstructed by day labor by W. L. Bennett.

PORT ARTHUR, ONT.—Saskatchewan Co-operative Elevator Co. have plans drawn for terminal building.

TORONTO, ONT.—City of Toronto are preparing plans for new fire hall addition; tenders have been called for interior work of Administration Building by the Board of Education; Architects Curry & Sparling have called for tenders on Trust & Guarantee Building.

RESIDENCES, STORES AND FLATS.

AMHERSTBURG, ONT.—Architect G. Jacques, Windsor, has plans prepared for residence of Dr. Laferte.

AYLMER, ONT.—A. W. Pierce is preparing plans for residence.

BELMONT, ONT.—Architect W. Murray, London, is preparing plans for residence of Dr. Beattie.

BRANTFORD, ONT.—Architects Barber & Tilley have called for tenders on residence.

HAMILTON, ONT.—J. W. Lusk, 185 Kensington avenue, will erect a residence; J. E. Saddler, 152 Charlton avenue, will erect a residence; J. Vickers, 285 Rosslyn avenue, will build dwelling; J. C. Morrow, 217 Caroline street, will erect apartment house; C. G. Hudson, 10 Edinburgh street, will erect four houses; H. McDowell, Ayondale avenue, will erect a residence; Taylor Mfg. Co. will install two store fronts, 223 King street east; A. Stewart, 615 Main street east, will erect two houses; E. H. Wark will erect a residence on Sherman avenue; McKay Bros., Lister Chambers, will erect two houses; Sparks & McKay, Elm avenue, will build six houses; D. Hamilton, 55 Gendale avenue, will erect three houses on that street; P. Gorelli, 935 Burlington street, will build a residence; R. Sharp, 23 Eastbourne street, has awarded contract for dwelling; R. S. Mason, 21 Somerset avenue, will build eight houses; W. McLarity will build a residence on Lorne avenue; Williamson & Torrance, 469 King street east, have awarded contracts on twelve houses; E. R. Bond, 652 Main street, will erect two houses on Cedar avenue; E. W. Loudon, Lottridge & Cannon, will erect a residence.

KINBUHN, ONT.—R. Groves will erect a residence.

KINGSTON, ONT.—J. Connor will erect residence on Frontenac street; I. Allan will erect a residence on Victoria street.

LISTOWEL, ONT.—H. Karges has awarded contract for two houses.

LONDON, ONT.—C. J. Pink, 451 Hamilton road, will erect a residence; Major H. N. Abel, 61 Craig street, will erect a residence; Watt & Blackwell, architects; J. Smallman, Elmwood avenue, will erect residence and garage; J. Rutherford, 1006 Wellington street, will erect residence; Copp Syndicate, 22 Belgrave avenue, will build ten houses in South London; N. A. Roberts, 155 Ridout street, will build houses in South London; Hyatt Bros., 1288 Egerton street, will erect eight houses on Ridout street; Max. Fernier, 502 Hill street, will erect apartment house on Dundas street; Architect J. V. Munro, Bank of Toronto Chambers, is preparing plans for residences; R. Pearson, 459 Grey street, has plans for new residence; H. Bottrill, 258 Wharncliffe road, has plans for store and residence.

MONTREAL, QUE.—Montreal Locomotive Co. will erect a residence; E. Gerard, 3292 Berri street, will build two houses; F. W. Fairman Estate, 232 St. James street, will make alterations to apartments; Z. Cordeil, 3 Desjardin avenue, will erect a residence; N. Martineau De Normaville, will erect a residence; E. P. Wright, 214 Bishop street, has plans for two stores; Reverend Fathers Jesuites, Imm. Conception will erect two houses; J. Cusofe, 592 St. Christophe street, has plans for fifteen houses; D. Riendeau, 57 Mentana street, will erect three houses; M. E. Field, 2114 Waverley street, will erect stores and flats.

NIAGARA FALLS, ONT.—Architect C. M. Borter has called for tenders on residence of E. Baxter.

NORVAL, ONT.—J. Cunningham has called for tenders on new residence to be erected.

OTTAWA, ONT.—Architect J. P. McLaren has awarded contracts on Mellenagh store building.

PORT ARTHUR, ONT.—Architect H. R. Halton is preparing plan for stores and apartments.

QUEBEC, P.Q.—H. M. Cote, Cartier avenue, will erect two four family apartments; Alex. Fackney, 31 Aberdeen street, will erect three-family residence; W. Brochu, Aberdeen street, will erect two three family residences; Lavole & Frere, Cartier avenue, will erect apartment house; A. O. Beriau, Cartier,

will make addition to building; Honore Gingras, 108 Artillery, will erect two-family residence; N. Pare, 2nd street, will build residence on Stadacona; P. A. Alain, St. Joseph street, will make building alterations; Joseph Savard will erect a store.

SARNIA, ONT.—W. A. Watson, 160 Front street, has awarded contract on residence to D. Giffen.

SAULT STE. MARIE, ONT.—Architect T. R. Wilks, Queen street, has plans drawn for new residence; R. T. Lane, Queen street, has plans for new residence.

STRATHROY, ONT.—Architects Watt & Blackwell, London, have awarded contract for residence.

SYDNEY, N.S.—W. T. Fanjoy will erect residence on Ben-tinck street.

TORONTO, ONT.—H. Lucas, 118 Felstead, has plans prepared for two pair houses to be erected; J. Price, 100 Greenwood avenue, will erect a pair of houses on that street; Goodyear Tire and Rubber Co. will erect a large number of houses for employees; Dr. J. G. Caven, 88 Bloor street east, has awarded contract for residence; E. Thurlford, 1600 St. Clair avenue, will erect a residence in Cherry Gardens; J. M. Watkey, 326 Shaw street, will erect a pair of stores; J. Skelton, 85 Lawton avenue, will erect residence on Moore avenue; A. Barrett, 20 Koblock, will erect three stores and residence; T. A. Gibson, 327 Lippincott, will erect a residence; A. K. Williamson, 504 Broadview road, has plans for an apartment house; J. Hermiston will erect four houses on Coleman avenue; Adam Walker, 169 Lauder avenue, will erect store and apartments; A. Edmunds, 105 Oakwood avenue, will erect residence on Thome crescent; Muir & Lamb, 30 Hazelwood avenue, will erect a pair of houses; E. Taylor, 162 Delaware avenue, will erect apartment house on Broadview street; Horton Walker, 20 Toronto street, will erect residence and garage; J. Pickering, 200 Rushton road, will erect duplex house; Col. W. R. Lang, s.p.s., will make addition to residence; F. Flubacher, 92 O'Hara, will erect residence on that street; F. E. Lankin, 223 Fulton street, will erect three pair of houses; W. Pidgeon, 41 Nairn avenue, will build a pair of houses; C. Lucas, 919 Carlow avenue, will erect three pair of houses and garage; W. H. Little, 530 St. Clarens avenue, will erect a residence; J. Lucan, 508 Dupont street, has called for tenders on three houses; Rowlands Estate will install store front, 65 Elm street; J. R. Barton, 201 Major street, has plans drawn for residence; J. G. Hedges, 1054 Ossington avenue, will erect storage sheds; Bredin Galbraith, 22 St. Leonard avenue, has awarded contracts on residence; W. J. Nixon, 32 Columbine avenue, will erect a pair of houses; John Price, 100 Greenwood avenue, will erect residence; J. Stone, 49 Coleman avenue, will erect four houses; R. Waterman, 448 Summerhill avenue, will erect a residence; J. W. Butchart, 1 St. Ives avenue, will erect a residence on St. Leonards; J. T. Twigg, 28 First avenue, has plans for a residence; A. Copeland, Ravina crescent, will erect dwelling; McIlroy & Lowry, 42 Mounteven, will erect two houses; Architects Hynes, Feldman & Watson have plans for new residence; S. B. Green, 650 Annette street, will erect a residence on Conduit street; H. Hocken, care Title & Trust Co., will build residence and garage; J. and T. Bishop, 68 Pembroke street, will build three houses on Ozark crescent; W. G. McClean, 499 St. Johns road, will erect residence; H. H. Wood, 97 Avenue road, has plans for a new house; W. Moad, 48 Oakwood avenue, will erect residence; E. Hawken, 906 Kingston road, will build a pair of houses on Pickering avenue; C. T. Tyler, 885 Cumberland avenue, will erect a residence; C. Cudmore, 62 Pacific avenue, will build two houses on Glendenning avenue; W. Argue, 235 Broadview avenue, will erect store and residence on Bathurst street; J. F. Alexander, 8 Temple avenue, will build two family house on that street; L. Frampton, 29 Tuburn avenue, will build a residence; W. J. McWaters, 28 Kingwood road, will erect residence; W. Hughes, 59 Anroth avenue, will erect store and dwelling; A. Gordon, 35 Maher avenue, has awarded contract for residence; E. Johnston, 84 Balsam avenue, will erect a pair of houses; Architect F. S. Baker has plans for residence on Warren road; C. Hough, 16 Atlas avenue, will build on Gordon avenue; F. L. Spiers, 95 Glenholme, will erect duplex residence.

VANCOUVER, B.C.—B. C. Marine Co. will erect building.

WALKERVILLE, ONT.—H. Wilson will erect three family apartments on Windermere road.

WEST OXFORD, ONT.—Architect B. McNichol, Woodstock, has called for tenders on residence of C. J. Cook.

WINDSOR, ONT.—Architect J. C. Pennington will erect residence on Victoria street; Architects Walker & McPhail have awarded contracts on S. Bigg's residence; Architect G. Jacques is preparing plans for stores and apartments; Architect Leybourne & Sewell have awarded contracts on Mrs. G. Hallet's residence.

WINNIPEG, MAN.—T. Eaton store building contracts awarded to Carter, Hall, Aldinger Co.

SCHOOLS, COLLEGES AND CHURCHES.

ANNABEL TOWNSHIP.—Architect H. W. Robinson, Hepworth, Ont., has plans for alterations to S.S. No. 7.

AVON, ONT.—Architect W. G. Murray, London, Ont., has called for tenders on school for R.R. No. 1, Springfield.

BASSWOOD, MAN.—Architect F. Evans, Winnipeg, has called for tenders on new school here.

BELLEVILLE, ONT.—Children's Aid Society will erect shelter.

BIRCHCLIFFE, ONT.—Architects Carter & Ford have plans for new Anglican church, Rev. C. E. Luce.

BISHOP'S CROSSING, QUE.—Contract has been awarded for new school to C. H. Parker, Sherbrooke, Que.

CAYUGA, ONT.—Contract has been awarded to Wm. Rolston for school addition.

CONQUEST, SASK.—Architects Storey & Van Egmond, Regina, have plans for new church here.

DUMBLANE, SASK.—School Trustees have called for tenders on new school.

DUNACH, B.C.—Department of Public Works, Victoria, have called for tenders on school.

EAST SELKIRK, MAN.—Town Council will erect four-room school.

FINCH, ONT.—School Board have called for tenders on new school.

FREDERICTON, N.B.—St. Paul's Presbyterian Church will build; pastor, Dr. W. H. Smith.

HAMILTON, ONT.—Architects Mills & Hutton have awarded contracts on Robertland school.

HAZENMORE, SASK.—School Trustees, secretary, H. O. Wiley, have called for tenders on school.

HAYRE AU BOUCHE, N.S.—Contracts have been awarded on new Presbyterian church.

HULL, QUE.—Architect C. Brodeur is preparing plans for convent of the Grey Nuns of the Cross, Ottawa, Ont.

KINHURN, ONT.—Architect J. P. MacLaren, Ottawa, has called for tenders on school equipment.

LONDON, ONT.—Architect A. E. Nutter is preparing plans for technical school.

MONTREAL, QUE.—Protestant School Board have awarded contract on school; Com. Catholic School, 55 St. Catherine street, have plans for educational house.

NIAGARA FALLS, ONT.—Architect J. U. Collins has awarded contract for school of Union S.S. No. 2.

OLIN CREEK, COWLEY, ALTA.—S.D. No. 3135, Cowley, will erect school; secretary, Olin Creek, Alta.

PASQA, SASK.—Leamington S.D. No. 193 have called for tenders on new school; secretary, W. H. Durlie.

PORT CREDIT, ONT.—School Board will have plans prepared for new four-room school.

SANDWICH, ONT.—Architects G. Jacques & Co., Windsor, have called for tenders on Separate School.

SMITH'S FALLS, ONT.—Architects Wm. Newland & Son, Kingston, are preparing plans for new school.

ST. EDOUARD DES MECHINS, QUE.—Architect T. Raymond, 43 Caron street, Quebec, has called for tenders on R.C. church to be built here.

STE. PERPETUE, QUE.—Architect P. Levesque, Quebec, is preparing plans for R.C. church.

STOUGHTON, SASK.—La Salle S.D. No. 734 have called for tenders on school; secretary, R. H. Richardson.

TORONTO, ONT.—Architect Cecil C. King, 128 Heath street, is preparing plans for Glenmount Methodist Church; Architects Burke, Horwood & White have called for tenders on Pauline Methodist Church; Board of Education are preparing plans for Orde street school; Architects Smithers & Calley, 121 Greenlaw, have plans for Boone avenue church; Davisville Baptist Church will erect chapel; Architect C. J. Read has called for tenders on R.C. school; Board of Education have called for tenders on specialities for Administration Building, including temperature regulators, plumbing, etc.

WILTON PARK, ALTA.—Wilton Park S.D. No. 508 will erect new school; secretary, G. B. Beatty.

YOUNGSTOWN, ALTA.—School Trustees, D. 2186, have called for tenders on school.

MISCELLANEOUS.

BELLEVILLE, ONT.—W. S. Cook & Son will erect storage warehouse.

BLENHEIM, ONT.—Springsteen & Co. will erect a garage.

CARLETON PLACE, ONT.—Taylor Bros. will erect garage; tenders called.

DAVIDSON, SASK.—Wilkie's Ltd. will erect a garage.

FORT WILLIAM, ONT.—Mutual Elevator Co. have awarded contract for new elevator; Davidson & Smith are preparing plans for elevator addition.

GUELPH, ONT.—Tenders have been called on sewer pipe.

HAMILTON, ONT.—Architect F. J. Rastrick has awarded contract for stables to cost \$6,000.

LONDON, ONT.—Grand Trunk Railway preparing plans for coal chutes.

MERRITON, ONT.—Riordan Pulp & Paper Co. will purchase pipe and piling.

NAPANEE, ONT.—W. J. Normile has plans prepared for new garage.

OTTAWA, ONT.—Department of Railways and Canals have called for tenders on cement.

SASKATOON, SASK.—City Council are having plans prepared for stock yards; City Council will erect power house.

THORNHILL, ONT.—Toronto City Council have awarded contract for barn at Industrial Home and stable at the Island.

TORONTO, ONT.—Architect J. A. Thatcher has awarded contracts on Standard Bakery building; Architect G. M. Miller has plans prepared for nine garages; Gillett Co., Fraser avenue, have awarded contracts on grain storage building; Holden Morgan, 579 Richmond west, are building three garages; I. G. Hough, 346 Parliament street, has called for tenders on concrete foundations; Engineers James, Loudon & Herzberg have plans prepared for garage; City Council will have car barns erected on St. Clair avenue; G. Kerr, 80 Spadina road, will erect dairy building, plans drawn; Board of Education require ornamental iron, pain and lumber; Architects Denison & Stephenson have awarded contracts on Gurney Foundry addition; City Council have called for tenders on furnishings for registry office.

VANCOUVER, B.C.—Begg Motor Car Co. will erect garage on Georgia street; Department of Marine, Ottawa, have awarded contract for freight sheds.

VICTORIA, B.C.—City Purchasing Agent, W. Galt, has called for tenders on supplies.

VICTORIA, B.C.—Marine Department have called for tenders on storage sheds.

Architects, engineers and contractors are invited to contribute information on construction work, whether it be proposed or in progress, and such information will be published in these columns.

Contractors and Sub-Contractors

As Supplied by The Architects of Buildings
Featured in This Issue

HOTEL MACDONALD, EDMONTON, ALBERTA.

Architects, Ross & MacDonald, Montreal and Toronto.
Brick (plain), Acme Brick Company, Edmonton; (fire), The Imperial Supply Co., Calgary.

Bolers, International Engineering Co., Amherst, N.S.
Carpet and rugs, Toronto Carpet Company, Toronto, Quebec Carpet Mills Company, Limited, Guelph.

Curtains and hangings, Matthew W. Clemens, Toronto; T. Eaton Co., Limited, Winnipeg.

Casements and window construction, doors and window trim, Concrete work, Koebing Construction Co., New York.

Contractors (general), The Canadian Stewart Company, Limited, Montreal and Toronto.

Decoration (mural), F. S. Challenor, R.C.A., Conestogo, Ont.

Electric fixtures, Tiffany Studios, New York

Electric wiring and apparatus, L. K. Comstock Co., Montreal.

Elevators and hoists, Otis-Fensom Elevator Company, Toronto.

Fire alarm system, Edwards Break Glass.

Fire doors, McFarlane-Douglas, Limited, Ottawa.

Fire escapes, inside type iron stairs, Alberta Ornamental Iron Co., Redcliffe, Alberta.

Fire extinguishers, "Pyrene."

Flooring, Cushing Bros., Limited, Edmonton.

Furniture, T. Eaton Co., Limited, Winnipeg; Wm. J. Craig, Toronto; Krug Furniture Co., Berlin, Ont.

Glass (plate), Pilkington Bros., Montreal; (wired), Edmonton

Paint and Glass Co., Edmonton; (light globes), Tiffany Studios, New York; (leaded), J. C. Spence & Sons, Montreal.

Hardware, Russell & Erwin Mfg. Company, New Britain, Conn.; (jobbers, Revillon Hardware Co., Edmonton).

Inspection by Canadian Inspection and Testing Laboratories, Montreal.

Interior fittings, cabinet woodwork and decoration, Bardwell-Robinson Co., Minneapolis; Barnett Phillips Co., New York.

Inter-phone system, Western Electric Co., New York.

Kitchen utensils, Marshall Wells Co., Winnipeg.

Laundry machinery, American Laundry Machinery Co., Toronto.

Marble, Vermont Marble Co., Peterborough, Ont.

Ornamental iron, Alberta Ornamental Iron Co., Redcliffe, Alta.

Paints (interior), Wm. C. Redlich Co., New York; (for steel),

Dominion Paint Works, Walkerville, Ont., "Superior Graphite"; (concrete floor paint), Patterson-Sargent Co., Edmonton.

Plaster work (ceiling), Smith & McCallin, Denver, Col.

Plumbing (fittings), Art Brass Co., New York; (sanitary fixtures), Camden Potteries, Cluff Bros., Toronto.

Power machinery (prime movers), Goldie & McCulloch Co., Galt, Ont.; (motors and generators), "Sprague" and "Triumph,"

Rudel-Belnap Machinery Co., Montreal; (air compressors), Westinghouse; (pumps), Platt Iron Works.

Refrigeration equipment, White Enamel Refrigerator Co., St. Paul, Minn.

Refrigeration machinery, Triumph Ice Machinery Co.

Radiators (manufacturers), Taylor-Forbes.

Roofing (copper), McFarlane-Douglas, Limited, Ottawa.

Screens, T. Eaton Co., Limited, Winnipeg.

Stone (Indiana limestone), E. F. Giberson Co., Bedford, Ind.; (granite), Stanstead Granite Quarries Co., Limited, Beebe, Que.

Structural iron and steel, Dominion Bridge Co., Winnipeg.

Tile, Adolph Grant & Co., New York.

Terra cotta, Ebsary Fireproofing Co., Winnipeg.

Vacuum cleaners, Spencer.

Weather strip, "Acme" Strips, The Smiley Co., Edmonton.

Plumbing, heating and ventilating, H. Kelly & Co., Minneapolis.

OMISSION.

In article used in our April issue describing the National Cash Register plant the name of James, Loudon & Hertzberg was inadvertently omitted in reproduction of view showing steel framework, which was designed by this firm.

MARKET FOR GLASS.

Recent trade reports indicate that a market for glass is to be found in Asuncion, Paraguay. Before the war, importations were largely from Belgium and Germany, while present imports are from Spain or in small lots from commission houses in Buenos Aires. The glass from Spain costs approximately \$8.00 per 100 square feet, F.O.B. Spanish ports.

AN EFFECT OF THE GREAT WAR.

An important result and a lasting condition that will arise from the present activity in plants now turning out munitions will be the converting of the new machinery installed to the manufacture of peace time products. Representatives of many industries are to-day seeking new lines to keep in operation the extra equipment necessary for the present work in hand, so that Canada in future will be in a position to not only supply the home market with many products now imported, but will be in a position to enter the foreign market and obtain a large share of the trade now placed elsewhere. Many specialties can be turned out on the machinery now making munitions, so that the market which in the past has been supplied for foreign countries can be taken care of at home, giving employment to many and developing Canada's export trade at the same time. The opening up of Canada's undeveloped resources will make demands on the country's industries now established, as well as creating many new opportunities for capital, and it is encouraging to see steps being taken along the road of expansion, to meet the approaching prosperity of Canada.

Timber Bulletin.—The Minister of Lands has approved the issue of Timber Series Bulletin No. 18, entitled "British Columbia Red Cedar Shingles." This four page leaflet deals with shingles manufactured from the famous red cedar of the province, and shows how to get the best value from them by proper laying. Useful information about the various classes or grades of shingles is given, as well as concerning the kind of nails to use, and how to prepare and lay shingles are contained in the bulletin, which may be had upon application to the Forest Branch, Victoria, B.C.



June, 1916

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H. GAGNIER, Limited, Publishers

GRAPHIC ARTS BLDG., TORONTO, CANADA

MONTREAL

BRANCH OFFICES

NEW YORK



RESIDENCE OF B. WILSON, VICTORIA, B.C.

SAMUEL MACLURE, ARCHITECT.

Hamilton Homes

W. D. Flatt Residence.

The hall and living room and den are all finished in quartered oak stained a dull brown. The stone facings being used for the mantels of the hall and living room. The sun room is in cypress stained green with stucco plastered and quarry tile floor. The dining room is an ivory enamel, and walls above wainscoting is covered with tapestry. The terraces facing the lake front are all quarry tile. The house is heated with hot water, twin boilers. The sewerage is handled by a septic tank which has proven very

boiler. A large billiard room is on the third floor, which overlooks the lake and surrounding country.

G. Southam Residence.

This house was built amongst the pines on the brow of what is called Hamilton Mountain, and overlooks the city, bay and lake beyond. The exterior is of grey stucco with red Spanish tile roof. The sun room is latticed and painted grey. The living room is mahogany with white stone mantel. The hall is in quartered oak and the dining room is enamelled. The second floor is



HALLWAY AND DRAWING ROOM, BLINK BONNIE, HAMILTON, ONT.

satisfactory. The boulders for exterior work and fences were collected from the surrounding country. The entire upstairs is enamel finish, and oak floors throughout. The roof is of red Spanish tile, and the exterior wood work is painted a very dark brown and exterior plaster work is a very rough pebbled dash finished in a cream color. All wood work at entrance is of oak. The house is supplied with water from the town mains. The hot water is supplied by a small jacket heater connected to a large storage

enamelled throughout. The servants' quarters are over the kitchen wing.

Col. J. R. Moodie Residence.

The exterior brick used in this house are Don Valley buff brick and brown stone trimmings. The hall, dining room, den and second floor hall is finished in oak. The living room in mahogany and the reception room is in enamel. All walls throughout are covered with tapestry. There is a large organ in the main hall and connected to

some is an echo organ placed in the ceiling of the upper stair-case hall. There is also a harp connected to this organ which can be operated with same. The second floor rooms are all finished in enamel. The main bath room is tiled, floor, walls and ceiling. This house is heated with hot water, twin boilers, and also has an automatic gas heater for use in Spring and Fall.

H. L. Frost Residence.

First floor has large hall in mahogany and enamel. Living room panelled to ceiling in oak. Library in mahogany. Dining room is enamelled finished with panelled plaster walls. Sun room, tile floor and painted woodwork. Kitchen and pantries in white maple, natural finish, with

maid's sitting room off same. Garage is connected to house and is accessible from side hall.

Second floor has five bed rooms, all enamelled finish, and three bath rooms all tile floors and walls. Oak floors throughout.

Large billiard room in basement finished in cypress. Heating is hot water run either with gas or from coal in boilers. Vacuum cleaning outfit installed in cellar and connected to various parts of the house. The outside sizes of house are over all (101 ft. by 48 ft. 6 in.). Walls are all 8 in. tile faced with grey rough texture brick; white wood work. Roof is green dull glazed tile. Iron railings painted white.

There is an automatic gas heater connected to hot water system for use in Spring and Fall

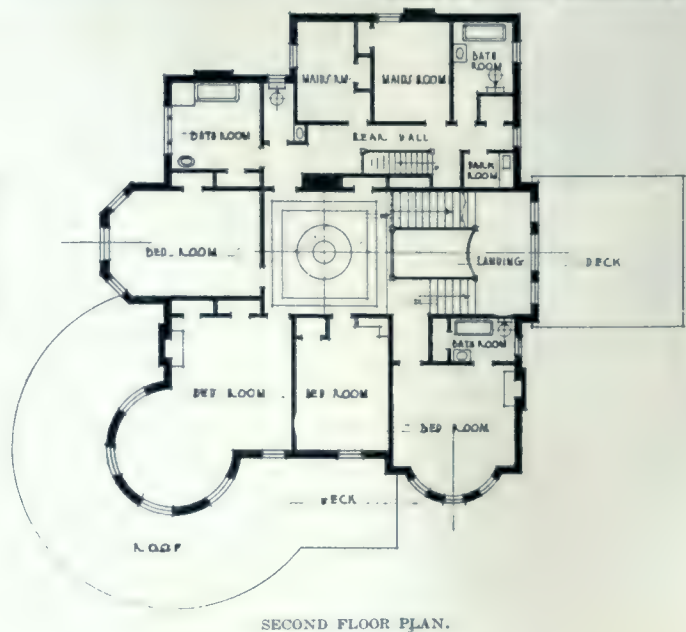


BLANK BONNIE, RESIDENCE, COL. J. R. MOODIE, HAMILTON, ONT.

MILLS & HUTTON, ARCHITECTS.



FIRST FLOOR PLAN.



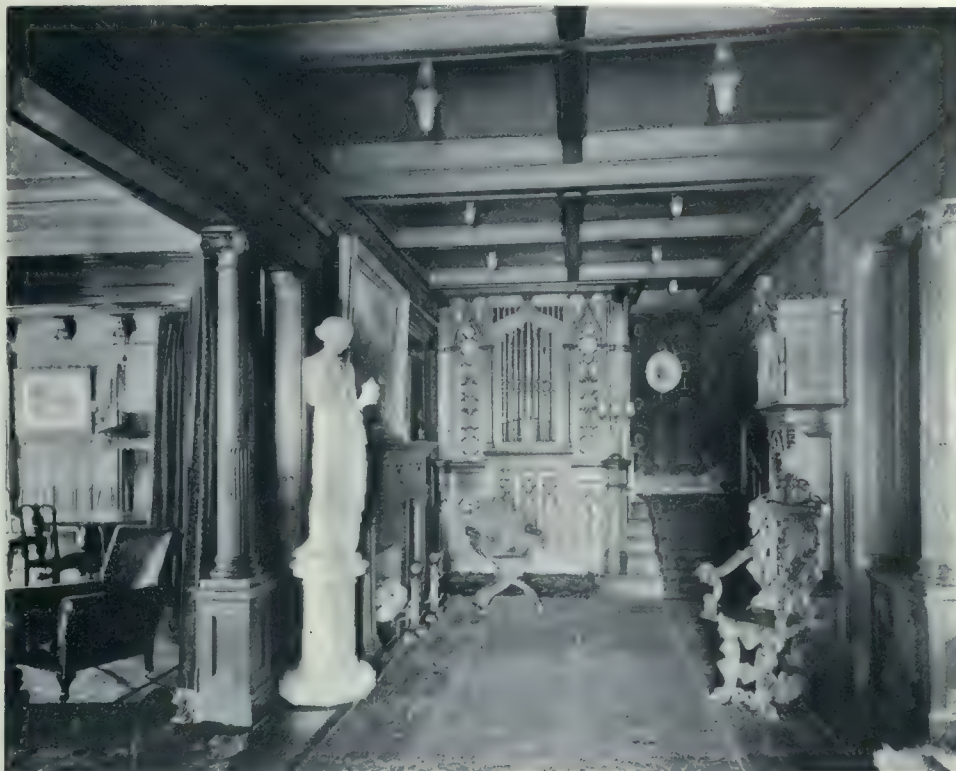
SECOND FLOOR PLAN.

House Building—Past and Present

By M. H. BAILLIE SCOTT.

IN considering the houses of the past in this country, I want to pierce deeper than the mere external forms in which building expressed itself from time to time. I do not propose to speak of Early English work, or Decorated, or Perpendicular, or of tracery and pointed arches. All this morphology of the building periods is extremely interesting, but not of great value unless we can get from the work some conception of the spirit that informed it. The building art is, like other arts, the medium for the expression of the individual or combined group of individuals who produced the work. What they sowed we may reap, no more and no less, and the spiritual appeal of a building represents the sum of the spiritual energy put into it by its builders—the heart inspiring and the brain guiding the dexterity of the hand. I give this trinity of factors in the order of their importance. The most vital

matter is the inspiration, the divine spark in the work; the brain gives rational guidance, and the hand is the medium of expression. If



A GLIMPSE OF LIVING ROOM, BLINK BONNIE, HAMILTON, ONT.

some great thought is seeking expression, the readiest and simplest language is the best. The whole tragedy of the development of any art lies in the pride of knowledge and skill, in mere proficiency for its own sake, which reduces the whole art to the level of an acrobatic performance. The art of building in the past divides itself naturally into three periods:

First, the craftsman period, extending from the earliest Gothic times, through the Middle Ages up to the time of the Renaissance.

Second, the scholar period, dating from the Renaissance till about the end of the eighteenth century.

Third, the shopkeeper period, when the commercial ideals of the nineteenth century found their expression in building.

There is always some-



HALLWAY, BLINK BONNIE, HAMILTON, ONT.



RESIDENCE AND GROUNDS, W. D. FLATT.

MILLS & HUTTON, ARCHITECTS.

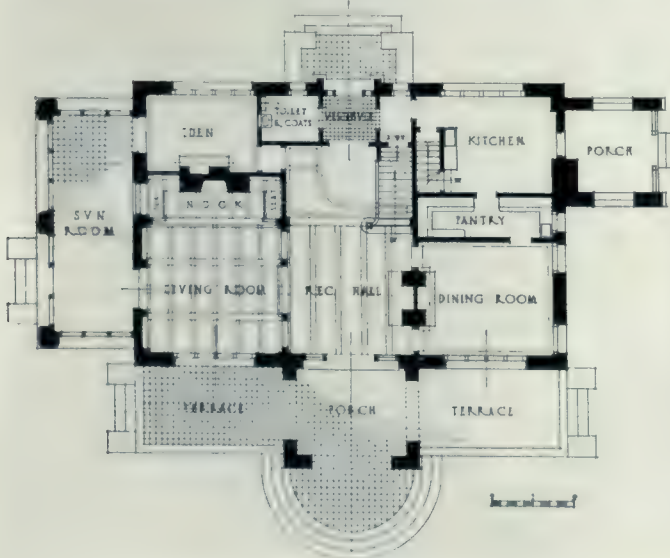




HALLWAY, LAKEHURST VILLA, RESIDENCE W. D. FLATT.

thing childlike in the best kind of art, and one of the best definitions of art seems to me the one which describes it as the survival in man of the play instinct of the child. In the craftsman period we may compare the builders to a happy, eager band of children building castles on the seashore. They are working for the

best of all motives—to please themselves. And so all goes well with them and their work. And then we may imagine the coming of the Renaissance in the person of some pompous and dignified professor, who engages to teach these happy builders how their work ought to be done according to classic precedents. The children, somewhat crestfallen, are not unwilling to try a new game, and continue to extract some amusement for a time with quaint variations on



FIRST FLOOR PLAN.



SECOND FLOOR PLAN.



DINING ROOM, LAKEHURST VILLA.

the classic themes; but they gradually realize that the old happy holiday work is over, and lesson time and grammar has begun. But still they continue to find some pleasure in the school work which has been thrust upon them.

Then comes along the shopkeeper, who points out to the professor and his pupils that all this working for fun, as the children did at first, or working according to rules set by the professor, is really not what is required at all. It isn't practical, and it doesn't pay. No; they must work for his profit, and nothing else really matters.

And so these children, who were once happy and free, first became scholars and now have become factory hands. Through endless hours of dull labor they do again and again the same tasks.

If the methods of the old builders are here advocated, it is not because they are the old methods, but because they are the right methods; and, although the final result of their application will lead to a resemblance between the modern house built in the old way and the old house itself, that is merely because in both right principles have been followed.

This is quite a different thing from servile imitation, or the unintelligent reproduction of characteristic features of the periods which we find displayed in the showrooms of the modern cabinetmaker. The Tudor room, with all the proper appointments of the period, including a suit of armor propped up in the corner and imitation beams in the ceiling, is no proper setting for modern life, and must necessarily appear an affectation to any sensible person. Many of the simpler features of the Tudor house may, indeed, be put into the crucible of the mind and distilled into a new harmony, subject to those necessary restrictions

that the realities of modern life impose.

If the mediæval building age may be considered as the daytime of the arts, we may continue the figure and think of the breaking up of the craftsman period as a time having the ripe and mellow beauties of the sunset. In the early part of the eighteenth century the last warm afterglow had faded from the sky, and after that nothing was left but the cold greyness of the later Renaissance, eventually succeeded by the



LIVING ROOM, LAKEHURST VILLA.



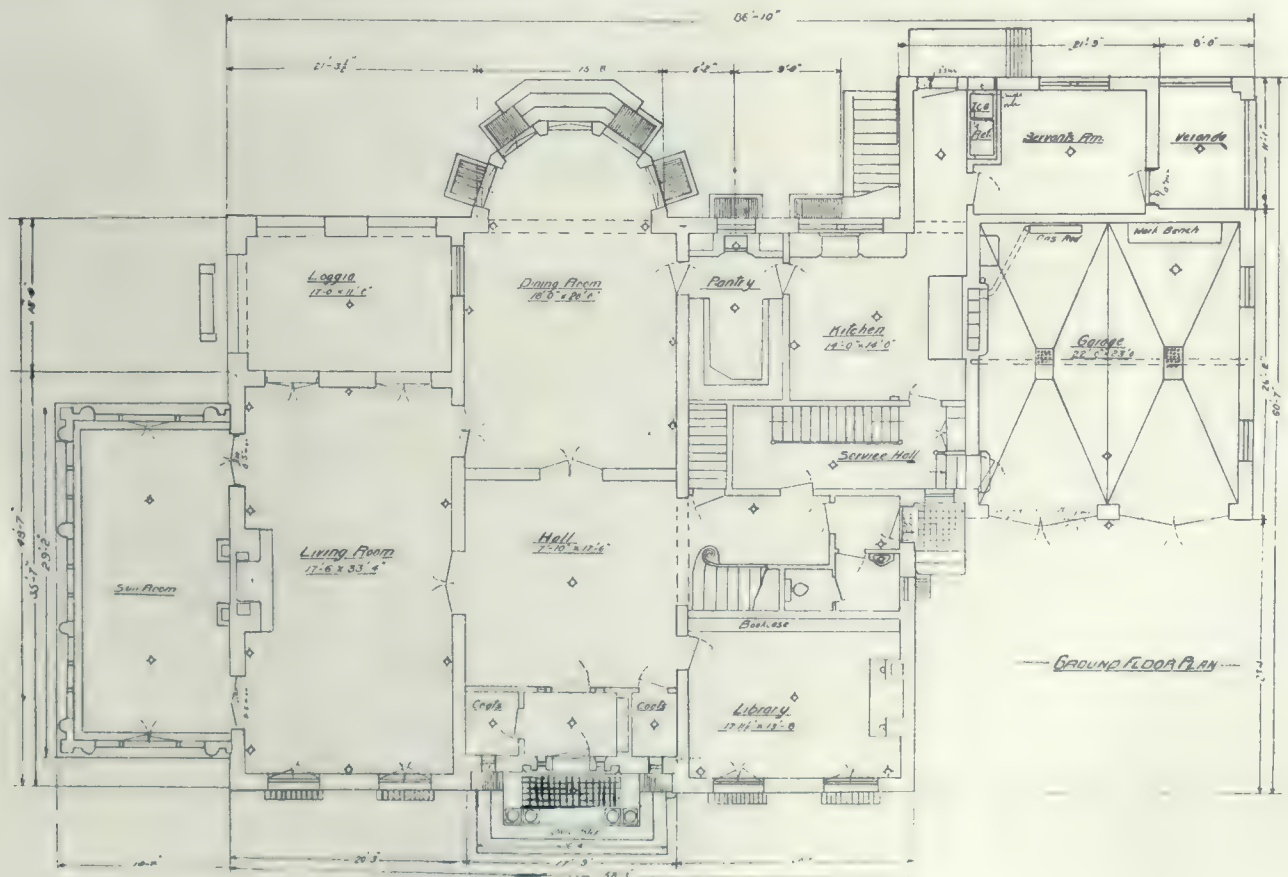
RESIDENCE, H. L. FROST, HAMILTON, ONT.

GORDON J. HUTTON, ARCHITECT.

darkness of the Victorian era, the true dark age of the building art. Since then, in modern times, we have had various little local dawns, but no new day has yet arrived on any comprehensive scale in the building world.

Of the three periods of building, then, that of the craftsman seems to me incomparably the best. The art of building during the craftsman period was the central and dominant art of the world, a kind of universal language expressing

the ideals of the nation as a whole. To the simple, practical minds of the old builders it was sufficiently obvious that the proper function of art was in the creation of a world of buildings. Art was not a thing to be shut away in galleries and museums, but its proper sphere was a much wider one than that. It was no less than the adornment of the whole world in which we live. Every village and every town was an artistic creation. Nothing we have done since, nothing



GROUND FLOOR PLAN. RESIDENCE, H. L. FROST, HAMILTON.

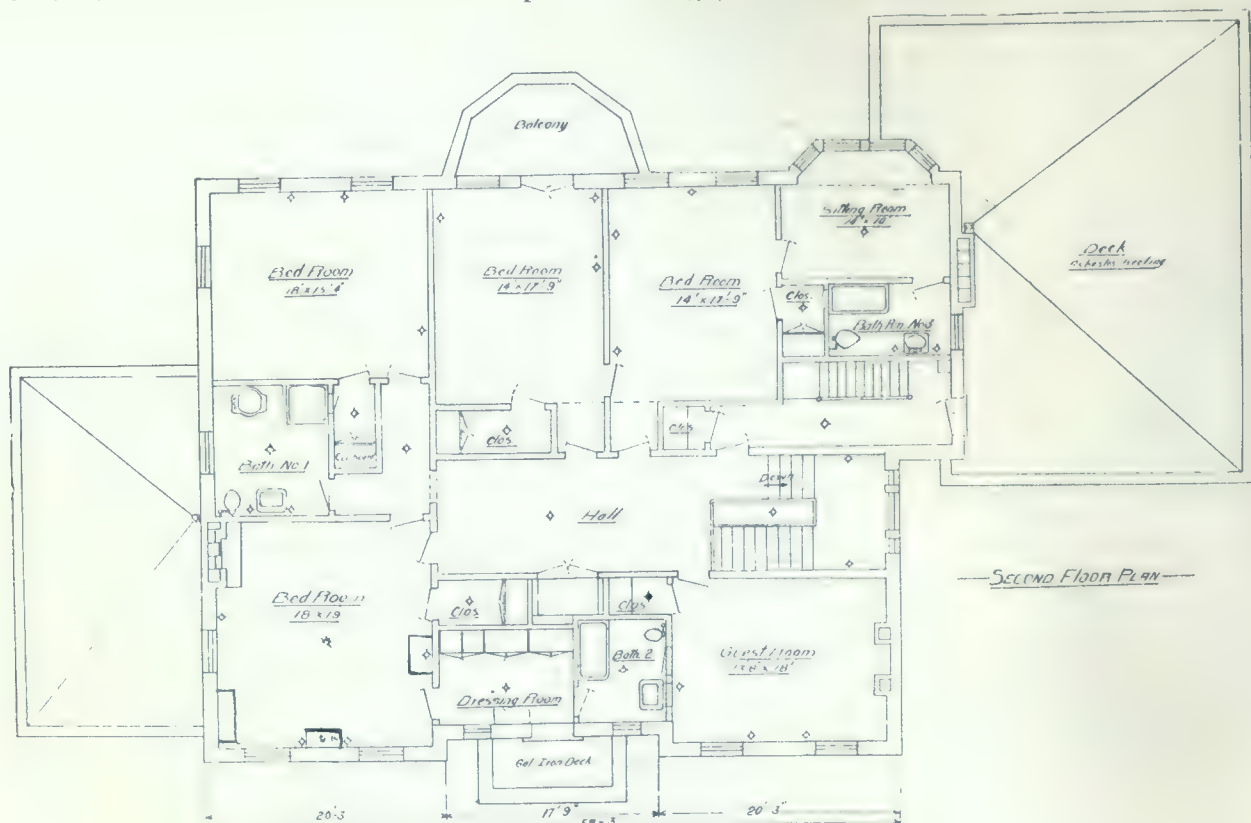


LIVING ROOM, RESIDENCE, H. L. FROST, HAMILTON, ONT.

we can do now, is to be compared for a moment with the glory of that building art. It was a living force claiming for its expression the organized and combined efforts of a whole community of craftsmen. So intimately blended is the spirit of the old buildings with their natural surroundings that it would seem as if the same power that created the one had also inspired

the production of the other, and so we find throughout the length and breadth of the land the old builder with his magic touch has created new beauties everywhere, in village and town, in church and manor, in farmhouse and cottage.

The virtue of building as an art does not lie in any particular outward forms. Tracery, cusplings, Corinthian columns, all the accumulated



architectural lumber of the ages, are quite useless to us in themselves. The only thing that really matters is the spirit which inspires the producers of the buildings. Given a group of craftsmen, working not only for material gain, but inspired by some noble ideal, and their work, in spite of themselves almost, will reveal to the discerning eye something of the quality of the spiritual force which created it. The old Trades Guilds were combinations of craftsmen for the purpose of building, and the most striking fact about them was that the bond which united them was not a money bond. In these brotherhoods of workers there was nothing equivalent to our system of capital and labor—of masters making profits and laborers taking wages. It is true that the material in-



HALL, RESIDENCE, H. L. FROST.



DINING ROOM, RESIDENCE, H. L. FROST.

terests of the craftsmen were looked after by the Guild. The livelihood of the members was secured whether they happened to be working or not. They were free to work not merely to live, but for the honor and glory of their Guild. That, and not mere cash payment, was the bond which held them together. Can we wonder, then, that their work was something radically different to modern building? The value of the knowledge they accumulated and bequeathed to their successors was of a kind which in these days of book learning we can perhaps hardly appreciate. It was instinctive rather than reasoned, and was a thing too subtle to be formulated by any words. Until we can get work done again in the old way, and enlist the hearts and heads, as well as the hands,

of every workman in our service, it is idle hope that we shall produce any sort of building or architecture worthy of the name. Men do not gather grapes of thorns, or figs of thistles, and the ugliness of modern building is the inevitable and natural result of the ugliness of the methods that produce it. In a word, while the normal modern house is the confessed symbol of greed or profit, the old one stood for delight in work. And this delight in work was fostered by the Guilds, and there was no outside power then to step in and say, "No, you are to work for my profit, and not for your own delight."

I have no wish to pose as a reformer, and I have no "Morrison's Pill" to cure the ills of the labor world; but I cannot help wishing that, when we once more



LIBRARY, RESIDENCE, H. L. FROST.

turn our minds to the arts of peace, some organization of labor, modelled on the old Trades Guilds, may be attempted as the first step to secure some real revival of the art of building. In such organization the architect must take his place, not as an alien superior person, but as one so intimately associated with labor that he can interpret its dreams in terms his fellow-workmen can appreciate and understand.

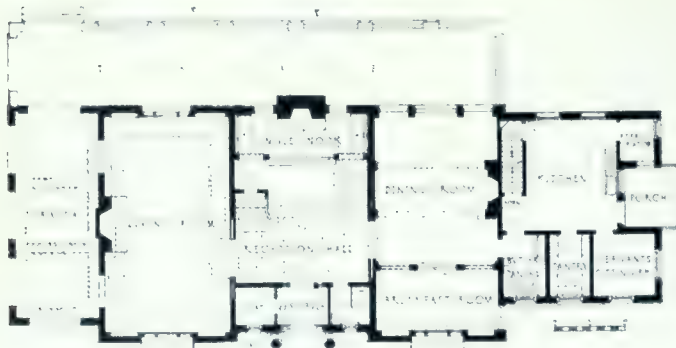
If we examine sympathetically an old building of the craftsman period, we shall find that the whole of the fabric seems to be saturated with a kind of human warmth of life, and the uncon-

is to say, in their surface and outline they have the kind of surface and outline which belongs to burnt clay, and to no other material, and their life history is still further recorded in the varied clouding and coloring of the fire. And the bricks are sensibly arranged without any unnecessary time wasted in making them exactly regular. The eye of the workman guides his hand without any mechanical aids, and so the work becomes a human document—becomes almost as characteristic as handwriting. And then when we consider the timber we shall find the same discernment in its treatment. In a material which has a distinct grain, and which gives us a distinct and



RESIDENCE, G. SOUTHAM, HAMILTON, ONT.

MILLS & HUTTON, ARCHITECTS.



FIRST FLOOR PLAN.

characteristic surface when chipped with an adze or chisel, it seems that the real qualities of the timber can best be developed by such work-



SECOND FLOOR PLAN.

scious art of it does not lie in any cleverness or feats of skill, but in a glowing, warmhearted vitality which seems to permeate it. The whole technique of its workmanship differs materially from modern practice, and such merits as it possesses depend to no small extent on the way in which the work is done.

The great principle which seems to have been unconsciously divined by these old builders is that each material used has its peculiar qualities, and in its handling these qualities are to be recognized and developed. Thus the bricks in the walls are patiently made of burnt clay—that

manship. Again, in the treatment of wrought iron we find the forms of the metal chiefly valuable as illustrating the fact that though now cold and hard, in passing through the fire it was soft and ductile. In the plaster the same hint as to character will be given, and it will appear like a lava stream which has flooded the walls, flowed round the timbers, and so at last become frozen. And all the subtle differences of texture in surfaces and outline arising from this kind of craftsmanship will come about, not for the love of irregularity for its own sake, but for the sake of expressing the individual character of each

material. Anyone who has engaged in any kind of craftsmanship must have experienced that kind of will-force which a material, such as timber, for instance, possesses. You may lead it gently in one direction, but only by force can it be made to go in another. The craftsman, then, can either impose his will relentlessly and crush the individuality of the material with a mailed fist, or he can allow the expression of its character.

All these qualities of old work are not difficult to obtain. They arrive automatically if work is done simply and naturally. To smooth away all the character from a piece of oak till it might be mud, or cheese, or anything, is quite a tedious process, and, indeed, is generally the outcome of pride in command over tools—the pitfall which seems always to await every school of craftsmanship. We must give up all such pride of mastery; for good workmanship, like good government, must seek to understand the true character of its subjects, and yield room for the due expression of that character. If, then, we consider the craftsman as the ruler of a kingdom, in which each material is given its appointed task and allowed in the doing of it the proper expression of its qualities, we shall find the cumulative result in the building, of isolated tasks rightly done, beyond all our expectations.



LIVING ROOM, G. SOUTHAM RESIDENCE, HAMILTON, ONT.

It is difficult to put into words the effect of an old house of the craftsman period on the mind of the sympathetic observer. We may be moved to delight by pictures and all the stored treasures of the past to be found in our museums. We admire all these things, but perhaps go away from them with a confusion of the mind and a headache. We are dimly conscious that there is something wrong, and that art should not be jumbled into galleries and museums, but form the proper setting of our lives. But in the old house we find the real thing that our fathers knew. We are enveloped at once in an atmosphere of peace. We are snatched away from transitory frivolities and all the superficial unrest of modern life. The walls seem to breathe out healing virtue, and as we pass from room to room we recognize that here indeed is the mistress art, compared with which all other arts are vain.

In leaving the consideration of the craftsman period for that of the scholar period at the time of the Renaissance, we are taking the first step on the downward path which ended in the lowest depths of the Victorian era.

In the craftsman period house building was essentially a creative art, and all its forms were the expression of definite functions. A beam was placed to carry weight, a buttress to resist pressure. But



RECEPTION HALL, G. SOUTHAM, RESIDENCE, HAMILTON, ONT.

when the Renaissance introduced to our builders all the features of classic architecture, a new principle of imitative art was introduced. At first the impetus of the tradition of the guilds prevented any serious damage, and the quaint use of the new forms by the craftsman of England was not without its charm; while the prime scholarship of the style of building thus developed was saved from dullness and pedantry by the human qualities of the earlier tradition. But still, by slow degrees, the whole

demand the building took upon itself various forms. But when the Renaissance came, and men began to look back and imitate externals, it became the custom to think of the house as a rectangular symmetrical box, in the four walls of which had to be packed the multitudinous apartments which a more advanced civilization demanded. In the struggle which ensued, symmetry generally broke down somewhere, and it was necessary to help it out with the sham window and other devices. This kind of building



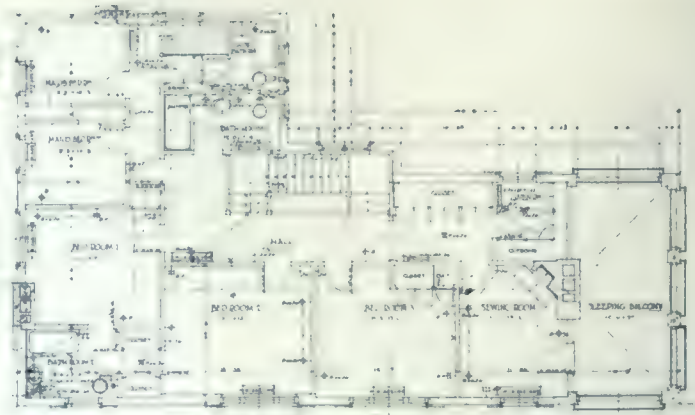
HOME ON DRUMMOND ROAD, TORONTO.

WICKSON & GREGG, ARCHITECTS.

business of building became hardened into formula; the creative artist gradually became spe-



FIRST FLOOR PLAN.



SECOND FLOOR PLAN.

cialized in the accessory arts, and the downfall of building as an art was complete. In the buildings of the craftsman period all the forms used were those which the creative intelligence of the builders had devised to meet the requirements of structure, without reference to buildings created for other purposes and other climates. The whole form of the plan was conditioned mainly by the building up of its component apartments in their required positions, and as the occasion

was most at home in the town, where the rectangular outline of the plan was logical; but in the country the rambling and irregular forms of the earlier buildings were more appropriate and more in harmony with their natural surroundings. The main drawback to the Renaissance work, however, was that it destroyed the creative initiative of the craftsman. All the realities of the building became degraded to the dismal science expounded in the current text-books.

Once the habit of copying foreign buildings was established, it quickly tired of the buildings of Rome and passed on to Greek art. Then Gothic work was discovered, and duly imitated in its turn. And so our architects passed from style to style with growing dissatisfaction. Each new adventure became in turn old-fashioned, and it was always the latest enterprise which was going to be the right things at last. But still the glory that was Greece and the soul of Gothic art alike proved too elusive to be captured. Each belonged

to its own time and to no other, and found no place in the modern world. The great glory of Greek and Goth was that they created Greek and Gothic buildings. It was nothing to the credit of the modern architect to imitate these creations. He might as well have imagined he could emulate Shakespeare by copying a page from one of his plays.

And while our architects were busy with all these futilities, gradually whatever practical structural ability we were producing was specializing itself in engineering, while artistic genius was devoting itself to painting and sculpture. The building art became drained of its best blood, and the production of houses, the most vitally important function of the community, became, as it remains to-day, the almost exclusive field of the speculative builder. And as in the Victorian era the last breath of the earlier tradition expired, the English house touched its lowest depths. We have not to go



LIVING ROOM, HOME ON DRUMSNAB ROAD, TORONTO.

far to find plenty of examples of these houses, with their dark basements and lofty reception rooms—harsh, cold, and repellent—without one touch of human handiwork. To follow the progress of house building through the nineteenth century is a sorry task. One is reminded of the old story of the tower of Babel, when the building was obstructed by a confusion of tongues. On the one hand was the architect, with his enthusiasm for reproductions; on the other, the craftsman without any enthusiasm at all. Architect and craftsman lived in different worlds, and spoke different languages; and so the architect always found in some disconcerting way that his modern house, built on the model of the old, was never the least like it. The old was always better, because it was produced under entirely different conditions, and was a spontaneous and unique expression of its time.

I can liken the buildings so produced to nothing better than waxworks. They reproduced external forms, but could not supply the vital spark. The builders went through the motions of building, and gave us all the correct external forms; but they could not give us the one thing needful to make their dry bones live.

The School Board of Chinook, Alberta, L. Proudfoot, Secretary, is asking for competitive plans for a school of brick veneer construction, steam heated. The immediate requirement is a four roomed schoolhouse designed for extension to eight rooms.



DINING ROOM, HOME ON DRUMSNAB ROAD, TORONTO.

Some Toronto Homes

House on Drumsnah Road, Toronto.

This house is built of hollow tile construction, plastered on the exterior and plaster left the natural cement color. The roof is shingled, the shingles being stained in two shades of dark green. Added effect is given to the main fronts by the use of lattice work, which covers the first storey. The garage conforms in general design with the house.

The dining-room, main hall and living room have been finished in mahogany, the dining-

room and main hall being panelled to the ceiling. The den is finished in oak, and the other principal rooms in white.

In the basement, besides the usual provision for heating, laundry work, etc., there have been provided a billiard room and a play room, which are reached from the main hall above by a separate staircase.

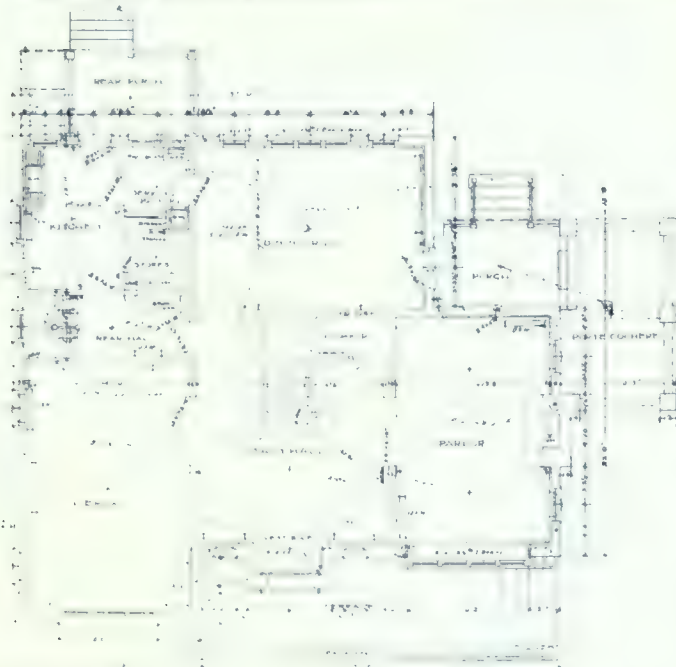
Residence at No. 263 Roxboro St. East.

The main point for consideration in connection with the above residence was to obtain a



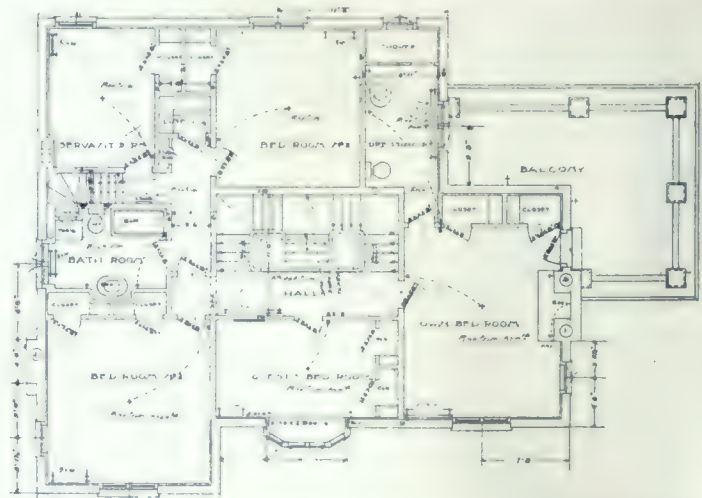
RESIDENCE ON SPADINA ROAD, TORONTO.

EDWARDS & SAUNDERS, ARCHITECTS.



FIRST FLOOR PLAN.

plan which took full advantage of the situation. The plan follows the English style, inasmuch that the more important elevation and living side of the house faces the garden, which in this



SECOND FLOOR PLAN.

case is of unusual interest on account of the wide expanse of the ravine it overlooks.

The library, which is also the main living room, is at what is ordinarily the basement level, but owing to the slope of the lot it enters directly on to the garden terrace. The garage is also placed in the basement, and is approached by a road that slopes down across the front of the building, thereby obtaining the additional distance to ease the gradient.

The style of the design is a modern adaptation of an early English domestic type, and was chosen partly out of consideration of the location of the lot, as it lends itself to a free, picturesque treatment. The main interest of the street elevation centres in the enriched centre gable, emphasized by the plainness of the flanking walls, whereas the interest of the garden elevation, which, owing unfortunately to the unfinished condition, has not been illustrated, consists in the large twin bay windows, from which an unusually fine view is enjoyed.

The library is trimmed with quarter-cut oak, the main floor with walnut and whitewood, and the bed rooms with whitewood. The walls on all sides are of Credit Valley stone with Indiana limestone trimmings, and the roofing material is shingle.

Residence, Spadina Road.

From the illustrations and plans of the residence in Spadina Road for Mrs. W. Cardeil Hall the reader sees an example of domestic architecture which, though of moderate size and unpretentious design, satisfies that desire of the discriminating householder for a convenient, compact and homelike design, which shows good taste in its every aspect.

The construction is sandstone and brick for the lower storey and stucco on brick for the upper. The exterior woodwork is painted a stone white, while the shingled roof is stained a dull red. Two pleasing features are the large open stone terrace with stone balustrade, taking the place of the usual verandah, and the porte cochere with balcony above.

The ground floor plan is very simple, the reception room, dining room and library opening off the main or staircase hall, are completely separated from the kitchen by the rear hall, and a large butler's pantry which opens off the dining room. The cooking is done by electricity

and the whole of this department is equipped with all the modern conveniences, making the whole exceptionally convenient.

As to interior trim the library is red birch finished mahogany; the dining room, natural colored gumwood, and finished with a wax finish.

The hall is white oak with a panelled dado and a very handsome staircase, the whole being finished like the dining room. The reception room is enamelled white.

The upstairs plan is also conveniently arranged, the owner's room being directly connected with a private bath room with needle baths etc. The guests' and two other bed rooms are grouped about the upstairs hall, while the servants' quarters are absolutely separated from the other portions of the house.

Soft and hard water are supplied for all purposes by an electric pumping system and the



MAIN HALL, RESIDENCE ON SPADINA ROAD, TORONTO.

whole establishment, although outside the city limits, has all the conveniences usually only found inside the city.

Special attention has been paid to obtain plenty of windows and the result is a light, bright and cheerful house, of which the owner and architects may well feel proud.

Compared with a year ago, a notable increase is shown in the volume of building permits for May. The total bears evidence of considerable building activity throughout Canada. While the totals from Ottawa, Fort William, London and Berlin show a falling off, other cities have gained considerably. These include Toronto, Montreal, Winnipeg, Calgary, St. John, Halifax, Westmount, Windsor, Port Arthur, Moose Jaw, Medicine Hat, Brantford, Stratford and Kingston.



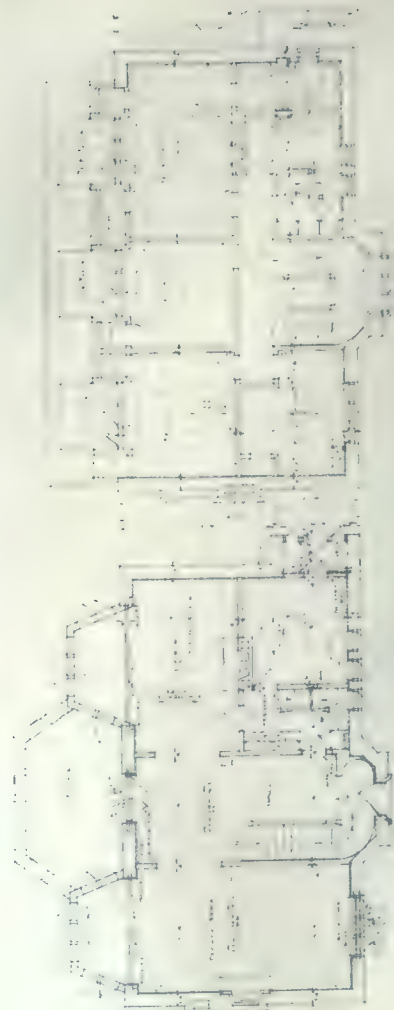
DINING ROOM, HOME ON RONBORO AVE. E., TORONTO.



LIVING ROOM, HOME ON RONBORO AVE. E., TORONTO.



HOME ON RONBORO AVE. E., TORONTO. CHAPMAN & MCGIFFIN, ARCHITECTS.



FIRST FLOOR PLAN.

SECOND FLOOR PLAN.

Canadian Woods For Interior Finish

By L. B. BEALE.*

MODERN requirements in interior finish, whatever the material employed, demand simplicity in design and treatment. The days of the heavily moulded and ornamented door, architrave and general trim are past. A great deal of the woodwork, especially in residence and school work, appeared in the past to have been designed with a view to catching and holding as much dirt as possible. To-day we find plain broad surfaces in wall panelling, doors and trim. This change is not only more sanitary, in that the minimum of dust is collected, but cleansing is a very simple matter. Then, too, the plainer surfaces bring out the beauty of the woods to the fullest extent.

In consequence of the increasing scarcity and advancing cost of hardwoods, architects and home builders have sought less expensive woods for interior finish. As far as Canada is concerned, this offers little or no difficulty, for with-

in the Dominion we have abundant supplies of some of the finest woods the world produces. Woods that are wear-resisting, durable and pleasing in appearance are demanded for interior finish. Absence of curl or warp and freedom from sliver and checking are also necessary.

The principal factor in any wood used for interior finish is that it must be perfectly dry before using. Too much stress cannot be laid on this point, for unless wood is absolutely dry, no matter what kind of wood is used, trouble is sure to result. Often dry finished mill work is fixed in a building before the plastering is dry. This practice will affect all woods and should be avoided if satisfactory results are desired.

CANADIAN WOODS AVAILABLE.

Canada has immense forests of splendid wood excellently suited for interior work. Over half Canada's lumber supply is contained in the magnificent forests of British Columbia. In the

*British Columbia Lumber Commissioner for Eastern Canada.



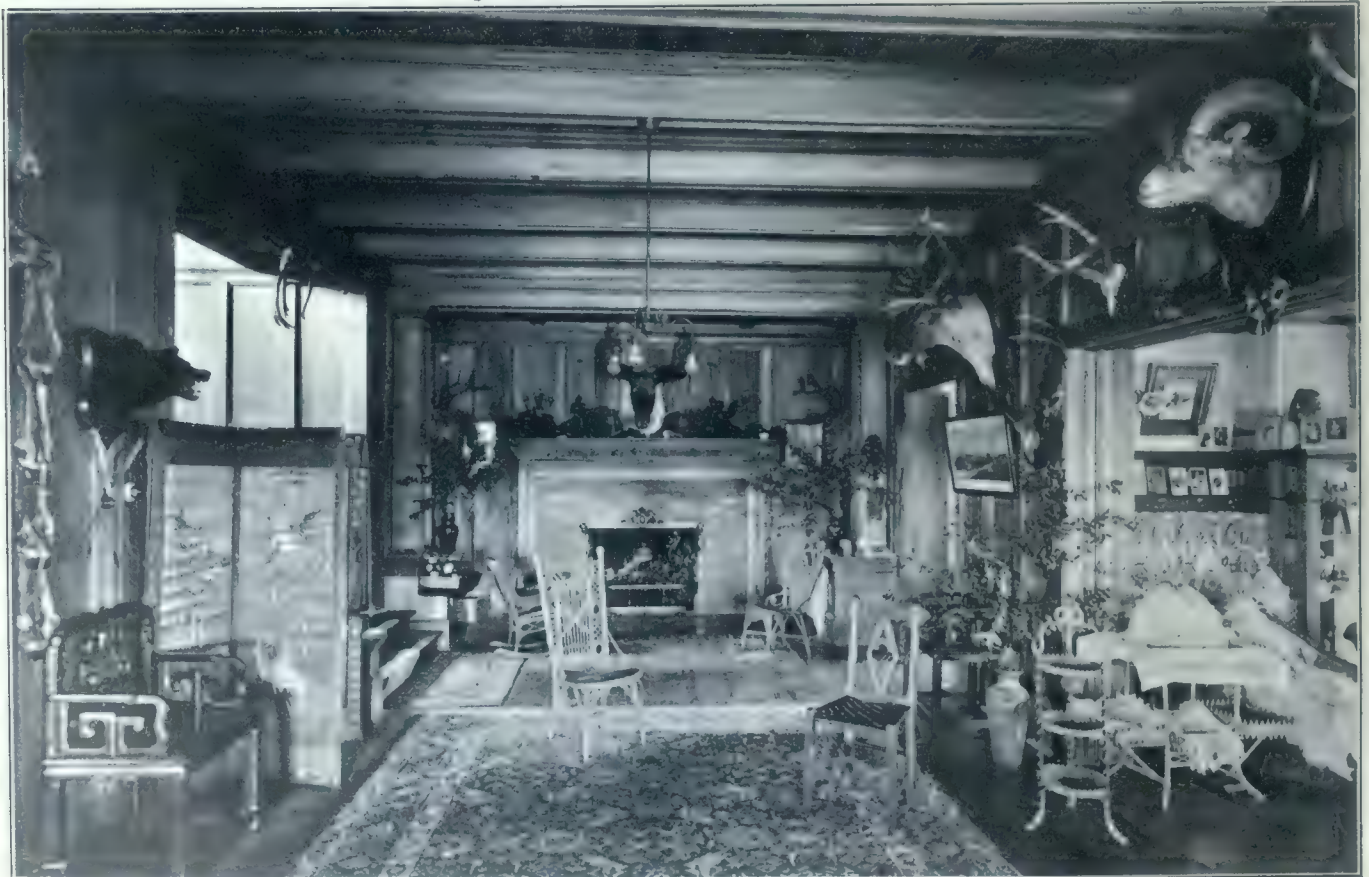
THE FOREST BEFORE LOGGING.



INTERIOR FINISH OF BRITISH COLUMBIA DOUGLAS FIR AND WESTERN RED CEDAR.

Pacific Province we find the "universal wood" Douglas fir, a wood having qualities which are demanded in every class of work, from trestle bridge to drawing room. This wood is first in size, strength, beauty of finish and all-round use-

fulness. It is durable, light, easily worked, has a grain and figure of delicate marking, and will take any kind of finish. As a material for interior finish, Douglas fir leads all other woods where moderate price and all-round excellence



AN INTERIOR FINISH IN BRITISH COLUMBIA WOODS.

are desired. Cut edge grain, it has the quiet, restful appearance desired in framing and trim. Cut flat grain, the broader figure is shown and is used in this form for panels. For wide panels a rotary cut veneer is manufactured, giving a delicate, silky grain in a thousand varied forms. Panels up to forty-eight inches wide are made in this form, perfect in every way, and of great strength. The edge grain Douglas fir makes a first-class flooring, very large quantities being used for this purpose throughout Canada. The requirements of a good floor are resistance to wear, absence of sliver and curl, good appear-

Western red cedar is largely used for high-class interior finish. Its remarkable durability and beauty place it in the front rank for wall panelling and other forms of interior work. A particularly pleasing job executed in Western red cedar is a large organ front in a Toronto church. The wood was finished to a perfect surface and left without stain or varnish, or any other treatment. The result is most satisfactory, the wood increasing in beauty with the passage of time.

The soft pine and Western white pine of British Columbia rank among the best woods avail-



A CITY BUILT OF WOOD.

ance and ability to take a good finish. All these points are most satisfactorily filled by using edge grain B. C. Douglas fir. Practically every kind of finish can be successfully applied to Douglas fir flooring, from the refined and quiet appearing beeswax to the high gloss hard floor varnish. In dressing the flooring after laying, care should be taken to sand the wood with the grain. Sanding across the grain will leave scratchy marks on any wood. Douglas fir makes remarkably good door and window frames, mouldings, and trim of all kinds.

able for interior finish. These woods dress to a remarkably smooth and silky finish, and are used for every kind of interior work. Large quantities are at present being shipped to Eastern Canada for sash and door stock, and are replacing the imported woods.

Other B. C. woods in great favor for interior work are Western larch and Western hemlock.

Truly British Columbia has "a wood for every use" available in abundance, and at prices which make their use possible in all classes of work.



RESIDENCE AT VICTORIA, B.C.

SAMUEL MACLURE, ARCHITECT.

An Attractive Bungalow

IN the bungalow illustrated herewith is shown the home of W. Breden Galbraith, architect, built in Lawrence Park, North Toronto. The design, with the tuck-pointed stonework, projecting rafter and beam ends, pergolas and pergola gateways and the interesting brick steps and electric light post, is more than suggestive of the California bungalow type, a type that has endeared itself to many in our Northern climate and one that is gradually becoming one of our own Canadian types of domestic architecture. Strictly speaking, the bungalow is a one-story building, but the term is in general use as applied to our adaptation to the two story dwelling.

In the home illustrated, the lower walls are of paving blocks of a rich dark red coloring, showing a 4 in. x 8½ in face, with wide, black mortar

joint; these are backed with 4 in. hollow tile; the upper walls are of plaster on 8 in. tile. This heavy brick is in harmony with the heavy beams, and the whole forms a splendid background for the roses, which are the predominating features in the garden. Incidentally, instead of the usual cement driveway to the garage, two narrow trenches were dug and filled with cinders, well rammed down, forming tracks for the car but being more or less overgrown by the grass; with the shrubbery on each side, the effect is that of a country lane.

The illustration loses somewhat of the effect of the very wide, deep verandah, owing to the presence of the storm sash. The front door proper, also, is not in view, and is constructed of heavy planks, bolted together with wide iron



LAWRENCE PARK BUNGALOW, HOME OF W. BREDEN GALBRAITH.



BEDROOM, LAWRENCE PARK BUNGALOW.



LIVING ROOM, LAWRENCE PARK BUNGALOW.

bands and provided with hammered iron knockers; this last operates an electric bell.

At the front, and to the left of the verandah, is a small studio. Back of the verandah and studio, a living room of generous proportions extends the full width of the building, the main stairway being at one end and a most attractive inglenook at the other, a very inviting spot for the "tired business man." To make it more comfortable, the seat ends drop down and outwards so that one may recline as in a steamer chair. The space under one seat is utilized for fuel, which is placed there from outdoors, instead of being carried through the room. At each side of the brick fireplace is a cabinet with wood doors, where magazines and other more or less unsightly articles may be conveniently placed.

The ground floor plan is somewhat radical;

the dining room is back of a portion of the living room but with not even an arch, much less a partition. The dividing line is formed by a heavy beam at the ceiling, the ceilings themselves showing the joists, not false beams. These joists are solid timbers, 4 in. in width, and plastered between. Egyptian cloth portieres are drawn between the two rooms for privacy. But the effect is that of unusual spaciousness and is ideal for entertaining purposes. Two pairs of leaded glass doors lead from the living room to the verandah, the floor of the latter being of hardwood on the same level as the rooms. With these open, the verandah, living room and dining room provide a space for dancing not equalled in many homes that are of much greater size.

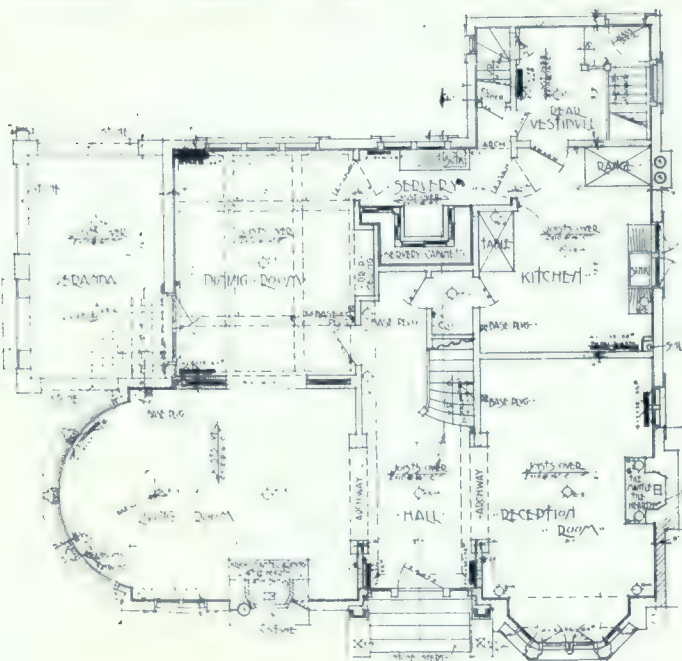
The kitchen is designed on the most modern sanitary principles, similar to the operating room of a hospital, eliminating all corners and nearly all woodwork; the floor is so constructed that a hose could be played into the room without damage.

Upstairs, one is surprised at the space obtained. The rooms are large, comprising four bedrooms, two being suites of dressing room and sleeping porch; also small store room, two bathrooms, and large linen and clothes closets. Between each dressing room and sleeping porch is a sliding partition, similar in action to the ordinary sliding door but with a small hinged door attach-

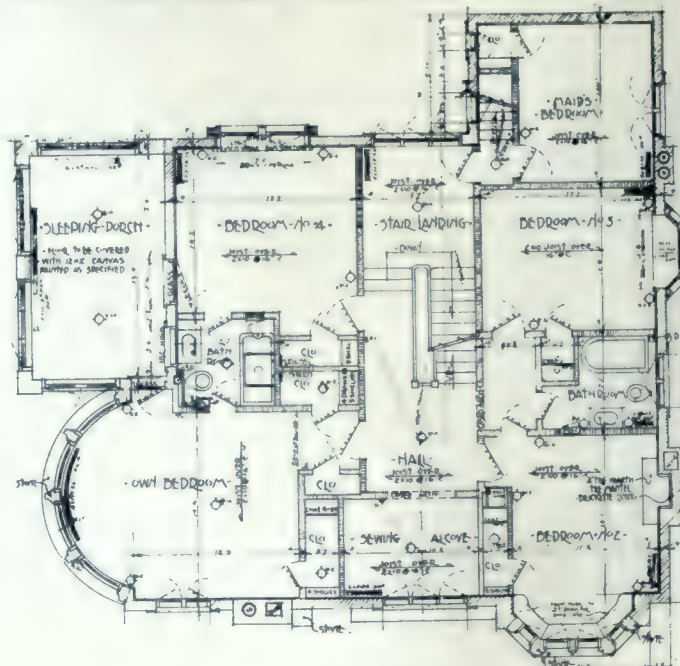


RESIDENCE, T. H. PRESTON, BRANTFORD.

LLOYD D. BARBER, ARCHITECT.



SECOND FLOOR PLAN.



FIRST FLOOR PLAN.



LIVING ROOM, LOOKING TOWARD HALL AND LIBRARY, T. H. PRESTON RESIDENCE.

ed. With the "sliding partition" pushed back into the pocket, the effect is simply that of an arch. When drawn out to separate the sleeping porch from the dressing room, the hinged door gives passageway. One of the illustrations shows the partition partly drawn. On a cold night, a "fresh air crank" may have all the air he requires without chilling the dressing room.

While no claim is made of this dressing room being carried out in period design, some of the enrichments and fittings are suggestive of a Louis XVI motif, an unusual treatment in a bungalow but very pleasing.

This two story home is almost three stories, for the basement contains a large billiard room, maid's bathroom, fruit room, boiler room, laundry and a fire-proof garage. The garage is reached by an inclined driveway from the rear. The billiard room is particularly interesting, all the exposed woodwork being hewn and showing the marks of the adze, the ceiling being similar to that at the living room, but with heavier timbers and showing solid, hewn beams. Exclusive of the inglenook, it is 15 ft. 6 in. by 21 ft.; the inglenook has movable seats and rustic stone fireplace.

Every architect and many owners have their ideal of the perfect home. It is seldom, particularly in the smaller dwelling, that one has an opportunity of carrying out all these ideals; it is not often the architect has an opportunity of working in all his pet "ideas" in one building. One important reason is that many such ideas are very radical and sometimes experimental; another reason is the bugbear of "cost," assuming too large proportions. It may be inadvisable to include too many "features" owing to

the possibility of selling at sometime and not being able to realize on the cost of such items. However, in this instance, an unusual number of special features were introduced. Such items as milk and medicine cabinets, clothes shoots, coal shoots, built-in refrigerators, book-cases and jewel safes are in common use; many homes are provided with stationary vacuum cleaners, electrical stoves and other devices. The appointments, in the home, particularly in the service portion, should be such as to reduce housework to a minimum, as in a well-equipped factory. But such things as ideally sanitary kitchens, specially

devised dumb waiters for serving light refreshments, china cabinets so arranged as to provide an aperture through which the dining table may be pushed into the pantry without removing any dishes—these are more unusual conveniences, as are also secret cabinets for various uses. These and many other contrivances both for comfort and minimizing housework have been provided in this comparatively small bungalow.



STAIR HALL, T. H. PRESTON, RESIDENCE.

Recent Houses in Montreal and Westmount

The Work of Turner & Carless, F.R.I.B.A., Architects.



RESIDENCE OF IRVING P. RENFORD, MONTROSE AVENUE, WESTMOUNT. TURNER & CARLESS, ARCHITECTS.

THE four examples that have been selected to illustrate this article have been chosen to represent distinctly different types of design which an architect may be called upon to carry out at one and the same time. Three of them are typical of the better class house, of which many good examples are to be found in Westmount, on the upper levels of the mountain, and which has become the popular residential district for Montreal business men. The other house, on Chomedey street, is a type of the larger town house in Montreal, where the "flat hopper" roof still finds favor, this being due principally to the fact that the danger from icicles and heavy snow of Montreal renders the pitch roof in street architecture objectionable, and even

dangerous, to pedestrians.

For the same reasons of climate it will be noticed that the pitch roof in the Montreal district has to be kept very simple in character, so as to avoid any "pockets" being formed for the accumulation of snow and ice.

This important factor, which governs design in construction, is not always appreciated by the amateur critic, who complains that the roofs of the better class residences lack the delightful picturesqueness of similar domestic work in England, or of countries which enjoy a milder climate than our own. One has to realize that anything on a roof that tends to obstruct the sliding of snow, is bound to give trouble in the future, and for this reason—in the Montreal district at any rate—twin gables to dormer windows, dormer windows or chimneys placed close to valleys, and other picturesque features, have to be avoided altogether in the making up of a design if the final result is to be satisfactory.

With houses in the Montreal district also, the many interesting effects that can be obtained by forming oriel windows on the upper floors, of portions of walls projecting over those below, or of rooms over open porches or galleries, are to be avoided as a rule, as it is difficult, unless



VIEW OF LIVING ROOM, I. P. RENFORD RESIDENCE.

expensive precautions are taken, to keep such projecting floors warm in the cold of the long winter months.

The four houses illustrated, whilst distinctly different in character, have many points in common as regards the specification.



LIBRARY, I. P. RENFORD RESIDENCE, MONTROSE AVENUE, WESTMOUNT.



FIRST FLOOR PLAN.

SECOND FLOOR PLAN.

They were all built in 1914-15, the masonry and carpenter trades being carried out by the same builder, who obtained the contracts in open competition.

The regulations governing the erection and design of houses in Westmount are now very strict, and rightly so, as the natural beauties of the district—with the heights of Mount Royal as the always outstanding centre of attraction—call for only the best work, and in consequence they should be kept free of the cheap house of the speculative contractor.

An architectural commission, consisting of well-known members of the Province of Quebec Architects' Association, has been recently appointed by the Westmount City Council, and in future no building can be erected in the city without the approval of this commission.

The Comedy street house, at the corner of Comte street, occupies practically the whole available building area, and is seventy-three feet long, with a width of twenty-seven feet.

The facing brick is the "White Rock," buff in color, and is laid with a fine joint.

Relief is given to the elevation by forming panels by recessing the bricks one-half inch back from the face.

The base of the building is of local Montreal limestone bush hammered on face; the stone facings and string courses are of Roman artificial



SIDE VIEW ENTRANCE PORCH, I. P. REXFORD RESIDENCE.

stone, with the balcony and brackets supporting same of Indian limestone. Interest is given to the end of the building by the formation of a Belvedere on the second floor.

The plans show a maximum of accommodation for the amount of space occupied by the building, as eleven bedrooms were required, and twenty cupboards are provided on the two upper floors. Attention might be drawn to the fact that the three maids' rooms, with bathroom, on the top floor, are en suite, and are approached by the back stairs, with a dividing door to the main passage. An interest is given to the entrance hall by planning it oval in form, and in the basement is a full size billiard room with lavatory and staircase from the main hall. This portion of the basement has no connection with that under the rest of the house where accommodation is made for the heating apparatus, laundry, cool room, etc. The domestic hot water is supplied by means of an automatic gas water heater.

The house at 4,295 Montrose avenue has a wonderful commanding view over the city and surrounding country, and has a southern aspect.

The brickwork is formed with first quality red Laprairie pressed bricks, laid with a thin joint, with rustications of three-quarter-inch projections. The principal feature of the elevation is the large flat segmental bay window carried up the whole height of the building in

stone. The rough sand finish to the cement cove gives the projection to the eaves cornice that is required at this point. The front gable is treated with rough-cast on the face, thus removing any effect of heaviness that might otherwise appear here. The roof is covered with unfading American green slates, having copper ridge curbs and a pitch and gravel hopper-shape flat on top. The living-room on the first floor is the principal apartment in the house and occupies with the balcony over the entrance the whole of the front of the building, the view from the windows being one of the best in the city. It is intended at a later date to finish the balcony as a flower room, when the effect of this room with the double glass doors looking to the conservatory will be very attractive. The woodwork of the house throughout, with the exception of the bathrooms, is all stained natural wood finish, principally of chestnut, with birch finished mahogany in the dining-room. Throughout the interior of the house attention has been given to the avoidance of moldings, except those of a very simple design; the wood bases throughout are mortised into a wood cove against the floors, so that anything in the nature of dust traps may be reduced to a minimum.

The floors are of plain white oak, except those



MANTEL IN DRAWING ROOM, I. P. REXFORD RESIDENCE.

in the bathrooms, which are tiled, and the kitchen floor, where a buff marbleoid composition flooring material has been laid.



RESIDENCE, W. E. MOWAT, 646 CARLETON AVENUE, WESTMOUNT.

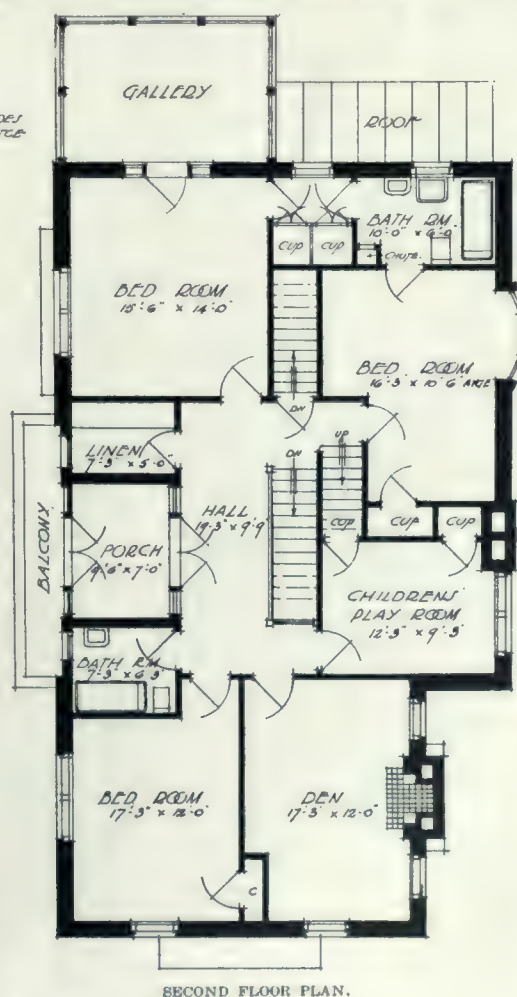
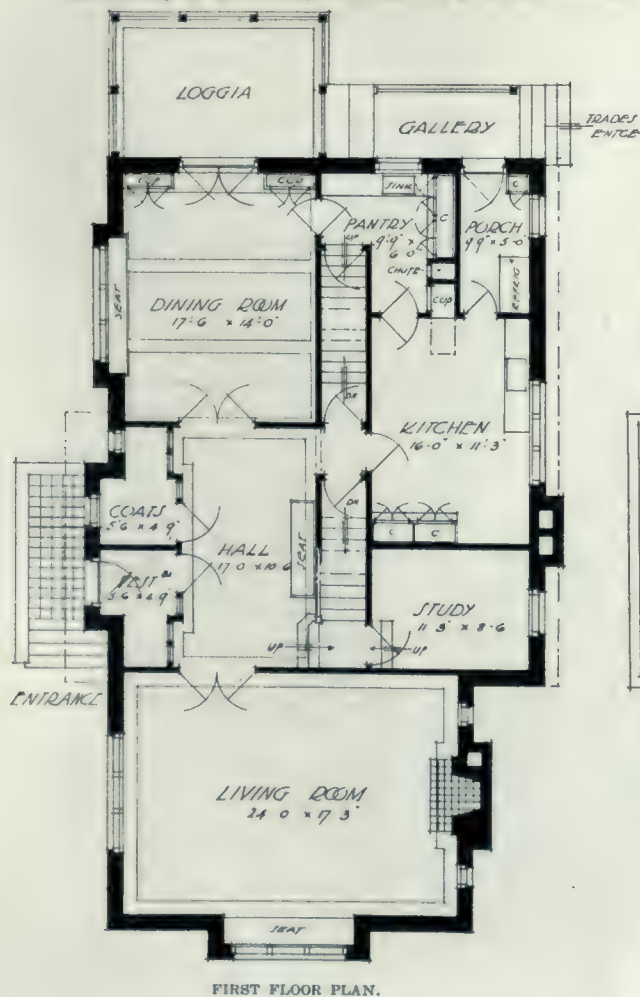
TURNER & CARLESS, ARCHITECTS.

Instead of the more usual twin-connected boilers of a capacity to heat the house together, the heating apparatus in this house consists of a No. 7 and No. 5 furnace with twin connections, but so arranged that it is never required to have the two boilers alight at the same time; the idea of this arrangement being that the larger one should be used in the coldest weather and the smaller in the fall and late spring. Besides the accommodation shown on the plans, provision is made on the second floor, which is entirely in the roof, for three bedrooms and bathroom, large cedar cupboard and trunk room space. The basement has a large billiard room and the other usual accessories.

The residence at 646 Carleton avenue is a good example of first-class brick-work, having been carried out by Scotch masons, and will bear inspection

as to the correctness of the horizontal and vertical joints and also the bond. In contrast to the house on Chomedy street, which is also a good piece of workmanship, the jointing of the Carleton avenue house is kept wide with a dark grey and raked out joint.

The brick is light brown in color, slightly varying in shade, and is known as the "Upper Kitting." It is an iron clay, fire flashed brick from Ohio, U.S.A. The base of the build-





DINING ROOM, 646 CARLETON AVENUE, WESTMOUNT.

ing is of Montreal limestone laid in "Scotch work" with a rock-face finish. The elevations, whilst simple in character, have points of interest in the projecting balcony over the entrance and in the overhang of the first floor on the north side of the house. The residence is built on a lot fifty feet in width, and as no projections are allowed to encroach nearer than seven feet to the side boundary, the face of the balcony and the projection of the north wall

home. The roof space contains two large bedrooms with bathroom, and a billiard room is provided in the basement.

The house adjoining, No. 644, is faced on all four sides with stone from New Brunswick. This is a sandstone and light olive in color. The face of the stone is a rock finish laid as "Scotch work," with dressed stone to the window, door openings and quoins.

The nature of the material calls for a severe and simple treatment, the color of the stone, which improves with age, giving the elevations a pleasing and restful effect.

Both of the houses on Carleton avenue have green slate roofs with copper for the metal work.

The four houses are of the best construction throughout, with steel columns and beams carrying the ground and first floor. The outside walls are all covered with furring strips to form an air space, back plastered and covered with waterproof paper on the inside before being lathed and plastered. The windows are arranged with deep weather rails at the sills to allow for ventilation, without draughts, at the horizontal



VIEW IN LIVING ROOM, 646 CARLETON AVENUE, WESTMOUNT.



RESIDENCE, CHOMEDY STREET, MONTREAL, FOR F. C. SKELTON.

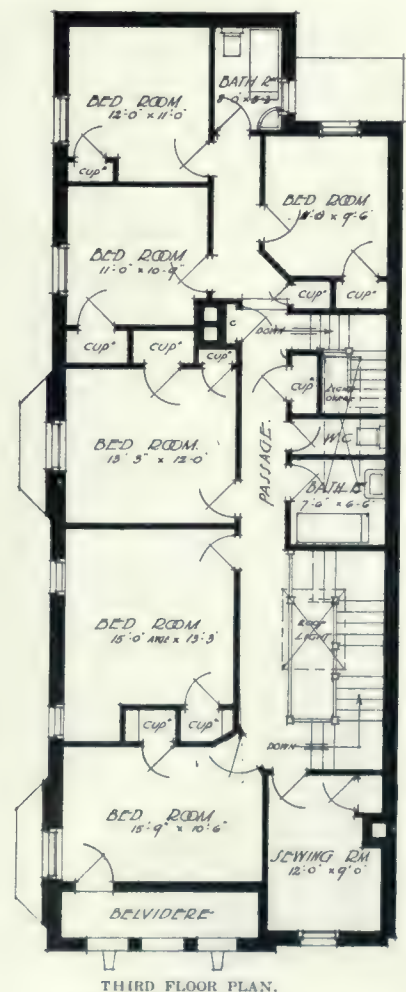
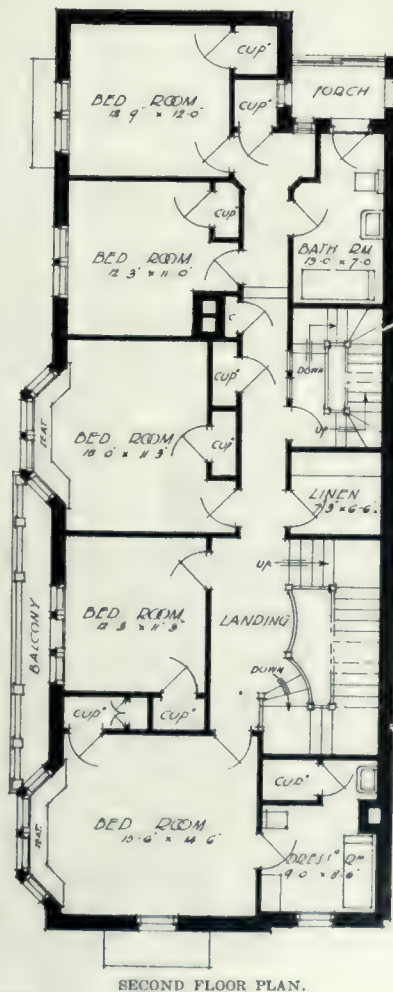
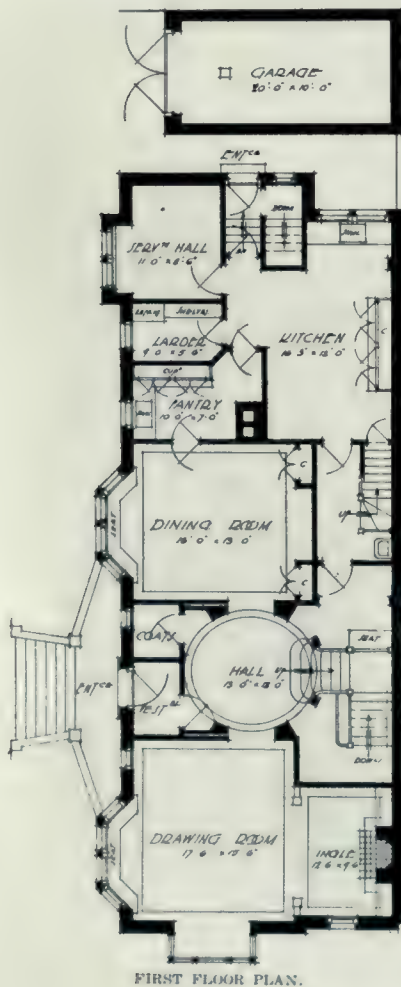
TURNER & CARLESS, ARCHITECTS.

meeting rails, when the sashes are opened for a height of two inches or so. Brass weather stripping is supplied to all door and window openings.

The total cost of the houses amounted to the following per cubic foot: Chomedy street house

and 646 Carleton avenue, 27 cents; Montrose avenue, 26 cents; 644 Carleton avenue, 30 cents.

Professor G. Baldwin Brown recently lectured on "The Monumental Art of Ancient Egypt" at a meeting of the Glasgow Branch of the Egyptian Research Students' Association at Glasgow





MANTEL IN DRAWING ROOM, RESIDENCE, CHOMEDY STREET, MONTREAL.

University. He said that the structures of the old Empire were in the best sense monumental through their severity of treatment as much as by their actual prodigious size. On the other hand, the temples of the new Empire were huge in bulk, but failed to produce the same æsthetic effect as the impressionable works of the old Empire, while on the other side human reason had permeated them in every part and by its complete mastery of them had stamped them with the impress of style.



ENTRANCE HALL, CHOMEDY STREET RESIDENCE.

A BRANTFORD HOME

THE residence of T. H. Preston, Brantford, is built on one of the finest corner lots of the city of Brantford, and having two important streets to face, a certain amount of care had to be taken in the treatment to obtain a desired effect.

The whole desire of the owner has been to build a comfortable home, and surely the plan suggests this above any other quality. The lines are simple and the whole suggests an absence of waste or fussiness.

The brick used is the dark reds and browns, rough faced, suggesting tapestry and this effect has been carried out with flush panels in the brickwork. The bricks were laid up with a wide, well raked out joints. The stone used throughout is

Ohio sandstone. The plan includes an entrance vestibule finished with high panelling in mahogany; a reception hall, and to the right a library, finished in mahogany, to the left a bright living room in quarter-cut oak, and at the rear of this the dining room, separated with double sliding doors. From the dining room is easy access to the side verandah, which, being kept in brick work, includes a sleeping porch over.

The kitchen and servery are fitted with every convenience possible.

The bedrooms of the second floor are all large and, with convenient closets and baths, are all that can be desired.

The residence was designed by and the work carried out under the supervision of Lloyd D. Barber, architect, Brantford, Ont.

AN APPRECIATION OF SAM MACLURE.

"Among the many architects in Canada whose works have an artistic and old-world refinement, and whose personality belongs to the imaginative painter rather than the practical and mathematical architect, is Sam MacLure, of Victoria.

"While Sam MacLure says that he has 'yet to do what he considers a good house,' and because of a fire that destroyed the building that had

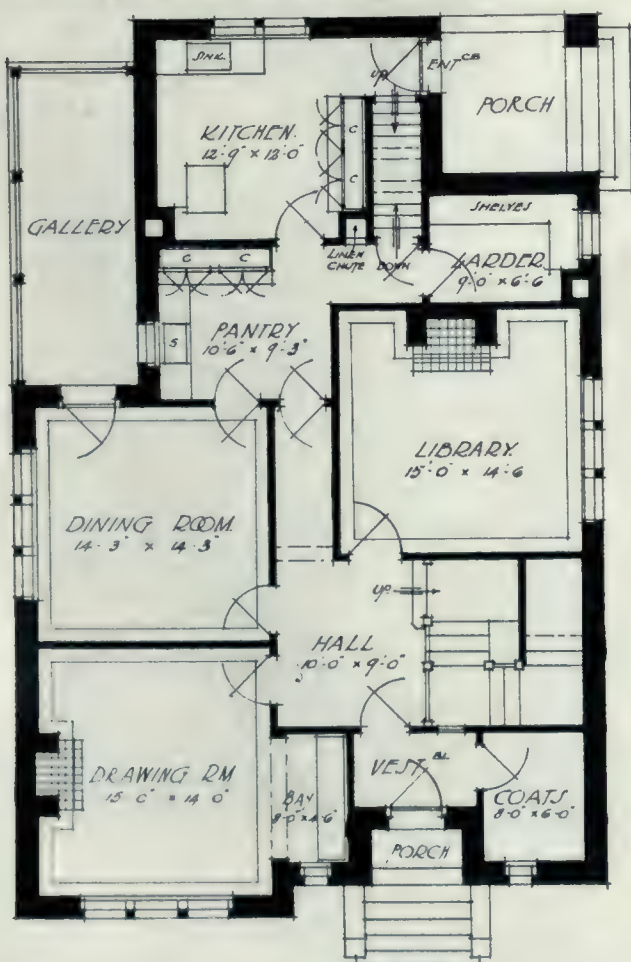


RESIDENCE, MISS ELLIOT, 646 CARLETON AVENUE, WESTMOUNT.

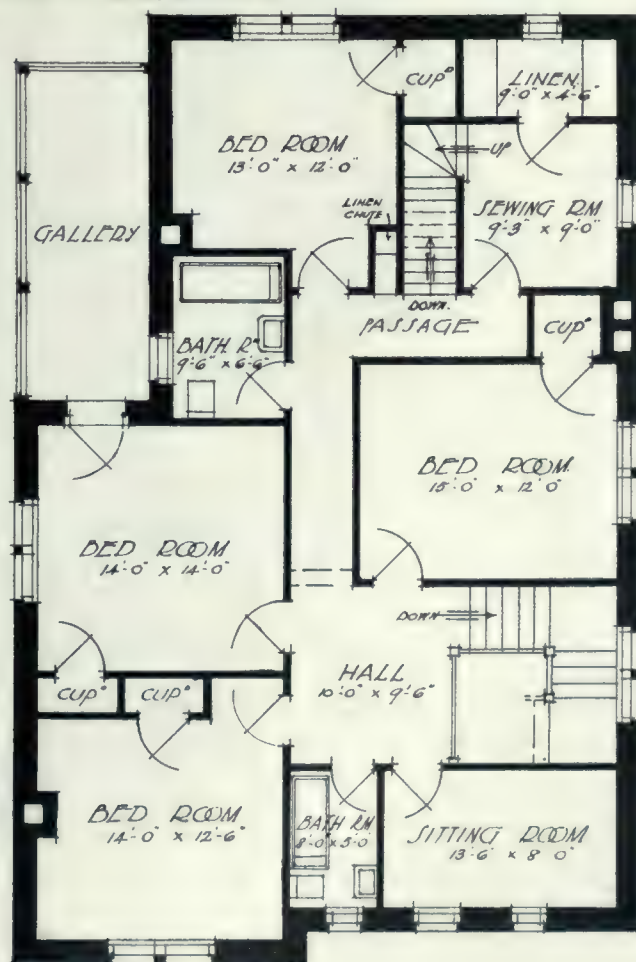
TURNER & CARLESS, ARCHITECTS.

housed his office for twenty years, the exhibit of his work is more incomplete than could be wished, all plans being destroyed.

"Yet that refinement of detail, that attention to proportion and consideration of purpose and location that makes for interesting architectural design is most noticeable in the works of Maclure, and nowhere more evident or pleasing than in the 'simple little slab shanties,' as he calls them, built in the wilds of British Columbia. Should the 'fortunes of war,' as with so many Canadian practitioners, compel him to remove across the line, his talents would be a distinct addition to the profession in this country, as they would be a loss to the Dominion of Canada."—
"Western Architect."



SECOND FLOOR PLAN.



FIRST FLOOR PLAN.



RESIDENCE OF T. SLATER, VICTORIA, B.C.

SAMUEL MACLURE, ARCHITECT.

CONSTRUCTION

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ENGINEERING AND CONTRACTING
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CONTRIBUTIONS.—The Editor will be glad to consider contributions dealing with matters of general interest to the readers of this Journal. When payment is desired, this fact should be stated. We are always glad to receive the loan of photographs and plans of interesting Canadian work. The originals will be carefully preserved and duly returned.

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FRASER S. KEITH - - - EDITOR AND MANAGER

Vol. IX Toronto, June, 1916 No. 6

A NATION'S OPPORTUNITY

Opportunity is knocking at Canada's doors with a loud, insistent rap. An epoch in Canada's development is pending. Are we going to heed the call, that comes with no uncertain sound, and measure up to a standard in keeping with the resources with which we are lavishly endowed, or are we going to drift along and lose for all time the chance that beckons? While the seriousness of the grim struggle in which we are engaged and in which our heroes are giving up their lives, grows more impressive each day, and which will call for still greater sacrifices in men and money, we have another role to play. The future must be faced. Solving the problem of the part Canada is to take as her share in rehabilitating the waste of war and in engaging in world commerce, involves the economic and industrial welfare of the Dominion and represents the greatest opportunity ever presented to any nation. It demands an efficient national organization directed by the best intelligence that our manufacturing, business, professional and civic bodies can produce.

The bugle call of mobilization towards this end has been sounded by Sir Geo. E. Foster, who proposes a convention of the business men of Canada to be held during the coming Autumn with the object of arriving at a practical line of procedure. Just as national history is being made by our men on the battle fields of Europe, so our future national welfare lies in the policy and its efficiency adopted at this time. In his appeal for concerted action which calls for devising means of bringing about commercial preparedness on the part of the Boards of Trade, the Manufacturers' Association, the great transport corporations, the bodies of scientific and industrial research, the engineering associations, the labor bodies, the mining, fishing, lumbering and agricultural interests, the banking institutions and generally of all men of knowledge and experience, the Minister of Trade and Commerce asks: Will our steel industry, our textile industry, and all our great industries, our transport corporations, our banking people, our agricultural and lumber and fishing and mining interests, our engineering, chemical and scientific research associations—in a word, all our lines of production, natural and industrial, our labor associations, and our educational institutions take up and canvass and work out their ideas along the line of this question? And to do this effectively, will each one of these interests in this time of great national need, take the trouble to get together a select number of their best and brightest representatives, who will make it their business to conduct a thorough examination and be ready to counsel and advise their Canadian co-workers? And then, will they be prepared after such examination and thought to meet in the proposed convention, ripe in well-based conclusions, fertile in well considered plans, and ready for co-operation each with every other in one united, intelligent systematized national effort to increase production and capture our share of home and foreign markets?

Sir Geo. Foster has sounded a note of momentous import. It is up to the men of Canada to appreciate its significance and respond.

FRANK DARLING, LL.D.

In honoring Mr. Frank Darling by bestowing the honorary degree of Doctor of Laws at the recent convocation, the University of Toronto paid tribute, not alone to the eminent architect, but to the high position he occupies in the country as a public spirited man. Mr. Darling's work as a leader in the movement to secure adequate pensions for soldiers and their dependents bears evidence of a keenly sympathetic mind with the ability to take part in national affairs and the will to spend time and energy for the welfare of others.

Architectural Digest

Articles of More Than Passing Interest From Our Contemporaries

THE SELECTION OF A HEATING SYSTEM FOR A HOUSE.

By Charles L. Hubbard.

The following article takes up briefly the various methods of heating in common use, showing the advantages and disadvantages of each when applied to different types of buildings, and how to overcome the disadvantages to the greatest extent. The object is to assist the architect in selecting a system, or a combination, which will best meet the requirements in any given case, taking into account first cost, convenience and economy of operation.

Dwelling houses may be satisfactorily heated by warm air, steam, or hot water, provided the systems are properly designed and adapted to the size, location and special requirements of a given building.

For houses of six to eight rooms the warm air furnace may be made to give very satisfactory results and possesses a number of decided advantages over steam and hot water. The first cost is considerably less, it is simple to operate, and all parts are easily accessible in case of repairs. A furnace system warms up the rooms quickly, as the heat passes through the pipes and registers as soon as generated and continues to flow into the rooms as long as the fire is maintained. Steam and water both require a longer time for heating up, especially the latter, where a large volume of water must be warmed through a considerable range of temperature before an appreciable amount of heat is given off by the radiators.

While a steam system is quicker in action than water, the radiators cool off as soon as the pressure drops, unless equipped with vacuum air valves, and practically no heat is furnished to the rooms. The effect of a low fire in the case of a water system is similar to that with a furnace—a reduced quantity of heat being furnished; but it does not respond so quickly to changes in draft as the latter, owing to the larger body of water to be heated or cooled. A furnace system is especially adapted to cases where it is desired to close certain rooms or the entire house during the winter, since there is nothing to freeze when the fire is allowed to go out. With steam or water the entire system must be drained when the house is closed and water radiators must be kept turned on slightly at all times in unused rooms in cold weather to keep up sufficient circulation to prevent freezing.

The objection sometimes raised regarding the dryness of air with a furnace system may be entirely avoided by installing a furnace of sufficient size so that the warm air may be admitted to the rooms at a moderate temperature (about 120 degrees maximum) and by keeping the evaporating pan inside the casing supplied with water.

As a matter of fact, the air in a furnace-heated house is no drier than when steam or hot water is used. Neither system adds or removes moisture from the air unless special provision is made for it. The feeling of dryness often noticed is due to overheating the air, thus causing any dust which may have collected in the pipes and registers to burn and produce a slight smoke, which causes a sense of dryness in the throat and nose. This effect is also increased by overheating. In another way, as it is likely to warp the plates, thus allowing gases from the fire to mix with the air before passing to the rooms. By using a furnace of proper construction and suitable size, this difficulty may be avoided.

The two most important objections to warm air heating, as compared with steam and water, are the difficulty of forcing heat into certain rooms in windy weather, and the cost of operation due to the large amount of cold outside air which must be warmed to the normal inside temperature of 70 degrees before any heat can be stored for transmission to the various rooms for purely heating purposes.

Both of these difficulties may be largely overcome and entirely eliminated in many cases by the use of return flues for returning a part of the air from the house to the furnace instead of taking in the entire supply from out of doors.

Under ordinary conditions the amount of air taken in from outside is several times greater than is required for good ventilation for the average number of occupants, which simply results in a waste of fuel. When there are high winds the supply of fresh air is still further increased by in-leakage around doors and windows; or, if the wind is in certain directions, the in-leakage may cause sufficient pressure within the building to prevent the usual supply from entering through the cold air box. In either case it will cut down the heat supply in proportion to the surplus air, due either to in-leakage or to cutting off the normal flow through the furnace casing and registers on account of the increase in pressure in the rooms above. This explains why certain rooms fail to heat properly in windy weather. It may be either dilution of the normal hot air supply or an increase in the cold air supply through leakage and a corresponding reduction in the hot air supply due to an increased back pressure in the rooms. All of these unfavorable conditions may be largely overcome by re-circulation of air within the building.

Under normal conditions the fuel cost may be greatly reduced by taking from one-half to two-thirds the air supply to the furnace from within the building, which will still provide sufficient outside air for good ventilation. In the case of winds, the supply through the cold air box may be reduced and the re-circulated air increased until, in the case of high winds, the entire amount may be taken from inside the building. Under these conditions we are simply utilizing fresh air which leaks into the building, that is, adapting the heating system to the reversal of conditions instead of trying to work against them. With both outside and return ducts, the proportion of outside and inside air may be varied, as desired, by means of a suitable mixing damper. Details of construction will depend upon local conditions; but, in general, the return flue should draw its supply from two or three separate rooms, and preferably from points near the outer walls.

In the case of small dwellings, a single return register in the front hall is usually sufficient, while in larger buildings one may be added in the living room, and at other points as may be needed to equalize the circulation. Care should be taken to keep

the two supply ducts separate until a point near the furnace is reached, and then the connection should be such that the outside air cannot by any chance blow into the inside duct.

In comparing the fuel cost of furnace heating with that of direct steam and hot water, the estimate should always be made on the assumption that the entire air supply to the furnace is to be taken from the inside of the building in order to place the warm air system on a common basis with the other two systems.

Direct steam is not well adapted to the heating of dwellings unless some special provision is made for temperature regulation. It is evident that the size of radiator for a given room must be proportioned for the coldest weather, and with steam a practically constant temperature the amount of heat given off will be practically the same at all time, regardless of the outside temperature. This condition calls for a frequent closing and opening of the radiator valves, or the opening of windows, which is usually undesirable on account of cold drafts and uneven temperature in different parts of the room.

The various vapor and vacuum systems upon the market have been designed to overcome this difficulty by varying the steam pressure within the radiator, and consequently its temperature. These have proved more or less successful, according to their design and thoroughness of construction. Arrangements in which the pressure in the entire system is made to vary are necessarily limited in their range, owing to the difficulty of maintaining a high vacuum in the pipes and radiators without the use of a mechanically operated pump, or other similar device, which is not usually desirable in connection with dwelling house work.

When the joints are especially tight, sufficient steam pressure may be raised to drive out the air from the radiators, after which the pressure may be allowed to fall to a point considerably below that of the atmosphere, resulting in a corresponding lowering of the temperature of the radiating surface. The length of time between the periods of forcing out the air will, of course, depend upon the tightness of the joints and the packing around valve stems. With a well constructed system once or twice a day, say at morning and night, when more heat is required, should prove sufficient. An ordinary steam heating plant equipped with vacuum air valves may be operated in this way. When investigating a vapor or vacuum system for dwelling house condition, its simplicity should be carefully considered, as all work of this kind should be made as nearly automatic as possible, free from adjustments, and not likely to get out of order.

A simple way of obtaining a fairly good degree of regulation is to divide each radiator into two sections, in the proportion of one to two, separating them by a blind bushing which gives in effect two radiators having the appearance of one. Each should be separately valved, having a single connection. By turning on the smaller section, one-third of the surface comes into use, while the larger section gives two-thirds, and both sections three-thirds, or the whole capacity of the radiator. Such an arrangement is free from complications and gives a sufficiently wide range for most conditions.

Steam heating is especially adapted to buildings of large size where the horizontal distances from the furnace to the bases of the uptake flues is too great for the successful operation of hot air. Steam can be carried any distance, the pipes are much more easily installed than air flues, and, furthermore, outside weather conditions have no effect upon the action of a direct radiator.

An advantage of steam over hot water is the ability to shut off the radiators in closed rooms without danger of freezing in extremely cold weather, and in case it is desired to close the house temporarily in winter time, it is a comparatively easy matter to drain the water from the boiler and return mains.

A disadvantage of direct steam as compared with hot air is the lack of ventilation. This may often be gotten around satisfactorily by combining it with indirect heating. In rooms which are not crowded, such as stair halls, corridors, etc., there is usually sufficient in-leakage of fresh air for the necessary ventilation. This may be taken as one complete change of air per hour in buildings of average construction. Sleeping rooms are comfortably heated by direct steam alone, as the in-leakage of air is sufficient during the day and ventilation by open windows at night is commonly practised at the present time. For living rooms and others where better ventilation is desired, indirect stacks may be used.

The advantage of indirect steam over hot air comes from the fact that the stacks may be placed at or near the bases of the flues leading to the different rooms, thus doing away with long horizontal ducts and avoiding to a large extent the effect of wind pressure upon exposed rooms.

Among the minor objections to steam may be mentioned inaccessibility of pipes in case of repairs, snapping or water hammer in the pipes, leakage of water through air valves, unsightly appearance of direct radiators and pipe risers, and danger of boiler explosions. These, however, may be disposed of for the most part without difficulty.

The pipe risers may often be run where they are easily reached in case of repairs, as in corners of rooms, behind doors, in closets, and other locations where, if painted to harmonize with the walls, they will not prove unsightly. When it is necessary to conceal them completely, extra heavy pipe should be used and all joints tested under pressure before closing in. Risers installed in this way should last for thirty years or more without need of repairs.

Snapping, or water hammer, after the pipes and radiators are once warmed up, is entirely unnecessary in a well designed system, and can always be avoided by proper drainage and the use of pipes of suitable size. It is not important for the architect to be familiar with the details of construction necessary to obtain this result, but he should thoroughly understand that a quietly working system is possible, and insist upon securing it.

Leakage of water, in any amount, through air valves, is due either to improper drainage or to closing the steam valve and leaving the return valve open, thus allowing the water to back back into the radiator from the boiler. If the difficulty is due to poor drainage, the fault should be located and corrected. Troubles of this kind may lie either in the grading of the radiator itself or

in the pipe connections. In the case of new systems it is best to use the one-pipe radiator connection, which makes it impossible to overlook the return valve. If the trouble occurs in an old building, equipped with the two-pipe system, it will be necessary to remember always to close both valves when shutting off a radiator. A slight dripping or spitting at the air valve may often be stopped by proper adjustment. If this does not prove effective, a better grade of valve should be employed; those projecting a short distance into the radiator or provided with a capillary strip are less likely to give trouble in this way.

The unsightly appearance of direct radiators may be avoided to a considerable extent by selecting a plain pattern of symmetrical proportions, as regards length and height, and decorating it according to the color scheme of the room.

Danger of boiler explosion is so slight as to be practically negligible. The type of castiron boiler commonly used for house heating has a large factor of safety for the low pressures carried, and explosion is amply guarded against by an automatic safety valve and check damper. Furthermore, the construction of most boilers is such that a fracture is confined to a single section and simply results in the water leaking out of the boiler. Suitable care, however, should be taken to see that the safety valve and automatic damper regulator are kept in good order.

While steam may be better adapted to certain types of buildings than either hot air or hot water, the two latter are the standard systems of heating for dwelling houses. Under ordinary conditions hot air has the advantage in small houses of six to eight rooms, while direct hot water, supplemented by indirect stacks for one or more of the most important rooms, is better adapted to buildings of larger size.

The great advantage of hot water over steam is in the matter of temperature regulation, it being possible to vary the temperature of the water circulated according to the outside weather conditions, in which way it closely resembles the hot air system. Hot water heating is better adapted to larger buildings than furnace heating, because the action of a radiator is not affected by its horizontal distance from the boiler or by the strength and action of the winds, except as it is necessary to offset the effects of the in-leakage of cold air, which is common to any system of heating. Although it does not provide abundant ventilation, it has already been shown that in many rooms a sufficient amount of fresh air may be obtained by leakage and through open windows, and when indirect heating is provided for the living room, or other rooms requiring especially good ventilation, it probably makes the best arrangement, everything considered, for buildings of a medium or large size.

Mention has already been made of the danger of freezing in extremely cold weather. This may be guarded against by locating the expansion tank in a warm room, close to a chimney in the attic, or by the use of circulation pipes which keep the water constantly moving through the tank. All radiator valves should be provided with a small hole ($\frac{1}{8}$ to $\frac{3}{16}$ inch) drilled through the gate, which will allow a slight circulation through the radiator sufficient to prevent freezing, even when the valve is closed.

It is true that hot water requires a greater length of time for warming up than either a furnace or steam. On the other hand, the temperature of a house heated with hot water does not fluctuate so readily as when either of the other two systems is used, because the large body of heated water contained in the system acts as a regulator or "balance wheel." The proper and most economical way is to run as even a fire as possible continuously and not allow the house to cool down too much at night. The forcing of a fire for an hour or two in the morning for warming up the house takes practically as much fuel as to carry a moderate fire during the night, to say nothing of the added comfort secured by the latter method.

The cost of installing a hot water system is somewhat greater than for steam, owing to the larger amount of radiating surface required. This, however, can be reduced by the use of a hot water "generator," which makes it possible to carry much higher water temperatures than with the open tank system. The cost of operating a hot water plant is less than for steam, owing to the better regulation of temperature, the amount of saving varying with the skill and care exercised in running the boiler.—"The Brickbuilder."

WHAT IS DECORATION?

What is decoration? Simple and all as this question is, some of the best decorators of the day would have trouble in answering it fully and satisfactorily.

Just because decoration makes use of pattern and design and ornament, any of these terms "pattern," "design" or "ornament" is not necessarily an adequate description of decoration itself. There can be "design" without decoration, there can be "pattern" without decoration, and likewise "ornament" can exist without decoration being present.

The dictionary defines decoration as the act of decorating or adorning with something becoming or ornamental; the art of adorning, ornamenting or embellishing. But this definition is too broad—it does not limit the quality of the ornament, the adorning, or the embellishing. If puts on the same plane the design applied by the skilled and the unskilled artisan; it embraces the crude pattern drawn by a child, and the highly ornamental design of a master.

Some better definition, then, will have to be found for the term.

The early savage carved circles and squares and triangles on the handle of his battle axe, and it was an ornamentation that looked good to him and that pleased him—but was it decoration?

The nomad as he wandered from spot to spot stopped for a while here and there and wove rough fabrics for his body and for the floor of his tent. And he put into them geometric figures, made of colored threads, which pleased his fancy and awakened the envy of his friends. The woven fabric had a rough elementary charm and a certain pleasing appearance—but was the pattern of it decoration?

The plodding worker on the banks of the Nile made bricks in the shadow of his tent and baked them in the sun, and when the work of his day was done he scratched the history of his life and the story of his tribe on the tomb that covered his dead. The writing he made had a strange picturesqueness, and it savored both of balance and of proportion—but was it decoration?

The early Egyptian, the Greek, and the Roman, each in his own time, and each in his own way, erected a temple to his gods. He placed the columns in certain ways and ornamented them with flutings and caps of exquisite proportion and design. He carved statues and friezes for the temple and placed and ar-

ranged them so that the whole mass was a unit of charm and beauty—and was it decoration?

To all these questions some will answer "yes," and all will answer "no" to others. But no one will answer "no" to all of them, or "yes" to all of them.

The point is this: Decoration means a certain something in the order of the universe which is neither the ornament nor the thing, but a perfect blending of the two together. Decoration is the adorning of existing utilities with pattern or design or motif or embellishment which does not interfere with the utility itself, either in its form or in the exercise of its function, but which adds to it, aesthetically, something of beauty and of charm. Decoration never stands in the way of utility—decoration never augments a function—decoration is not physical, it is of the mind and the soul.

The rude carvings on the battle axe of the savage do not hinder its function, but they are not decoration. They are too low in their degree of perfection to express the beautiful, they exert no force on the intellect. They are the expression of nothing in particular and their appeal is barren. In a world of savages they might serve as satisfactory ornament. But in a universe that is civilized they are overshadowed by things that are greater, more beautiful and more charming.

It may be contended that the smallest item of decoration is just as essential as the greatest motif. Just so, and the cent is part of the dollar—but no one speaks of cents when quoting the finances of nations. And no one looks upon savage carving as decoration when thinking of the arts of civilization.

There are degrees of decoration. There is decoration simply, and great decoration. Decoration may exercise an appeal during a certain period or in a certain locality; its significance may be temporal and fleeting, but great decoration is universal. It exists for all peoples all times. Its power to exude beauty and charm is constant.—"Decorative Furnisher."

PUBLIC HEALTH AND THE WAR.

The minds of most men are centred at the present time on the problems connected with the devastating war in Europe. The supreme task which confronts the British Empire, and Canada as an important part of the Empire, requires the concentration of all the thought and energy that can be given to its accomplishment. It is a difficult time, therefore, to arouse interest in social problems which are in need of solution. Indeed, there are some people who question whether the present is an appropriate time to discuss them. And yet, when we enquire deep enough, it seems as if no time could be more appropriate for those to give attention to them who are unable to assist the cause of the Empire in a more direct way. Problems which have arisen since the war commenced have shown us the vital importance of public health and of the efficiency of human labor. Who can measure the enormous debt which the British army to-day owes to the public health legislation of the past 40 years? That the standard of physique has been raised by improved sanitation and housing is without question. The value of this on the battlefield has been seen in recent months. In our workshops and factories physical and mental efficiency are needed as they never were before, and what has been accomplished by the past generation in purifying our water supplies, in making city life healthier and cleaner, and in educating our workmen is now yielding abundant harvest. In some directions we might have been better equipped than we are. In spite of the progress we have made we might have paid more regard to health and to conservation of life than we have done. Bad housing and sanitary conditions have contributed to the loss of tens of thousands of young lives in Canada alone which might have been saved to the Empire if we had paid more regard to public health requirements.

The errors, or rather deficiencies, of the past should be our inspiration for the future. Healthier conditions of life in our cities are needed now to aid us in finishing this war; they are needed even more to build up reservoirs of strength for the future. Then, too, the men who are sacrificing themselves at the front will have to be replaced, and large gaps will have to be filled. To prevent avoidable disease and death is to contribute to the source of that real strength of the Empire which to-day is undergoing its supreme test.

In regard to finance, the war is affecting our whole political and municipal structure throughout Canada. We need to conserve our national resources, to encourage production, to reduce waste and unhealthy speculation. To accomplish these tasks successfully we must plan for the future, so that our towns may produce healthy citizens and be ready to face times of stress and storm as well as times of prosperity.—"Conservation of Life."

FIRE LOSSES.

FORT NELSON, ONT.—W. J. Southam's summer residence was destroyed by fire; loss \$10,000.

HARCOURT, N.B.—Kent and Eureka Hotels destroyed by fire; also Dr. Fairbank's residence; loss \$25,000.

MEAFORD, ONT.—Boyd Bros.' elevator destroyed; loss \$4,000.

MEDICINE HAT, ALTA.—Plant of Dominion Harvester Co. destroyed; loss \$70,000.

MONTREAL, QUE.—Louis Winstainer & Son, 58 St. Lawrence Boulevard, factory destroyed; loss \$30,000.

PORT ARTHUR, ONT.—Frame warehouse of Western Dry Dock Co. destroyed; loss \$25,000; new fireproof building will be erected.

QUEBEC, QUE.—Plant of General Car Co. destroyed; loss \$300,000.

RED HILL, ONT. (near Hamilton)—O. E. Quigley's barns destroyed; loss \$10,000; will rebuild.

REVELSTOKE, B.C.—Chimax Hotel destroyed; loss \$35,000.

ST. JAMES, MAN.—Ice storage plant destroyed; loss \$10,000.

SIMCOE, ONT.—Planing mill of L. Flick & Sons destroyed; loss \$15,000.

WINDSOR, ONT.—O. Orechkin, warehouse destroyed; loss \$4,500.

WINNIPEG, MAN.—Rice Malting Co. plant destroyed; loss \$250,000.

Construction News

The following information is obtained from our correspondents, from architects, engineers and local newspapers. These items are published in our Daily Report Service, and are herein compiled for the use of subscribers to the monthly issue of "Construction." Should any of our readers desire this information daily we will be pleased to submit prices upon request.

BUSINESS BUILDINGS.

BRANDON, MAN.—Imperial Oil Co. have awarded contract to A. E. Bullock for the erection of office building, to cost \$10,000.
DAVIDSON, SASK.—D. S. Hutcheon has secured site on Washington street for office building.
LONDON, ONT.—E. V. Buchanan, City Hall, London, is to have plans prepared for new Hydro office building, cost \$75,000.
OTTAWA, ONT.—Architect W. H. George, Castle Building, has called for tenders on office building, to be erected for MacDonald & Bryan, 109 Metcalf street.
TORONTO, ONT.—Architects Burk, Horwood & White are preparing plans for office building, to be erected at Prospect Cemetery for Governors Prospect Cemetery; cost \$8,000.
WINNIPEG, MAN.—Architect J. D. Atchison has plans drawn for office building to be erected for Bank of Hamilton, Winnipeg, cost \$500,000; Architects Woodman & Carey are preparing plans for office building to be erected at Dagmar and Bannatyne, for Stovel Printing and Engraving Co.; Architects Owen & Jordan have awarded contract to Carter-Halls-Aldinger Co. for erection of office building for Winnipeg Grain Exchange, cost \$200,000.

CIVIL ENGINEERING.

BERLIN, ONT.—Tenders have been called for two concrete bridges; engineer, H. Johnston; clerk, A. Millar.
BRIDGEBURG, ONT.—Tenders have been called for one thousand yards concrete sidewalks; clerk, R. A. Land.
BRUSSELS, ONT.—Tenders have been called for macadam road; F. S. Scott, clerk.
DARLINGTON TOWNSHIP.—Tenders have been called for two steel bridges; clerk, W. R. Allen, Hampton, Ont.
DUMFRIES TOWNSHIP.—Clerk, H. Mans, Paris, Ont., has called for tenders on three concrete bridges; engineers, Jackson & Lee, Brantford.
DUNDURN, ONT.—Secretary E. G. Edwards has called for tenders on cement sidewalk.
EAST KILDONAN, MAN.—Engineer J. W. Battershell has called for tenders on sewers.
EASTMAN, QUE.—Secretary A. A. Dingman has called for tenders on steel bridge.
EDMONTON, ALTA.—Tenders have been called for paving concrete walks, curbs, etc.
ESQUIMALT TOWNSHIP.—C. H. Topp, engineer, has called for tenders for sewers.
FORD CITY, ONT.—Clerk J. F. Foster has called for tenders for concrete sidewalks.
FREDERICTON, N.B.—Provincial Government will erect a steel bridge over Jemseg River.
GALT, ONT.—Galt Gas Light Co. have awarded Thomas & Hancock a concrete breakwater contract.
GEORGETOWN, ONT.—Clerk F. L. Heath has called for tenders for cement walks.
HAMILTON, ONT.—Clerk S. H. Kent has called for tenders on sewers.
HUMBOLDT, SASK.—Tenders have been called for concrete well.

KINCARDINE, ONT.—Clerk J. Corbett has called for tenders for McLean bridge, to be erected for Kincardine Township; Clerk J. H. Scougall has called for tenders on cement sidewalks.
LONDON, ONT.—Chipman & Power, 204 Mail Building, Toronto, has plans for sewers and sewerage disposal works; tenders have been called.

MASONVILLE, QUE.—Secretary L. Labelle, Potton Township, has called for tenders on 75 ft. steel bridge.

MONCTON, N.B.—Engineer J. Edington has called for tenders on paving 14,200 square yards of pavement.

MOOSE JAW, SASK.—C.P.R. will rebuild part of dam, reinforced concrete construction; cost \$20,000.

MITCHELL, ONT.—Tenders have been called for 65 ft. steel bridge, concrete abutments; engineer, J. Roger, Mitchell; clerk, M. Leake.

NEW BRUNSWICK.—Department of Public Works, Fredericton, N.B., have called for tenders on four bridges; P. Hughes, secretary.

NORTH BAY, ONT.—Tenders have been called for laying 3,700 feet of water mains; engineer, H. J. McAuslan.

NORWICH, ONT.—Tenders have been called for 8 in. sewer; clerk, Wm. Fairley.

ORANGEVILLE, ONT.—Engineers Wheelock & Christie, Orangeville, have called for tenders on concrete abutments for Township of Toronto.

OTTAWA, ONT.—Tenders have been called for steel bridge; engineer, F. C. Askwith.

PRINCE GEORGE, B.C.—Tenders have been called for wood pipe, welded pipe, castings, hydrants and valves; engineers, DuCane, Dutcher & Co.

RED BROOK, QUE.—Tenders have been called for steel bridge, concrete abutments; I. W. Browne, secretary-treasurer.

RUSSELL, MAN.—Reeve H. V. Bailey, Municipality of Russell, has tenders open for concrete bridges.

ST. CATHARINES, ONT.—Plans have been drawn for storm relief sewer, cost \$75,000; engineer, Near; Engineer Near has called for tenders on cement sidewalks; tenders have been called for sewers and castiron pipe.

ST. LAMBERT, QUE.—Tenders have been called for paving Waterman and Bridge streets; secretary-treasurer, James R. Beatty.

ST. THOMAS, ONT.—Jas. Bell & Son, engineers, St. Thomas, have called for tenders for six concrete bridges to be erected in Yarmouth Township.

TORONTO, ONT.—Harbor Commissioners have awarded R. Weddell Co. contracts for concrete harbor head wall work, \$85,000, and dredging and dock, \$95,000; Works Department have called for tenders on concrete walks, curbs and pavements; also tile sewers.

VIRDEN, MAN.—Tenders have been called for laying concrete pipes, and five concrete bridges; secretary, W. Whiteford.

WALLACE TOWNSHIP.—Reeve S. E. Smith, R.R. No. 1, Listowel, has called for tenders on concrete abutments.

WESTBOURNE, MAN.—Secretary P. S. McGregor has called for tenders on two concrete bridges.

WILLOUGHBY TOWNSHIP.—Tenders have been called for four reinforced concrete bridges; clerk, J. H. Plyley, Chippawa, Ont.

WINDSOR, ONT.—Engineer M. E. Brian has called for tenders on concrete pavements.

WOODSTOCK, ONT.—Engineer F. J. Ure has called for tenders on sewers; a cone pavement will be laid on Riddell street, F. G. Ure, engineer.

YARMOUTH TOWNSHIP.—Engineers Bell & Son, St. Thomas, Ont., have awarded contracts to W. Irvin, \$615, and L. McCandless, \$1,800, for erection of concrete bridges.

CLUBS, HOSPITALS, THEATRES AND HOTELS.

CALGARY, ALTA.—City is negotiating for site to erect auditorium, to cost \$150,000.

CARMAN, MAN.—Hospital Board, Secretary, R. J. McConnell, have called for tenders for additions to hospital.

GANANOQUE, ONT.—Mr. Delaney has called for tenders on additions to McKenzie Theatre.

GRAVENHURST, ONT.—Muskoka Free Hospital has approved plans for hospital additions.

MOOSE JAW, SASK.—Architect R. G. Bunyard has called for tenders on hospital building to be erected for Sisters of Providence.

PORT DOVER, ONT.—Buck Bros. propose building amusement hall on Walker street, to cost \$7,000.

QUEBEC, QUE.—Brunet & Tanguay, Carillion and St. Valier streets, are building picture theatre, to cost \$7,500.

ST. CATHARINES, ONT.—Secretary G. L. Riddell, Military Hospital Comm., 1325 Traders Bank Building, Toronto, has called for tenders on alterations to hospital building.

ST. JOHN, N.B.—Architect F. Neil Brodie has called for tenders for hospital building for Isolation Hospital Board, to be erected at Howe's Lake, to cost \$12,500.

SASKATOON, SASK.—J. Noel Niven and Mr. Ashdown are preparing plans for new picture theatre, to cost \$50,000.

ORILLIA, ONT.—Architect W. H. Crocker has called for tenders for addition to General Hospital.

TORONTO, ONT.—Architects Curry & Sparling have awarded contract to J. C. Scott, 106 River street, for hospital building, to be erected at Hanlan's Point, for Sick Children's Hospital; plans are being prepared for alterations to old General Hospital for Department of Militia and Defence; Architect Jules Wegman, 6 Howard street, has plans drawn for new club buildings for American Club, Carls-Rite Hotel.

WINDSOR, ONT.—Windsor Lawn Bowling Association are preparing plans for club house, to cost \$3,000.

WESTMOUNT, QUE.—Mr. Conover, Imperial Theatre, Montreal, is preparing plans for new theatre to be erected at Sherbrooke and Grosvenor; to cost \$125,000.

PLANTS, FACTORIES AND WAREHOUSES.

BRANTFORD, ONT.—American Radiator Co. have plans drawn for new warehouse to be erected on Greenwich street, at cost of \$8,000.

CALGARY, ALTA.—Canadian Automatic Thresher and Machinery Co. are to build new factory at cost of \$75,000; interested, W. J. Thomas and A. J. Lormer, Vancouver.

CHATHAM, ONT.—American Pad and Textile Co. propose building addition to factory on Queen street, at cost of \$8,000.

CHIPPEWA, ONT.—The Norton Company propose erecting another addition to plant.

ELMIRA, ONT.—C. Steeb, Guelph, proposes building knitting factory; cost \$25,000.

GALT, ONT.—Goldie & McCullough have awarded contract to Secord & Son, Brantford, for factory to cost \$100,000; Solid Leather Shoe Co. have awarded contract to R. Gatehouse for addition to factory on King street.

GUELPH, ONT.—White Sewing Machine Co. are preparing plans for new factory to cost \$200,000.

KINGSVILLE, ONT.—Erie Tobacco Co. contemplate rebuilding factory destroyed by fire, at cost of \$50,000.

LEAMINGTON, ONT.—W. F. Moss has awarded contract to Link Bros. for erection of tobacco factory to cost \$8,000; F. W. Johnston and J. W. Shardlow have plans drawn for knitting factory.

LONDON, ONT.—Gootson Bros., Maitland street, have plans drawn for new warehouse to be erected on Trafalgar street, to cost \$4,000.

MARKHAM, ONT.—Purus Salts Co., Limited, are to have plans prepared for erection of \$5,000 plant; interested, J. Malcolm, Markham.

MONCTON, N.B.—Atlantic Underwear, Limited, have tenders open for new factory.

MONTREAL, QUE.—Can. Consolidated Rubber Co., 950 Notre Dame east, have plan drawn for factory to cost \$10,000; Can. Iron and Tube Co., 107 Hamilton street, have plans drawn for new factory to cost \$3,000; Columbus Rubber Co., Iverville, have

plans drawn for new factory on Poupard and De Montigny, to cost \$5,000; Harbor Commissioners, 67 Common, have plans drawn for new warehouse to be erected on Notre Dame street east at cost of \$18,000; C. H. Johnston & Sons, 8 Dagenais, have plans drawn for new factory to cost \$4,000; Mathews Phelan, 8 St. Peter, has plans drawn for new factory on Jurors street to cost \$1,500; Wm. Maher, 1878A Henri Julien, has plans drawn for store and residence to be erected on Beaubien street at cost of \$1,500.

MONTROSE, ONT. (near Niagara Falls)—Canadian Alexite Co., Limited, have commenced work on new factory to cost \$100,000.

PETERBORO', ONT.—Quaker Oats Co. have awarded contract to Leonard Contracting Co. for factory addition, to cost \$30,000.

QUEBEC, QUE.—Hon. G. E. Amyot, Dorchester, has plans drawn for the erection of corset factory to be erected on St. Helen street, at cost of \$50,000.

REGINA, SASK.—Consolidated Rubber Co. have awarded contract to Poole Cons. Co. for warehouse, to cost \$35,000; A. Melville, Winnipeg, architect.

SAGUENAY RIVER, QUE.—Du Pont Power Co., Chicago, Ill., propose erecting power plant, to cost \$10,000,000.

ST. CATHARINES, ONT.—Canada Forge Co. have awarded contract to Standard Steel Construction Co. for factory warehouse, to cost \$50,000.

SHERBROOKE, QUE.—Corey Needle Co. have plans drawn for factory addition.

TORONTO, ONT.—Chevrolet Motor Car Co., Toronto Junction, are preparing plans for new factory to cost \$100,000; Architects Denison & Stephenson, 18 King street west, are preparing plans for warehouse to be erected on Richmond street for Mr. Cowan; Architect S. A. Waggett has plans drawn for office, warehouse and stable, to be erected for B. Enusevsky, 235 Beverley street; Gutta Percha and Rubber, Limited, 47 Yonge street, are building reclaiming building at West Toronto; Flint Varnish Co. are building new factory on Perth avenue; Architect C. J. Gibson, 53 Yonge street, has called for tenders on new warehouse for Wm. Long, 406 Yonge street, to be erected on Gerrard street; McClary Mfg. Co. have plans drawn for factory addition at 177 King street west, cost \$3,000; Sunbeam Lamp Co., Dufferin street, have awarded contract to Canadian Allis-Chalmers, 212 King street west, for erection of re-storage building on Dufferin street, at cost of \$30,000; Jas. Thompson, 43 Dawes road, has commenced work on new factory on Broadview avenue, cost \$5,000; Wilson Munitions, Limited, 1106 Traders Bank Building, have plans drawn for factory addition at 438 Dufferin street, to cost \$2,000; Architect and Engineer J. McConnell and L. Dowling, 167 Yonge street, are preparing plans for erection of warehouse for H. Greisman, 68 Adelaide street east, to cost \$40,000.

PUBLIC BUILDINGS AND STATIONS.

AYLMER, ONT.—Dr. Muma is preparing plans for erection of Fair building at Fair Grounds.

BROCKVILLE, ONT.—Work has been commenced on Old Folks' Home, to cost \$8,000.

GALT, ONT.—Commissioner Cummings is preparing plans for erection of band stand and pavilion at Jackson's Park, at cost of \$3,000.

GUELPH, ONT.—Architect F. R. Heakes, Parliament Buildings, Toronto, has called for tenders on building alterations for Ontario Department of Public Works, Toronto.

HAMILTON, ONT.—Architect P. W. Peene, 107 Clyde Block, has called for tenders on park buildings, to be erected in Wabasso Park.

MIMICO, ONT.—G.T.R., Montreal, has plans drawn for new station to be erected at Church and Main streets.

NORTH BATTLEFORD, SASK.—Architect H. Evans has called for tenders on new library to be erected on Main street for Library Board; chairman, Mr. Walker; cost \$18,000.

ORILLIA, ONT.—Architects Burk, Horwood & White, Ryrie Building, Toronto, have called for tenders on municipal building, to cost \$35,000.

OTTAWA, ONT.—Architects Darling & Pearson, Toronto, have awarded contract to Peter Lyall Co., Montreal, for erection of Parliament Buildings, to be erected at cost of \$6,000,000.

ST. BONIFACE, MAN.—City Council are having plans prepared for proposed fire hall, to cost \$20,000.

SASKATOON, SASK.—Exhibition Board have awarded contract to W. W. Houlding for erection of Fair buildings.

SCARBORO', ONT.—Site has been secured by Scarboro' Township for new municipal hall.

SHERBROOKE, QUE.—City Council will decide to spend \$50,000 on new city hall.

TAVISTOCK, ONT.—John Lemp, Chairman Library Board, has awarded contracts for new library as follows: carpentering, Kalbfleisch & Son; masonry, John Plehl; heating, Woelfe & Son; painting and glazing, H. Schlitt; plumbing, G. Elfert, all of Tavistock, Ont.

TILBURY, ONT.—M. C. Railway, St. Thomas, Ont., are preparing plans for new station.

TIMMINS, ONT.—T. & N. O. Railway have called for tenders on new station; S. B. Clement, North Bay, engineer.

TORONTO, ONT.—Department of Public Works have called for tenders for new car barns; Architect W. W. Pearce, City Hall, has called for tenders for lavatory at Ward's Island; Secretary W. J. Hughes, 50 Wychwood avenue, Wychwood Conservative Association, propose building public hall; Hydro-Electric Co., 226 Yonge street, have plans drawn for additions to station at Front and Cherry streets; cost \$6,000.

VANCOUVER, B.C.—F. L. Townley has awarded contract to Grant, Smith & Co. for station foundations, to be erected at False Creek.

WESTVILLE, N.S.—Town of Westville, A. W. McBean, clerk, have called for tenders on public building, to cost \$6,000.

RESIDENCES, STORES AND FLATS.

AMHERSTBURG, ONT.—Dr. D. Laferte, Detroit, has awarded contracts on residence, cost \$5,000.

ATWOOD, ONT.—Geo. Gordon has plans drawn for residence to cost \$3,500.

AVON HEAD, ONT.—E. Lantz is preparing plans for residence, to cost \$4,000.

AYER'S CLIFFE, ONT.—S. S. Worthen, Marshall Rexford, Mr. Pickard, Fitch Bay, are all preparing plans for frame bungalows.

AYLMER, ONT.—Clarence Smith, Aylmer, is preparing plans for several residences, cost \$8,000.

BANFF, ALTA.—R. H. Brett will build business block of four stores; H. S. Johnston, B.Sc., architect.

BELMONT, ONT.—A. W. Beattie has awarded contract for bungalow to Turner Bros., cost \$5,000.

BLYTH, ONT.—Adam Elliott is preparing plans for residence to be erected on Dinsley street, cost \$3,200.

BRANDON, MAN.—Hon. G. R. Caldwell has plans drawn for seven stores to be erected on Rosser and Princess avenues, cost \$10,000.

BRANTFORD, ONT.—Dr. C. D. Chapin has plans drawn for residence to be erected at 45 Wellington street, cost \$6,000; E. L. Gould has awarded contract for residence to be erected on Chestnut avenue to Schultz Bros., cost \$7,000; Barber & Tilley, architects; Dr. Porter has plans drawn for brick bungalow to cost \$3,000.

CARLINGFORD, ONT.—R. S. Smith has plans drawn for residence to be erected, cost \$3,200.

COLBORNE, ONT.—Wm. Durst has plans drawn for residence, cost \$3,500.

COLLINGWOOD, ONT.—J. Beckett has awarded contract to Bawden & McLeod for residence, to cost \$2,200.

CORINTH, ONT.—Walker Flrby is preparing plans for residence to be rebuilt that was destroyed by fire, cost \$3,000.

CRAMPTON, ONT.—J. Jenkins has plans drawn for residence and dairy barn; buildings destroyed by fire to be rebuilt at cost of \$5,000.

DUTTON, ONT.—G. Binks, Route 1, Dutton, is preparing plans for residence to cost \$3,500; Godfrey Gilchrist has awarded contract to Saunders, Dutton, for residence to cost \$3,500; T. M. MacLellan, Tara, Ont., has awarded contract to Evans, Owen Sound, for residence, to cost \$3,500.

ELORA, ONT.—F. Daub will erect residence on Main street, to cost \$7,000; D. Jowen has awarded contract to N. Stafford, Elora, for auto sales shop, to cost \$8,000.

EXETER, ONT.—Harvey Bros. are preparing plans for residence to cost \$3,500; J. Howard is preparing plans for an apartment to be erected, cost \$5,000.

FOREST, ONT.—Mrs. G. Webster has awarded contract to Phillip Prouse for residence to be erected, to cost \$4,000.

GRAFTON, N.B.—Marion Rankin has plans drawn for residence to be erected.

HALIFAX, N.S.—J. Brennan has plans drawn for residence to be erected on Livingston street, to cost \$2,000; W. O. Morrissey has plans drawn for residence to be erected on Sherwood street; F. W. Parker has plans drawn for residence to be erected on Quinn street; F. C. Geizer has plans drawn for residence to be erected on Westmount street.

HAMILTON, ONT.—E. Crawford, 19 Holton avenue, has plans drawn for apartment to be erected, cost \$9,000; E. Patterson, 167½ King east, architect; J. W. Cummings, East Main street, has plans drawn for \$5,000 residence; E. A. Seymour, Cumberland street, has plans drawn for \$6,000 residence; A. F. Hatch, 73 Sherman, has plans drawn for office to be erected on Arthur avenue, cost \$5,000; Ronnenberg & Bach, 24 Fairholt, have plans drawn for residence to be erected on Somerset avenue, cost \$2,000; J. W. Gathercole, 439 King street west, has plans drawn for three brick residences to be erected at 38 East Simcoe, cost \$4,000; G. Dunn, 293 Charlton avenue, has plans drawn for two frame residences to be erected on McNulty boulevard, cost \$2,000; J. M. Farewell has plans drawn for residence to be erected on Beechwood avenue, cost \$2,200; Harold Grayson has plans drawn for residence to be erected at 297 Prondece street, cost \$1,800; R. Lamb has plans drawn for cottage to be erected on Grosvenor avenue, cost \$2,000; J. McNought, 495 Wilson avenue, has plans drawn for three brick residences to be erected on Somerset avenue and Dunsmore road, cost \$6,000; J. Dwyer has plans drawn for two residences to be erected on East Bend street, cost \$4,000; T. Hamilton has plans drawn for two residences to be erected at 182 Grosvenor street, cost \$2,000; T. Babbidge has plans drawn for residence to be erected on North Wentworth street, cost \$2,000; E. Carlson has plans drawn for residence to be erected on Mayflower avenue, to cost \$2,000; J. J. Morden has plans drawn for residence to be erected on Balmoral avenue, to cost \$2,000; J. H. Craig has plans drawn for residence to be erected on Somerset avenue, to cost \$2,000; Williamson & Torrence has awarded contract to S. S. Forbes for erection of two residences to cost \$5,000; G. S. Duncan, St. Clair avenue, has awarded contract to Mitchell & Riddell for residence to cost \$5,000; W. C. Armstrong, 119 Hughson, has plans drawn for residence to be erected on Beechwood avenue, to cost \$2,000; McKay Bros. have plans drawn for residence to be erected; Mr. Wilson, 40 Melrose avenue, has plans drawn for residence to be erected at cost of \$4,000; Architect G. Hutton has awarded contract to Wm. Yates, 24 Leeming, for residence to be erected for F. T. Smye, 222 Herkimer, cost \$5,000.

HENSALL, ONT.—J. Dixon has plans drawn for residence to be erected on Main street, cost \$5,000; H. Hemphill, London road, has plans drawn for residence to be erected at cost of \$3,500.

HIGHGATE, ONT.—Charles Oakes has awarded contract to Charles Eacott for store to be erected, cost \$3,000.

LACHINE, QUE.—Architect John S. Archibald, Montreal, has awarded contract to Valmore Saurette, 53 Galt avenue, for erection of fourteen workmen's houses for Lachine Land Co., Montreal, to cost \$31,000.

LISTOWEL, ONT.—J. R. Bennett has plans drawn for residence to be erected, cost \$3,000, architect, W. E. Benning; R. Oliver is preparing plans for residence to cost \$6,000; Ezra Reihm has awarded contract to G. Wahl for residence to cost \$4,000; E. B. Smith is erecting two residences to cost \$10,000; A. Zurbigg is preparing plans for residence to cost \$5,000.

LION'S HEAD, ONT.—Tackaberry & Tackaberry are preparing plans for general store, to cost \$15,000.

LONDON, ONT.—Ald. G. Burdick, 634 Dundas street, has plans drawn for residence to be erected on Queen avenue, to cost \$4,000; C. Dyson, 779 Dufferin avenue, has awarded contract to H. Hayman, 491 Ontario street, for store and residence, to cost \$5,500; D. Ferguson, 503 Quebec street, has awarded con-

tract to Henry Hayman, 431 Ontario street, for residence, to cost \$5,000; R. Garner, Oxford street, has plans drawn for residence to be erected on Oxford street, cost \$3,500; D. Graham, 3 Perry street, has plans drawn for two residences, to cost \$6,500; James Haslett, 520 Richmond street, has awarded contract to H. Hayman, 431 Ontario street, for residence, to cost \$5,000; James Hussey, care of G. Parkinson, has information regarding proposed Trade and Labor Temple to be erected at cost of \$50,000, architect to be chosen; P. Litzmore, 211 Ridout street, has plans drawn for four residences to be erected on Duchess street, at cost of \$15,000; T. A. Mitchell, 114 Dundas street, has awarded contract to J. Rutherford, 1006 Wellington street, for alterations to drug store, to cost \$15,000; Watt & Blackwell, architects; J. Orme, 175 St. James street, is preparing plans for several residences to be erected at cost of \$10,000; C. Pape, Cathcart avenue, is preparing plans for residence to be erected on Tecumseh avenue, to cost \$3,500; W. Parr, 460 York street, has plans drawn for alterations to residence on York street, residence to be made into a four-family apartment, cost \$4,000; N. S. Roberts, Windsor avenue, is preparing plans for three bungalows to be erected on Windsor avenue, to cost \$10,500; W. Spottigue, care of London Fertilizer Co., is preparing plans for three residences to be erected on Windsor avenue, to cost \$9,000; J. V. Munro, Bank of Toronto Building, architect; B. Weir, 493 Adelaide street, is preparing plans for three residences to be erected on Reburne street, to cost \$7,000; Architect J. M. Moore, 415 Richmond street, has awarded contract to John Hayman & Son, 432 Wellington street, for alterations to stores for J. C. Duffield, City Gas Co., London, cost \$7,000; T. Copp, 51 Wortley road, has plans drawn for residence to be erected on Adaven place, to cost \$3,000; J. Maine, 71 Askin street, has awarded contract to H. Wallace, 84 Anderson avenue, for erection of residence, to cost \$3,200; Allison Walsh, 18 Bellevue avenue, has awarded contract to Hyatt Bros., Egerton street, for erection of residence, to cost \$3,000; E. H. Johnston, Coote block, has awarded contract to H. Templeman, 137 Wharnciffe road, for erection of two residences, to cost \$3,500; Chas. Lee, 766 Hill street, has awarded contract to Hyatt Bros. for erection of residence, to cost \$3,500.

MALDEN TOWNSHIP.—John Waters, Malden P.O., has plans drawn for residence, to cost \$3,500.

MCGREGOR, ONT.—John Beaudoin has awarded contract to Charles McLean for residence, to cost \$4,000.

MIDDLEMISS, ONT.—A. Battin has awarded contract to Saunders, Dutton, for residence, to cost \$4,000.

MITCHELL, ONT.—Messrs. Wm. Fizerman, Jr., F. C. Hord, W. B. Barley and D. Etty will erect residences.

MONCTON, N.B.—City Land and Investment Co. will erect two stores; C. S. Clark is preparing plans for apartment house to be erected on Robinson and Railway streets, to cost \$15,000.

MONTREAL, QUE.—S. Sarantineau, 6335 Laverdure, has plans drawn for residence to cost \$2,500; Adelard Amyotte, 590 Valois, has plans drawn for residence to cost \$2,500; Bellehumeul, 12 Montgomery, has plans drawn for store and residence to cost \$3,500; Henry Birks & Son, 304 St. Catherine street west, have plans drawn for store to cost \$2,000; Daniel Blay, 802 Clifton, has plans drawn for four residences to cost \$7,000; Dame Bourdon, 498 De Montigny, has plans drawn for two stores and two residences to cost \$10,000; J. B. Daout has plans drawn for two residences to cost \$3,600 and \$3,700; Ed. Ducharmeau, 755 Outremont avenue, has plans drawn for flat to cost \$3,000; Elz. Desmarais, 2969 St. Denis, has plans drawn for 17 residences to be erected at a cost of \$1,500 each; A. Donarde, 490 St. Timothee, has plans drawn for five stores and one residence to cost \$5,000; Mrs. C. E. Hayr, 694 Mountain street, has plans drawn for residence to be erected at cost of \$5,000; Lafamme & Bedford, 3137 St. James street, has plans drawn for residence to cost \$4,500; Luc Marran Des Lapierre, 608 City Hall avenue, has plans drawn for three residences to cost \$6,000; A. Simone, 2398 St. Andre, has plans drawn for two residences to cost \$2,000; C. Lewis, 118 Grand boulevard, has plans drawn for residence to cost \$2,000; Louis Couture, 1082 St. Catherine street east, has plans drawn for store and residence to cost \$1,100; J. Rugebins, 176 Jokes street, has plans drawn for two residences to cost \$2,000; M. Racine, Boulevard Gouin, has plans drawn for residence to cost \$3,000; St. Lawrence Realty Co., 134 Macord street, have plans drawn for store to cost \$1,500; Z. Nellinger, 184 Montana street, has plans drawn for residence to be erected on Delormier street to cost \$1,000; L. M. Messier, 892 Mount Royal east, has plans drawn for stable and two sheds to be erected on Fabre street at cost of \$2,000; V. Stewart, Youville place, has plans drawn for two stores to be erected at cost of \$15,000; Geo. Walker, 154 Marlow, has plans drawn for residence to be erected on Marlow, near Sherbrooke, at cost of \$6,000; G. N. Wuggan, 120 McTavish, has plans drawn for shed to be erected at cost of \$1,500; A. Aubien, Plantagenet, Ont., has plans drawn for store and residence to cost \$2,500; C. E. Gravel, Duluth Bldg., has plans drawn for the erection of a store on Craig street west, to cost \$2,000; J. St. Pierre, 103 Fort street, has plans drawn for erection of seven residences to cost \$15,000; S. B. Letendre, 625 St. Catherine street east, has plans drawn for two residences to be erected at cost of \$2,500; W. J. Pape, 456 Old Orchard, has plans drawn for a residence to be erected at cost of \$4,000; H. P. Denyar, 73 St. Valier, has plans drawn for store and two residences to be erected at cost of \$8,000; St. Jean & Cardinal, 420 St. Catherine street east, have plans drawn for erection of six residences to cost \$4,000.

NEW HAMBURG, ONT.—Henry Diechert has plans drawn for addition to harness shop to cost \$4,000.

NORTH BATTLEFORD, SASK.—Pickel & Johnston have plans drawn for store addition to cost \$7,000.

PAISLEY, ONT.—J. W. Collins is preparing plans for two residences to cost \$5,000; J. Dewar is preparing plans for residence to cost \$3,500; J. A. MacArthur is preparing plans for residence to cost \$1,000.

PETROLIA, ONT.—Mayor R. Sturett is to have plans prepared for general store to be erected on Main street, at cost of \$25,000.

POINT MARA, ONT.—Wm. McArthur has plans drawn for residence to cost \$4,000.

PORT DOVER, ONT.—John Gordon has plans drawn for residence to be erected on Main street at cost of \$3,000.

PORT ELGIN, ONT.—John Thede has secured site for residence to cost \$1,500.

PRESTON, ONT.—Hope Bros. are preparing plans to rebuild meat market destroyed by fire, cost \$4,000; Misching Bros. are preparing plans for business block to be erected on Argyle street at cost of \$8,000.

QUEBEC, QUE.—L. Labrecque, 128 Dupont, has plans drawn for residence to be erected on Charlesbourg road at cost of \$5,000; E. Drolet, 355 St. Joseph street, has plans drawn for residence to be erected on St. Foye road at cost of \$5,000; W. Legare Marie, Incarnation street, has plans drawn for residence to cost \$3,000; Felix Delisle, 129 Hermine street, has plans drawn for residence to cost \$3,500; J. Cauchon, 364 Richelieu street, has plans drawn for residence to cost \$6,000; E. Rochette, Bourlameque avenue, has plans drawn for residence to cost \$6,000; Jos. Lafrance, 21 Plessis, has plans drawn for residence to be erected on Begin street at cost of \$8,000; Gordon & Ernest Ross, St. Louis street, have plans drawn for two residences to be erected on Park avenue, at \$9,000 each; J. E. Rouillard has plans drawn for residence to be erected on Lafrance street, cost \$7,000; G. Gerard, Canardiere road, has plans drawn for residence to cost \$2,200; Leon Lessard, Morin street, has plans drawn for residence to cost \$2,000; Nop. Poirer, 9 St. Lamoignon, has plans drawn for residence to cost \$3,500; Fortunat Gingras, 70 St. Joachims street, has plans drawn for residence to cost \$8,000; J. Thompson, 11th street, has plans drawn for residence to be erected on Charlesbourg road, to cost \$2,000; Ern. Bouchard, 7th street, Lamoignon, has plans drawn for erection of residence to cost \$3,400; R. Bussieres, 2 Marie Louise street, has plans drawn for residence to be erected to cost \$2,000; L. St. Pierre, 7th street, has plans drawn for residence to be erected to cost \$2,500.

RIVERSIDE, N.B.—F. W. Roach will erect residence at cost of \$7,000; J. L. Heans, 84 Germain street, architect.

RUSSELDAL, ONT.—J. Sawyer has plans drawn for residence to cost \$5,000.

ST. CATHARINES, ONT.—Architect A. E. Nicholson has called for tenders on residence to be erected for Victoria Lawn cemetery.

ST. ANDREWS, N.B.—Architect John S. Archibald, Montreal, has awarded contract to Fussing & Jorgensen, 6 Curocher street, Montreal, for erection of residence for Mrs. E. C. Walker, Washington, to cost \$20,000.

ST. MARYS, ONT.—Henderson & Stafford have plans drawn for residence to cost \$5,000; F. H. Smith has awarded contract to Stafford & Henderson for residence to be erected at cost of \$5,000.

ST. THOMAS, ONT.—A. S. Smith is preparing plans for stores to be erected; Mrs. C. O. Stanley has awarded contract to Albert Morris for residence to be erected on Hinks and Wellington streets at a cost of \$3,500.

SARNIA, ONT.—Watson Bros. are preparing plans for alterations to flats, R. W. Fawcett, architect.

SEAFORTH, ONT.—J. Watson is preparing plans for residence to cost \$3,200.

SHERBROOKE, QUE.—A. G. Campbell has plans drawn for residence to be erected on Queen street at cost of \$3,000; G. G. Brown, builder; E. C. Goodhere has plans drawn for residence to be erected on Quebec street at cost of \$3,000; G. G. Brown has plans drawn for six tenements to be erected at cost of \$8,000; A. Chantigny has plans drawn for residence to be erected at cost of \$3,000; A. Gendron, 1st avenue, has plans drawn for one pair of residences to be erected at cost of \$5,000; Architect H. G. James has awarded contract to Loomis Dakin, Ltd., for erection of residence for T. J. Parkes, to cost \$15,000.

STANSTEAD, QUE.—Harriet Dewey is preparing plans for residence to cost \$2,500.

SYDNEY, N.S.—J. E. Burchell & Co. have plans drawn for three residences to be erected on Royal avenue and High street at cost of \$8,000.

TARA, ONT.—M. Musson has awarded contract to Evans, Owen Sound, for residence to cost \$3,500.

THORNDAL, ONT.—J. Murphy, Route 2, Thorndale, has plans drawn for residences to cost \$5,000.

TILLSONBURG, ONT.—Geo. Fleming has commenced work on residence on Lisgar avenue to cost \$3,500.

TORONTO, ONT.—J. Craig has plans drawn for two family residences to be erected on Marchmont road at cost of \$6,000; J. H. Standford, 17 Westmoreland, architect; Mrs. Evans has awarded contract to A. Russell, 490 Delaware avenue, for residence to be erected on Glen road at cost of \$8,000, architect, D. C. Cotton, 54 Adelaide east; Mrs. Wilson has plans drawn for two family residence to be erected on Silver Birch avenue at cost of \$6,000; J. H. Standford, 17 Westmoreland avenue, architect; J. A. Thatcher, 37 Cowan avenue, architect, is preparing plans for apartment house to be erected at Morley and Gerrard at cost of \$15,000; Robert Bros., Dovercourt road, have plans drawn for apartment house to be erected on Arthur street at cost of \$60,000; H. McLean, 77 Seventh avenue, has plans drawn for pair of residences on Seventh avenue; A. H. Dryden, 106 Degraess street, has plans drawn for residences to be erected on Normanby avenue at cost of \$3,500; C. Black, 169 Greenwood avenue, is erecting pair of residences at cost of \$5,000; E. C. Hulbert, 44 Castlefield avenue, has plans drawn for residence to be erected on Briar Hill avenue at cost of \$4,000; E. Bailey, 32 Lauder avenue, has plans drawn for residence to cost \$3,500; W. H. Hall, 244 Terauley street, has commenced work on residence at 130 Hamilton street, to cost \$2,500; L. H. Moore, 260 Waverley road, has commenced work on residence and garage to cost \$3,000; Dr. J. T. Gilmour, Guelph, has awarded contracts on residence to be erected at Ridout street and Indian road, architects, Ellis & Ellis, Manning Chambers, Toronto; Geoffrey Schunk, 43 Bellevue place, has plans drawn for residence to be erected at 18 Durie street, cost \$2,500; W. Colwell, 179 Delaware avenue, has commenced work on pair of residences on Rosemount avenue, cost \$3,500; C. Evans, 163 Westminster avenue, has plans drawn for residence on Glen road, D. Cotton, 54 Adelaide street east, architect, cost \$6,000; Mrs. R. F. Tate, 234 Macpherson avenue, has awarded contract to Britnell & Co. for brick addition to residence on Macpherson avenue, cost \$2,000; R. Simpson Co. are preparing plans for alterations to residence at 439 Sherbourne street, present residence to be altered as a rest home, Burke, Horwood & White, Ryrie building, architects, cost \$100,000; E. T. Miller, Dufferin street, has plans drawn for one pair residences to be erected on Dufferin street at cost of \$4,000; J. Price, 100 Greenwood avenue, has plans drawn for residence to cost \$3,000; D. Gould, Fenelon Falls, Ont., has plans drawn for residences to be erected at 49 Ravina Crescent, Toronto, at cost of \$6,000; E. B. Warner, 178 Campbell avenue, is building residence on Peterboro' avenue, T. Pattullo, 221 Howard Park avenue, architect; Dr. Heffering, 260 Broadview, has awarded contracts for residence to be erected on Broadview avenue at cost of \$9,500, architects, Hynes, Feldman & Watson, 105 Bond street; Mrs. N. E. Palm, 133 Rox-

borough, has awarded contracts on residence to be erected on Lyndhurst avenue, at cost of \$15,000, architect, H. J. Chown, 2246 Queen street east; W. Clare, 1759 Dufferin street, has plans drawn for two duplex residences, to cost \$11,000; John Revie, 211 Osler avenue, has plans drawn for residence, to cost \$2,000; C. A. Jones, 69 Fairview avenue, has plans drawn for residence to be erected on Woodside avenue, cost \$2,500; A. & A. Grant, 837 Logan avenue, have plans drawn for residence to be erected on Fulton avenue, at cost of \$4,000; J. Lee, 172 Morley avenue, has plans drawn for residence, to cost \$3,000; M. L. Kent, 54 Adelaide east, has plans drawn for pair of residences to be erected on Bathurst street, at cost of \$5,000; J. Bennister, 56 Cedarvale, has plans drawn for residence, to cost \$2,500; Betson & Terry, 3 Fenwick avenue, has plans drawn for pair residences to be erected on Greenwood avenue, at cost of \$5,000; D. Muir, 223 Osler avenue, has plans drawn for residence and garage, to cost \$4,500; E. Gagnon and N. Caron, 2359 Queen street east, have plans drawn for residence to be erected on Kingswood avenue, to cost \$3,000; A. M. Hough, 1666 Queen street west, has plans drawn for residence to be erected on St. Clair avenue, to cost \$5,000, architect, D. H. Burnham, St. Clarens avenue; W. Walker has plans drawn for residence to be erected on Rosehill avenue, to cost \$3,000, architect, D. H. Burnham, St. Clarens avenue; W. J. Devins, 51 Bird avenue, has plans drawn for residence to be erected on Lauder avenue; Jas. A. Shier, 61 Standish, has plans drawn for residence to be erected at 42 Harvie street, cost \$6,000; P. Maitland, 71 Badgerow, has plans drawn for pair of residences to be erected on Drayton avenue, cost \$5,000; J. Carlisle, 36 Pacific avenue, has plans drawn for residence to be erected at 110 Evelyn crescent, cost \$3,500; F. J. Cummings, 2118 Queen street, has plans drawn for three residences to be erected on Lee avenue, cost \$10,000; H. C. Long, Traders Bank Building, has plans drawn for two residences to be erected on Kee-watin avenue, cost \$6,000; T. W. Robinson, 11 Evelyn crescent, has plans drawn for residence to be erected on Woodside avenue, cost \$3,500; C. Proctor has plans drawn for residence to be erected on Morley avenue, cost \$4,500; L. H. Lankin, 124 Hampton, has plans drawn for pair residences to be erected on Skipper avenue, cost \$5,000; A. Slightman, 129 Woodbine, has plans drawn for residence, to cost \$2,200; Charles Caldwell, 583 Carlaw, has commenced work on two pair residences, cost \$8,000; C. H. Knapton, 63 Woodbine avenue, has plans drawn for three residences to be erected at Kew Beach, to cost \$7,000; Jas. S. R. Gifford, 190 Pape avenue, has plans drawn for pair of residences to be erected on Gilliard avenue, to cost \$5,000; J. Johnston, 16 Eaton avenue, has commenced work on pair of residences on Dofnas, near Woodbine avenue, architect, J. Bannister; John Meldrum, Annette street, West Toronto, has plans drawn for residence to be erected on Quebec avenue, to cost \$2,500; F. Samlow, 3 Muir avenue, has plans drawn for pair of residences to be erected on Helene avenue; R. D. Kelgour, 45 Willcocks, has awarded contracts for the erection of residence and garage on High Park Gardens, to cost \$6,000, architect, J. A. McKenzie, Lumsden Building; T. A. Gibson, 327 Lippincott street, has plans drawn for residence to be erected on Blythwood avenue, to cost \$6,000; J. T. & H. Hutson, 350 Palmerston Boulevard, has plans drawn for two residences to be erected in St. Andrew's Gardens, cost \$7,500; Andrew Milne, 66 Lamb avenue, has plans drawn for residence to be erected on Ashdale avenue, to cost \$2,500; Chas. Caldwell, 419 Wellesley, has plans drawn for two pair residences to be erected on Kent road, at cost of \$9,000; F. Fezel, 241 Berkeley street, has plans drawn for alterations to store; Trust and Guarantee, Ltd., 1627 Dundas street, has plans drawn for alterations to store on Dundas street, J. B. Baker, architect; G. I. Hambly, 372 St. Clarens avenue, is building pair stores and flats on St. Clair avenue, to cost \$5,000; W. G. Hunt, Confederation Life Building, architect; Wm. Hughes, 94 Millicent street, has plans drawn for store and residence, to cost \$5,000; C. Huff, 905 Broadview, plans to build store at Arlington and St. Clair, cost \$15,000; J. P. Turner, 110 Dearborn, has plans drawn for store and flats to be erected at 1291 Danforth avenue, cost \$5,000; H. Hicks, 139 Church street, is preparing plans for store front on Church street, near Wilton; Jas. McTamney, 102 Adelaide street east, is preparing plans for alterations to store at 139 Church street, architect, Siddal, Confederation Life Building; J. Douglas, 80 Cawthra avenue, has awarded contract to C. T. Turnbridge, 16 Margueretta street, for construction of sun room; G. Beardmore, 75 St. George street, has plans drawn for sun room; J. Enoch Thompson, 152 Bay street, has awarded contract to Isaac Pimblett, 309 Main street, for the erection of three residences on Battenburg avenue, cost \$2,400; W. S. Dinmick, 84 King street east, has plans drawn for alterations to stores at 83 Bloor street east; John Cooper, 51 Fulton avenue, has plans drawn for one pair residences to be erected on Lamb avenue, to cost \$4,000; A. K. Gregory, 2148 Gerrard east, has plans drawn for erection of residence at Ben Lomand, cost \$4,000; Architect W. G. Hunt, Confederation Life Building, has plans drawn for erection of residence on Munro Park avenue, cost \$5,000; Mrs. Clara Lever, 20 Atlas avenue, has plans drawn for erection of store and flats to be erected at 754 St. Clair avenue, cost \$5,000; W. M. McEachern & Sons, 901 Royal Bank Building, have called for tenders on residence to be erected at Gerrard and Glenmount; Wm. Whitelaw & Son, Indian Grove, have plans drawn for two residences to be erected at cost of \$9,000; W. R. Levack, 519 Roxton road, has plans drawn for residence to be erected on Gothic avenue, to cost \$5,000; Mrs. Caroline Blair, 948 Logan avenue, has plans drawn for erection of two pair residences, to cost \$9,000; Wilkes & Lewis, Kennedy avenue, have plans drawn for residence to be erected on Kennedy avenue, to cost \$3,000; W. J. Hill, 133 Hamilton street, has plans drawn for erection of duplex residence, to cost \$5,000; J. Cooper, 101 McRoberts street, has plans drawn for erection of store front and addition to residence; C. Parker, 609 Dovercourt road, has plans drawn for residence to be erected, at cost of \$7,000; G. N. Ferrier, 302 Danforth avenue, has plans drawn for erection of three stores and apartments, to cost \$12,000; Architect Sharp, Board of Education, is preparing plans for apartments to be erected, at cost of \$15,000; S. Garfunkel, 316 Bathurst street, has plans drawn for alterations to residence on Portland street; Moore & Gemmell, 14 Kenwood avenue, have plans drawn for one pair residences to be erected on Sellers avenue, at cost of \$4,500; J. T. Moore, 30 Brookmount road, has plans drawn for residence to be erected on Silver Birch, at cost of \$3,000; Architect W. T. Burns, 74 Indian Grove, has plans drawn for erection of residence on Indian Grove, for J. A. Burns, 66 St. Anne's road, at cost of \$6,500; Samuel Hawkins, 154 Coxwell avenue, has plans drawn for erection of one pair residences at cost of \$4,500; Architect D. C. Cotton, 54 Adelaide street east, is preparing plans for erection of duplex residence on Bathurst street for M. L. Kent, at cost of \$6,000; Geo. Nicholson, 61 Clinton street, has plans drawn for erection of four residences on Boston avenue, to cost \$6,000; A. E. King, 25 Oakmount road, has plans drawn for erection of residence and garage at cost of \$4,000; A. & A. Grant,

837 Logan avenue, has plans drawn for erection of residence on Playter crescent, at cost of \$3,500; M. H. Ludwig, 320 Russell Hill road, has plans drawn for addition to residence and garage, architect, J. A. McKenzie, Lumsden Building; J. A. Pickering, Ruston road, has plans drawn for erection of one pair of residences, to cost \$4,000; Wm. Wallace, 193 193 St. Patrick street, has plans drawn for alterations to store front.

WAINWICK TOWNSHIP.—W. Thompson, Con. 2, Watford, Ont., has plans drawn for erection of residence, to cost \$3,000.

WALLACEBURG, ONT.—H. Joiner is preparing plans for residence to be erected on River street, at cost of \$3,500.

WALLACE TOWNSHIP.—J. Yungblutt, Gowanstown, Ont., is preparing plans for residence, to cost \$4,000.

WELLAND, ONT.—B. Lundy has plans drawn for store to be erected on Division street.

WINCHESTER, ONT.—W. J. Fraser is building residence.

WINDSOR, ONT.—Victor Beausoliel is preparing plans for residence to cost \$3,000, architects, G. Jacques & Co., Windsor; F. W. Woolworth Co. have secured site for the erection of store at Ouellette and London streets.

WOODSTOCK, ONT.—E. J. Cole Co. have awarded contract to A. J. McKinney for alterations to store on Dundas street, at cost of \$10,500.

SCHOOLS, COLLEGES AND CHURCHES.

ADDISON, ONT.—Architect B. Dillon, Brockville, has called for tenders on new church to be erected; secretary, J. Lowe, Addison.

AMARANTH TOWNSHIP, ONT.—School Board have called for tenders on a new school; W. Sime, secretary.

ANTIGONISH, N.S.—Mt. St. Bernard's Ladies' College has awarded contract to Nell McNeil for additions to college.

AVON, ONT.—Architect W. G. Murray, Dominion Savings Bank, London, has awarded contract to Mr. Craik, Puttman, Ont., for the erection of two-room school for Union S.S. Nos. 9 and 14, cost \$7,500.

BASSWOOD, MAN.—School Board have awarded contract to Worwick Bros. for the erection of new school, to cost \$13,300.

BEAMSVILLE, ONT.—Architect La Chance, Hamilton, is preparing plans for new school, to cost \$50,000.

BERLIN, ONT.—St. Peter's Church are preparing plans for new Sunday school, to cost \$20,000.

BIENVILLE, QUE.—R. C. congregation have awarded contract to Paquet & Goodbout, St. Hyacinthe, for church decoration, to cost \$22,500; architect, P. Levesque, 115 St. John street, Quebec.

BRAMPTON, ONT.—School Board have called for tenders on new school to be erected; chairman, W. J. Jackson; secretary, J. D. Gordon.

BRANTFORD, ONT.—Separate School Board are having plans prepared for new school.

BRIGDEN, ONT.—Presbyterian Church have called for tenders on manse; M. Galbraith, chairman.

BROCKVILLE, ONT.—School Board has awarded contracts on alterations to school as follows: Contractors, Horton & Munroe; fire escapes, J. R. Smith.

CALGARY, ALTA.—Architect Burrell, 9 Old Herald Building, has called for tenders on new school for R. C. School Board, 214 Burns Building; by-law has been passed for the erection of two manual training buildings to cost \$6,000 and \$50,000; by-law has been passed to fireproof Haultain and Central Schools at cost of \$75,000.

CAMP HUGHES, MAN.—Rev. F. Joseph Arts, Winnipeg garison, proposes building new frame church.

CARADOC TOWNSHIP.—Architect L. Carrothers, Bank of Toronto, London, has awarded contract to Worthy & Tullett, London, for new school; cost \$5,000.

COALDALE, ALTA.—Coaldale Consolidated, S. D. No. 9, Alta., have called for tenders on new school.

COCHRANE, ONT.—A. McDouglas, Secretary School Board, has called for tenders on plumbing, heating and Electric Wiring of school.

CONQUEST, SASK.—Architects Storey & Van Egmond, Regina, have awarded contract to Peter Wick for erection of Union church, to cost \$8,000.

CREEMORE, ONT.—Architect P. C. Palim, Collingwood, is preparing plans for School Board for new school, to cost \$18,000.

DAWN TOWNSHIP.—Architect J. S. Fraser, Wallaceburg, has called for tenders on school for John Knight, Wallaceburg; cost \$7,000.

DOMINION CITY, MAN.—Architect F. R. Evans, 901 Confederation Life Building, Winnipeg, has called for tenders on new school, to cost \$27,000.

FRANK, ALTA.—School Trustees are to have plans prepared for new brick school.

FORT SASKATCHEWAN, SASK.—Secretary J. Becker has called for tenders on new school for S. D. No. 296.

GALT, ONT.—Architect Evans is preparing plans for new school for Chairman W. S. McKay, Board of Education, to cost \$40,000; Chairman R. G. Struthers, of Central Presbyterian Church, has plans drawn for mission school; St. Andrew's Mission have awarded contract to M. Watt for additions to mission; Architect Evans, Galt, has called for tenders on new school, to cost \$30,000.

GRIFFIN, SASK.—Architect Geo. Jarrett, Weyburn, Sask., is preparing plans for new school, to cost \$6,500.

HAMILTON, ONT.—Architect F. W. Warren, Bank of Hamilton Building, has plans drawn for new church to be erected for Interdenominational, Mt. Hamilton, at cost of \$9,000.

HALIFAX, N.S.—Architect W. J. Busch, 60 Bedford row, has called for tenders for the completion of school on Russell street; work has commenced on new school; general contractors, Falconer & McDonald, \$84,900; plumbing, Farquhar Bros., \$12,000.

HAILEYBURY, ONT.—Department of Education of Toronto has plans drawn for erection of new mining school, to cost \$20,000.

HUMBERSTONE, ONT.—Protestant School Board, L. Snider, secretary, have called for tenders for completion of class rooms.

HESPELER, ONT.—Architect J. M. Cowan, 65 Adelaide street east, Toronto, is preparing plans for new church on Cooper street for R. C. congregation (Father Meyer).

KINBURN, ONT.—Architect J. P. McLaren, 104 Sparks street, Ottawa, has called for tenders on new school for S. S. No. 5, Fitzroy.

KINGSTON, ONT.—Architects Shepard & Calvin, 36 Toronto street, Toronto, have plans drawn for university library for Queen's University, to cost \$150,000.

LAFOND, ALTA.—Secretary C. B. Lafond, Lafond S. D. No. 3,304, Alberta, has called for tenders on new school.

LAURA, SASK.—Secretary J. Moorehead, Laura P.O., Sask., has called for tenders on new school for Helena, S. D. 1,502.

LONDON, ONT.—Architect A. E. Nutter, Dominion Bank Chambers, has called for tenders on new technical school, to be erected at cost of \$250,000; R. M. McElheran, Secretary School Board.

LOST RIVER, SASK.—Secretary R. L. Gorse has called for tenders on new school for Elkhorn, S. D. No. 4,660, Lost River, Sask.

MASONVILLE, ONT.—School Board has called for tenders on additions to school.

MCGREGOR, ONT.—Rev. Personalt is preparing plans for new school, to cost \$7,000.

MEYRONNE, SASK.—Architects Storey & Van Egmond, Regina, have called for tenders on new school for S. D. No. 3,189, to cost \$8,000.

MONTREAL, QUE.—Comm. School of Municipalities, Cote des Neiges, have plans drawn for new school to cost \$115,000; Architect L. J. Bigonnesse, 60 Notre Dame east, has called for tenders on new school for R. C. School Board to cost \$120,000; Protestant School Board has secured site for new school; Protestant School Board, 36 Belford, have plans drawn for new school, to cost \$6,300.

MOUNT ST. BERNARD, N.S.—Mount St. Bernard Academy propose building new academy.

NETHERHILL, ONT.—J. Craig, Secretary School Board, has called for tenders for additions to school.

OTTAWA, ONT.—Architect J. A. Ewart, 415 Booth Building, has called for tenders of new school.

PARRY SOUND, ONT.—Architects Angus & Angers, North Bay, have called for tenders on new school; J. D. Broughton, Secretary School Board.

PASQUA, SASK.—Leamington S. D. No. 192, Pasqua, Sask., have called for tenders on new school.

POINT GREY, B.C.—Provincial Government has appropriated \$100,000 for temporary university buildings; plans to be prepared by B. C. University.

PONTEEX, SASK.—Architect J. E. Fortin, Regina, has awarded contract to Poole Construction Co., Regina, for new church for R. C. congregation, to cost \$15,000.

PRINCEVILLE, ONT.—Secretary F. P. Reiley, School Board, has called for tenders on new school.

QUEBEC, QUE.—Fathers of Sacred Heart have plans drawn for new school to cost \$70,000; Architects Tanguay & Lebon are preparing plans for college to be erected on Chauveau avenue for De la Salle Brothers, at cost of \$350,000.

RADISSON, SASK.—Architect R. M. Thompson, Masonic Temple, Saskatoon, has called for tenders on new school for Radisson S. D. No. 1,351, Sask.

REGINA, SASK.—School Board has awarded contract to F. R. Davidson for new school to cost \$6,000; School Board has called for tenders on new four-room school; J. H. Cunningham, Alexander School, secretary.

RIMOUSKI, QUE.—Architect P. Levesque, 115 St. John street, Quebec, is preparing plans for additions to Normal School, to be erected for Ursulines Sisters, at cost of \$25,000.

ST. JOHN, N.B.—Bishop LeBlanc is to have plans prepared for two new schools, cost \$40,000; School Board are preparing plans for new school, to cost \$15,000.

ST. THOMAS, ONT.—Architect T. J. Findlay has called for tenders on new Sunday school for Centre Baptist Church.

SARNIA, ONT.—Architects S. B. Coon & Son, Ryrie Building, Toronto, have called for tenders for new school to be erected for Sarnia School Board, at cost of \$35,000.

SCOTTDAL, ALTA.—Secretary W. Wagar has called for tenders on new school for Rapid S. D. No. 3,306.

SILVERDALE, B.C.—Department of Public Works, Victoria, B.C., have called for tenders on school, to cost \$7,000.

STANSTEAD PLAIN, QUE.—Chairman of Building Committee T. J. Norris is preparing plans for new church for R. C. congregation, to cost \$18,000.

STRATFORD, ONT.—Central Methodist Church plan to make church improvements to cost \$15,000.

SUDBURY, ONT.—Architect V. L. Morgan has called for tenders on alterations for school, J. Fowler, Secretary School Board; School Board propose building new school, to cost \$40,000.

SWANSON, SASK.—Secretary W. G. Grigg has called for tenders on new school for S. D. 1,756, Swanson.

TVISTOCK, ONT.—Architect J. S. Russell, Stratford, is preparing plans for school addition for Tavistock School Board, to cost \$10,000; Evangelical Church are preparing plans for new parsonage, to cost \$4,000.

THORNDAL, ONT.—Architects Watt & Blackwell, London, are preparing plans for new school, to cost \$25,000.

TIMMINS, ONT.—T. M. Wilson, Secretary School Board, has called for tenders on new six-room school.

TORONTO, ONT.—Architect Bryon Chadwick, 71 Howland avenue, is preparing plans for new Anglican church to be erected at Davenport and Dovercourt; Architect C. J. Reid, Confederation Life Building, has awarded contracts for new two-room school, to cost \$9,307, as follows: Masonry, J. McGlue; carpentering, D. & M. J. Madden; painting, J. O'Connor; plastering, W. J. Porter; roofing, A. Matthews; structural steel work, Reid & Brown; plumbing, W. McGuire, Ltd.; heating, D. Millar; electric work, Canada Electric Wiring; concrete work, W. Brimblecombe. Architect C. J. Reid has awarded contracts on new St. Monica's School, four rooms, cost \$24,220, as follows: Masonry, W. Manley; concrete work, W. Brimblecombe; carpentering and plastering, D. & M. J. Madden; painting, J. W. Morgan; roofing, A. Ryan; structural steel work, McGregor & McIntyre; plumbing, J. McGuire, Ltd.; heating, P. E. Regan; electric work, Canada Electric Wiring. Davisville Baptist Mission, F. A. Guy, have plans drawn for new mission hall to be erected

on Davisville avenue, at cost of \$4,000. Work has commenced on new church and Sunday school to cost \$10,000 for Pauline Methodist Church, Kew Beach; Architects Burk, Horwood & White.

VILLE ST. LEONARD, QUE.—Architect R. Montbriand, 232 St. Andre street, Montreal, has called for tenders on new school to be erected for Cote St. Michel Municipal Schools.

VICTORIA, B.C.—Architect C. E. Watkins is preparing plans for new school to be erected on King's road, cost \$25,000.

WELDON, SASK.—Mayor Knox, Prince Albert, has called for tenders on new school, to cost \$16,000.

WELLAND, ONT.—Architect Major Miller, Toronto, has plans drawn for new hall for Salvation Army, cost \$10,000.

WEST SALISBURY P.O., ALTA.—Secretary F. B. Haythorne has called for tenders on new school for Salisbury S. D. No. 530, Alberta.

WILLMONT, SASK.—Rev. F. E. Lawrence, Fulda, of St. John's congregation, has called for tenders on new church.

WINDSOR, ONT.—Architect J. C. Pennington is preparing revised plans for Collegiate Institute, to cost \$200,000.

WOLFE ISLAND, ONT.—Work has commenced on new Sacred Heart Church; Power & Son, Kingston, architects; Mr. Cheyne, Wolfe Island, contractor.

YORKTON, SASK.—Redemptorist Order propose building boarding school on Ontario street, to cost \$40,000.

YOUNGSTOWN, ALTA.—Architect D. Hardie, Edmonton, has awarded contract to Alberta School Supply Co. for the erection of new school, to cost \$18,000, for School Board.

MISCELLANEOUS.

ALBERTA.—Regina Co-operative Elevator Co. have awarded contract to Thomas-Jamieson-McKenzie Co., Calgary, for the erection of seven elevators at following locations: Coronation, Kirriemuir, Bulwark, on C.P.R.; Wainwright, Kinsella and Ribston, on G.T.P., and Scottfield, on C.N.R.

BRANDON, MAN.—Architect Wm. Finland, Winnipeg, is preparing plans for new telephone building for Brandon Telephone Co., to cost \$60,000.

CHATHAM, ONT.—Dominion Sugar Co., Wallaceburg, has awarded contract to Chatham Construction Co. for erection of storage buildings, to cost \$25,000.

ELDERSLEE TOWNSHIP.—J. Dudgeon, R.R. No. 1, Dobbington, Ont., is preparing plans for stock buildings, to cost \$5,000.

ELMIRA, ONT.—Elmira Planing Mill Co. are preparing plans for planing mill to cost \$12,000.

FOREST, ONT.—H. Fraleigh is preparing plans for addition to flax mill, to cost \$7,000.

GALT, ONT.—City Council have called for tenders for barn, to be erected on Wellington street; J. McCartney, clerk.

KAMLOOPS, B.C.—Maple Leaf Milling Co., Toronto, have plans drawn for grain elevators to be erected.

LAMBERTON PARK, ONT.—J. Brand, 153 Station D., Toronto, Secretary School Board, has called for tenders for iron gates.

LINDSAY, ONT.—Horn Bros. have called for tenders on woolen mills, to cost \$15,000.

LONDON, ONT.—Dr. C. A. Clive, 507 Queens avenue, has plans drawn to rebuild livery barns destroyed by fire, cost \$5,000; L. Frick & Son will rebuild planing mill destroyed by fire.

MARKHAM, ONT.—Company is being formed to erect flour mill at cost of \$60,000; interested, D. E. Jones; plans to be prepared.

MEDICINE HAT, ALTA.—Lake of the Woods Milling Co., W. A. Matheson, Winnipeg, general manager, have awarded contract to Carter, Halls, Aldinger Co. for flour mill, to cost \$200,000.

MONTREAL, QUE.—Montreal Jockey Club, 11 St. Sacrement, have plans drawn for grand stand, to be erected at Blue Bonnet race track, to cost \$42,000.

MONT JOLI, QUE.—Architect P. Levesque, 115 St. John street, Quebec, is preparing plans for La Banque Nationale, Quebec, for branch bank, to cost \$15,000.

NOVA SCOTIA.—Valley Railway Co. have awarded contract to Nova Scotia Construction Co., Thomas Cozzolino, Sydney, N.S., manager, for railway from Gagetown to Westfield.

ORANGEVILLE, ONT.—Dufferin Agricultural Society has called for tenders for barn.

OUTREMONT, P.Q.—Permit has been granted to W. Duquette to erect garage at Laurier and Durocher, to cost \$50,000.

PETROLIA, ONT.—Russell Soper, Sarnia, Ont., has plans drawn for the Crown Savings Bank for bank building, to cost \$15,000.

PICNIC, SASK.—Grahame Ghatsworth R. T. Co., secretary, W. Rooke, have called for tenders on telephone line extensions; Cedoux, Sask., R. T. Co., secretary, C. Bierma, has called for tenders on telephone line extensions.

PORT ARTHUR, ONT.—Davidson-Smith Co. have awarded contract to Barrett McQueen Co. to erect elevator at cost \$300,000.

ST. JOHN, N.B.—Department of Railways, Ottawa, F. P. Gutelius, manager, are preparing specifications for grain elevator.

TORONTO, ONT.—Architects Curry & Sparling, 105 Bond street, have awarded contracts for masonry, Smallwood Bros.; carpentering, Cox & Cumming, for alterations to building for Central Press Agency, cost \$8,000; A. A. Marshall, 507 Davenport road, has plans drawn for planing mill to be erected at 13 Somerset; Murray-Kay Co., Ltd., propose building new departmental store; T. Eaton Co. have called for tenders on garage and warehouse to be erected on Terauley street, engineers, Wm. Steele & Son, Ryrie Building, Toronto; J. M. Ferrier, 302 Danforth avenue, has called for tenders on garage; F. S. Mallory, 65 Adelaide street east, has plans drawn for machine shop to be erected for Brandon Shell Co., 614 Dominion Bank Building, at 108 Vine street, cost \$5,000; Toronto Harbor Commissioners, 50 Bay street, have plans drawn for machine shop to be erected on harbor front; C. W. Spinks, Kew Beach, has plans drawn for dancing pavilion, to cost \$5,000, to be erected at Kew Beach; Architects Hynes, Feldman & Watson, 105 Bond street, have plans drawn for sun room to be erected for Norman Little, 164 Dunn avenue; A. H. Hessian, 33 Kendall avenue, has plans drawn for sun room.



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MONTREAL

BRANCH OFFICES

NEW YORK



VIEW FROM THE LAKE, HATLEY PARK, RESIDENCE OF JAMES DUNSMUIR, VICTORIA, CANADA.

SAMUEL MACLURE, ARCHITECT.

St. Denis Theatre, Montreal

TO find a new building, planned as the result of an infinite amount of study and patient supervision, designed with due regard to its artistic effect, and in the spirit of independence of the influence of architectural precedents; executed with the best materials, and handled by skilled workmen, and built for the edification of the public, is seldom the fortune of an architectural critic. Such is the new St. Denis Theatre.

It is located in that portion of Montreal favored by the French-Canadian as a residential section, and mainly for their use, yet so readily accessible from other parts of the city, and though now used mainly as a "moving-picture" theatre, is so arranged and equipped that it can be readily converted for theatrical performances or for operatic productions.

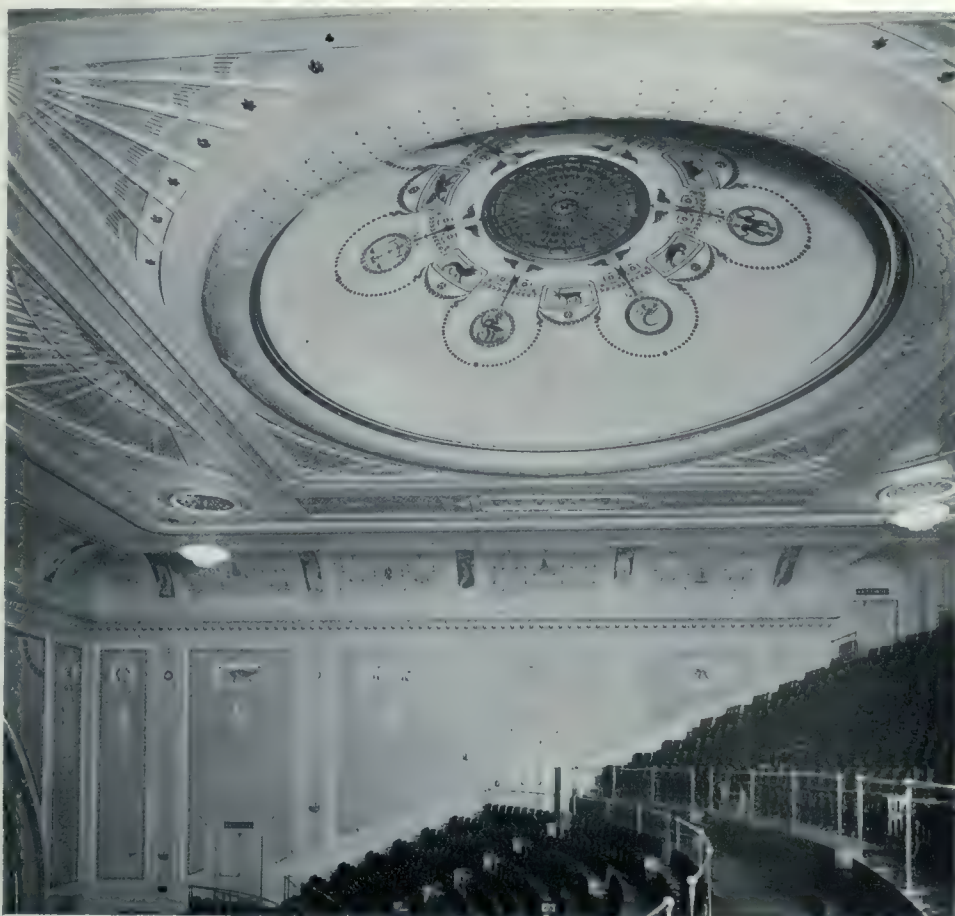
The growth in popularity of moving-picture entertainments during the past twenty years has been one of the most remarkable phenomena of modern life, and to satisfy the demand a great number of buildings have been constructed, or, in many cases, altered, so that now the daily attendance is equivalent to one in twenty of the total population of the country.

The great demand in the earlier history of the business resulted in the erection of a cheap and inferior design of building, and it is not easy to find examples now that rise above mediocrity. The causes of this are obvious enough, the principal ones being the vulgar taste of the great majority of owners and their disinclination to pay the commission demanded by a competent architect. The artistic quality of these buildings has been further degraded by certain firms of decorators who specialize in this type of work and are generally cheap and trashy and usually over-ornate.

Furthermore, from a mechanical point of view, moving picture theatres are highly defective, due to lack of attention to the technical fea-

tures necessary to their construction, especially with regard to fireproof qualities and ventilation.

The St. Denis Theatre, however, is one of the most modern types of building adapted to this particular amusement, and planned in such a manner that the public is safeguarded in every respect. The building is constructed with a steel frame, nearly five hundred tons of material being required, fireproofed with concrete, and the walls of solid brick masonry; ample exit and commodious entrances are furnished, and the comfort of the patrons foreseen by spacious re-



CEILING DETAIL, ST. DENIS THEATRE, MONTREAL.

tiring rooms, an ice water plant and perfect ventilation. The latter system is most complete; fresh air is "inhaled" from the roof level to the basement, passing through heating coils, and then through an air-washer—cleansing the air from all impurities—and forced by fans through a sanitary plenum chamber under the auditorium and gallery, and eventually through mushroom ventilating bends under the seats, the circulation being further accelerated by large ventilating suction fans on roof, maintaining a constant current of pure tempered air throughout the building.



GENERAL INTERIOR VIEW, ST. DENIS THEATRE, MONTREAL.

BAROTT, BLACKADER & WEBSTER, ARCHITECTS.

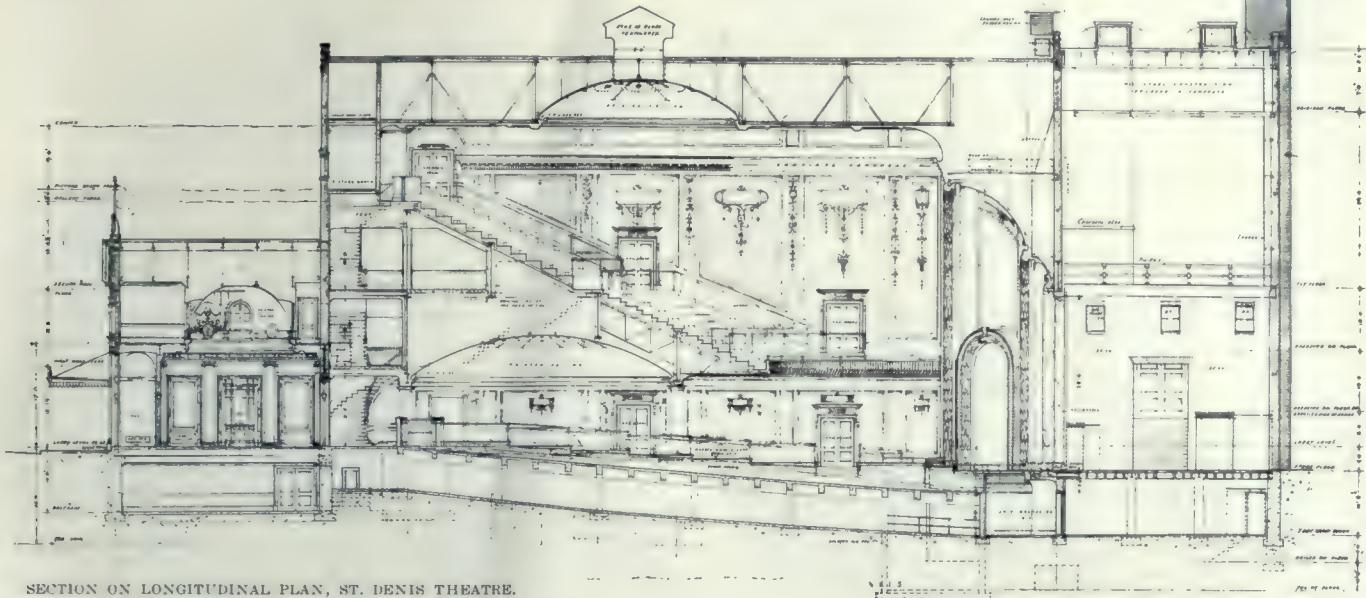
The stage section is equipped with a sprinkler system, and can be instantly separated from the theatre by an automatic fireproof curtain, as well as a water curtain.

In regard to the exterior design of the building, the main shaft of the exterior of the auditorium has been treated with a warm yellow tone face

brick, laid in rusticated courses, and the upper section in panels enriched with polychrome terracotta ornament. The main portico, ornamented with dull green Ionic pilaster surmounted with a pediment and flanked on either side with an arcade containing small shops, all of the prevailing yellow tone.

One enters the theatre through the outer vestibule, the walls of which are lined with green and gold mosaic, with a simple vaulted ceiling. The inner vestibule is about thirty feet square, the

easy access to the balcony at its various levels. As you attain your seat on either of the ground or gallery levels, you realize that every-



SECTION ON LONGITUDINAL PLAN, ST. DENIS THEATRE.

walls lined with faience tile in panels, separated by Ionic pilasters supporting a simple cornice, and over all a central dome decorated in stencil ornament and monotone color, the dome being pierced with lunettes and windows, enabling the management to oversee the operation of the "front of the house" from the offices over the vestibule.

One is impressed upon entering the theatre with the general feeling of spaciousness and huge span of the gallery. On either side of the foyer a wide marble staircase invites you by

thing possible has been done for the comfort of the theatre-goer. The air is fresh, there is no disturbing noise, the lighting subdued, and eventually you observe that there is no sense of oppression from over-ornamentation; the walls and ceilings are "decorated" in low applied relief of the Adams School, and the color has been applied in such a manner as to blend with the ornament in a harmonious warm golden tone, monotony being avoided by spots of color in the panels consisting of interesting sketches to enliven the attention.



FRONT ELEVATION, ST. DENIS THEATRE, MONTREAL.

BAROTT, BLACKADER & WEBSTER, ARCHITECTS.



VIEW FROM BALCONY, ST. DENIS THEATRE, MONTREAL.

The central portion of the main ceiling is pierced by a dome forty feet in diameter, painted a deep soft blue, enriched with zodiacal signs and glittering stars in gold, and the balance of the geometrically designed ceiling is in white, here



VESTIBULE, ST. DENIS THEATRE, MONTREAL.



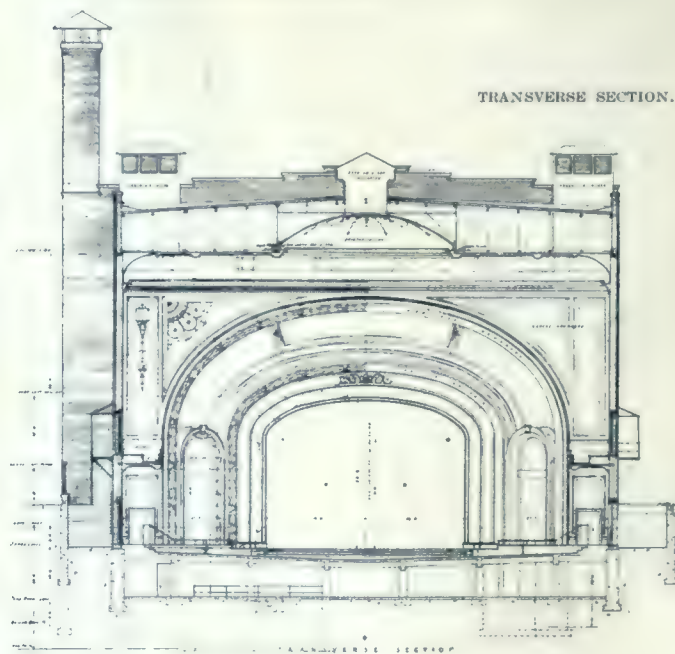
BRONZE TICKET BOOTH, ST. DENIS THEATRE, MONTREAL.

and there enriched with color recalling the tone of the main walls.

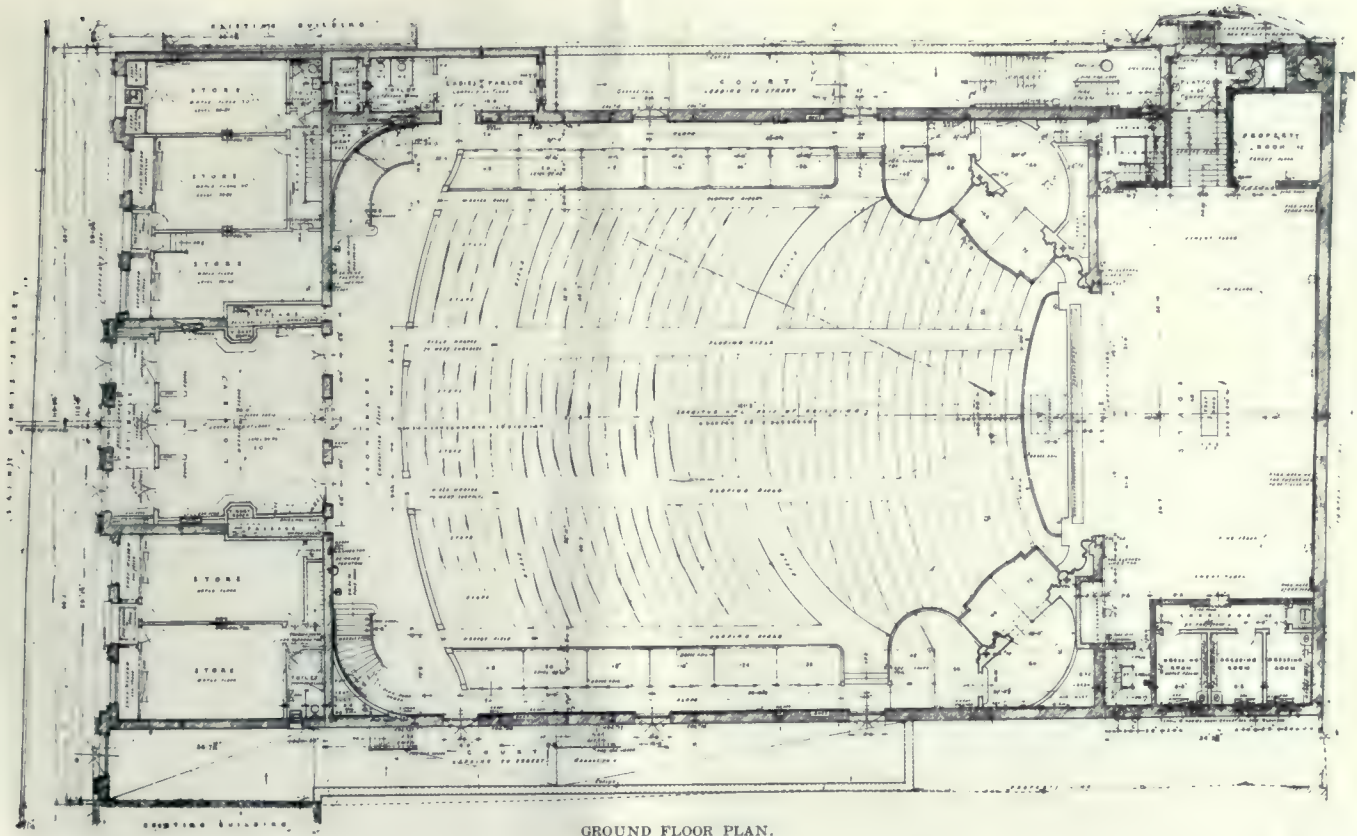
The hangings and upholstery are of turquoise blue, with golden fringe; the seats of a dark mahogany tone; the lighting fixtures are not discernable until you make a point of looking for them, and you then note they are of crystal beads, thereby eliminating the heavy masses which heretofore have been the objectionable feature of theatre lighting.

Concealed from view in the orchestra pit and over the proscenium boxes a large organ has been installed and operated from a central keyboard in the orchestra pit.

Over the proscenium arch in the covered panel



TRANSVERSE SECTION.

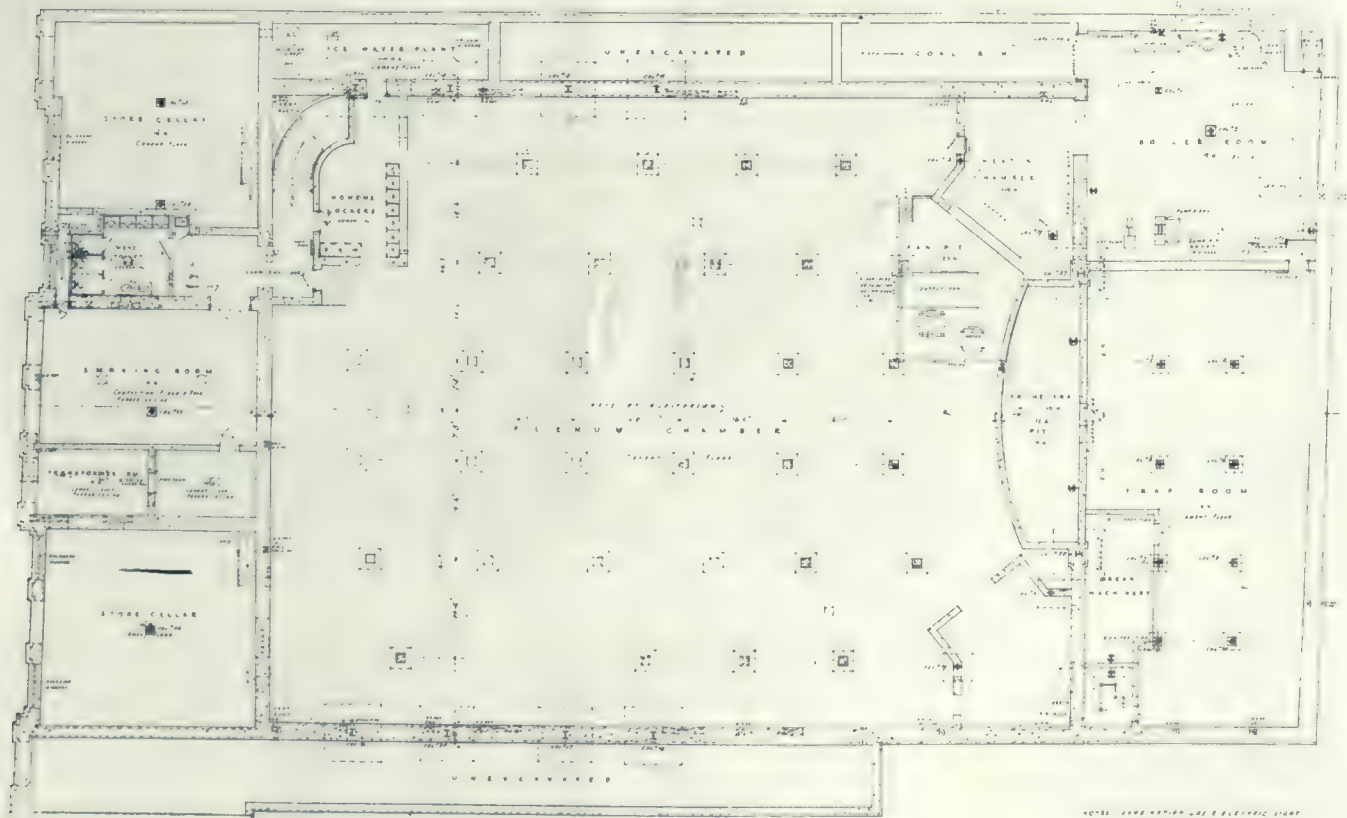


is a large allegorical painting typifying the various features of the stage, and reminiscent of Montreal in the background, all cleverly illuminated by concealed lighting.

Our only criticism is that of the inevitable electric sign, which is as usual a hideous excrescence on the exterior of the building, but presumably the architects could not control this commercial necessity.

BUILDING MATERIAL SHORT-AGE IN NETHERLANDS

At a meeting in Amsterdam of an association of employers and workmen in the building industry, gloomy reports were made regarding the supply of timber for building purposes. Holland has more woodlands than most foreigners suppose, but they are far from sufficient



BASEMENT PLAN, ST. DENIS THEATRE, MONTREAL.

NOTE: 1/4" = 1' 0" HORIZONTAL SCALE & ELECTRIC LIGHT
1/4" = 1' 0" VERTICAL SCALE
1/4" = 1' 0" HORIZONTAL SCALE & ELECTRIC LIGHT
1/4" = 1' 0" VERTICAL SCALE



BALCONY, SHOWING MURAL DECORATIONS, ST. DENIS THEATRE, MONTREAL.

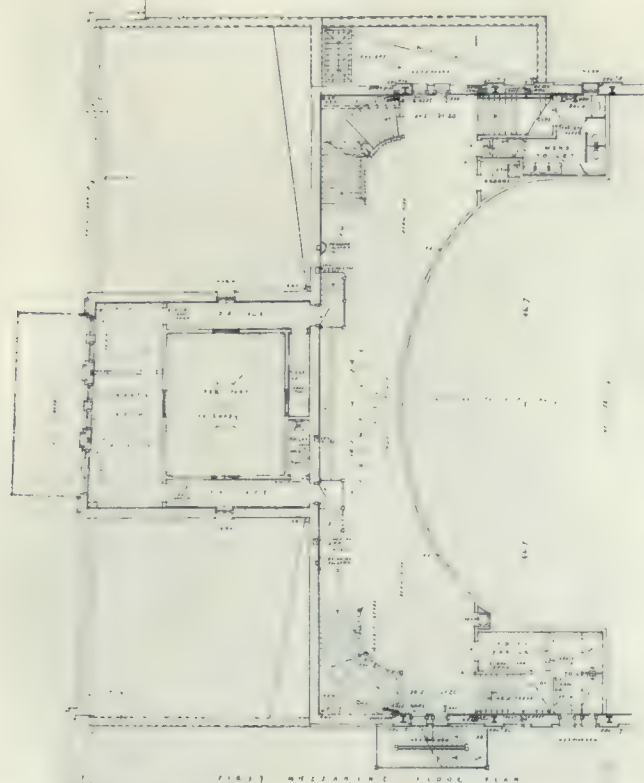
BAROTT, BLACKADER & WEBSTER, ARCHITECTS.

to supply the needs of the country for building timber, and without imports from other countries few houses could be built in the Netherlands.

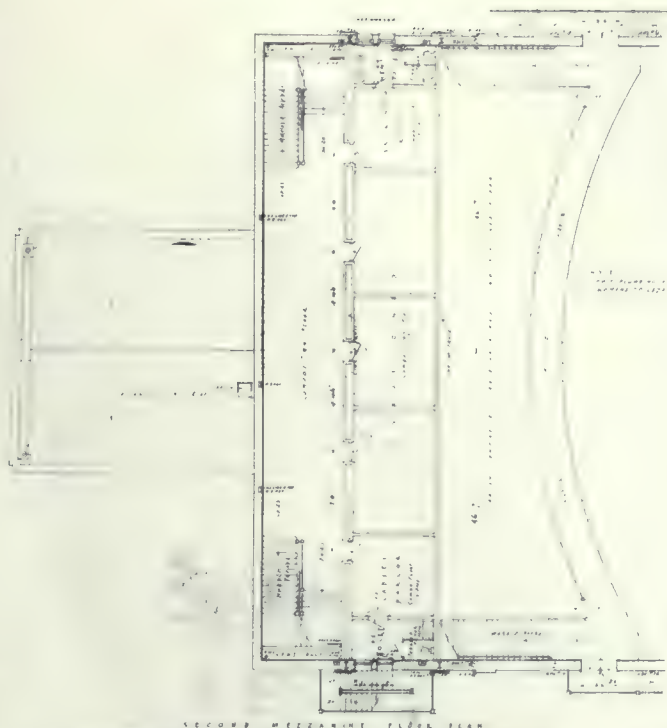
In the opinion of the association of builders the situation is serious. Timber is now imported from Germany, Sweden, and Norway. The quantity obtainable is small, and most of it is

of inferior quality. Continued supplies from Germany cannot be relied upon, the association believes, as the German Government has need of the surplus timber and will pay a higher price than this country has paid.

The building association gives warning that unless relief measures are taken the supply of wood most needed for construction work will



FIRST MEZZANINE FLOOR PLAN, ST. DENIS THEATRE, MONTREAL



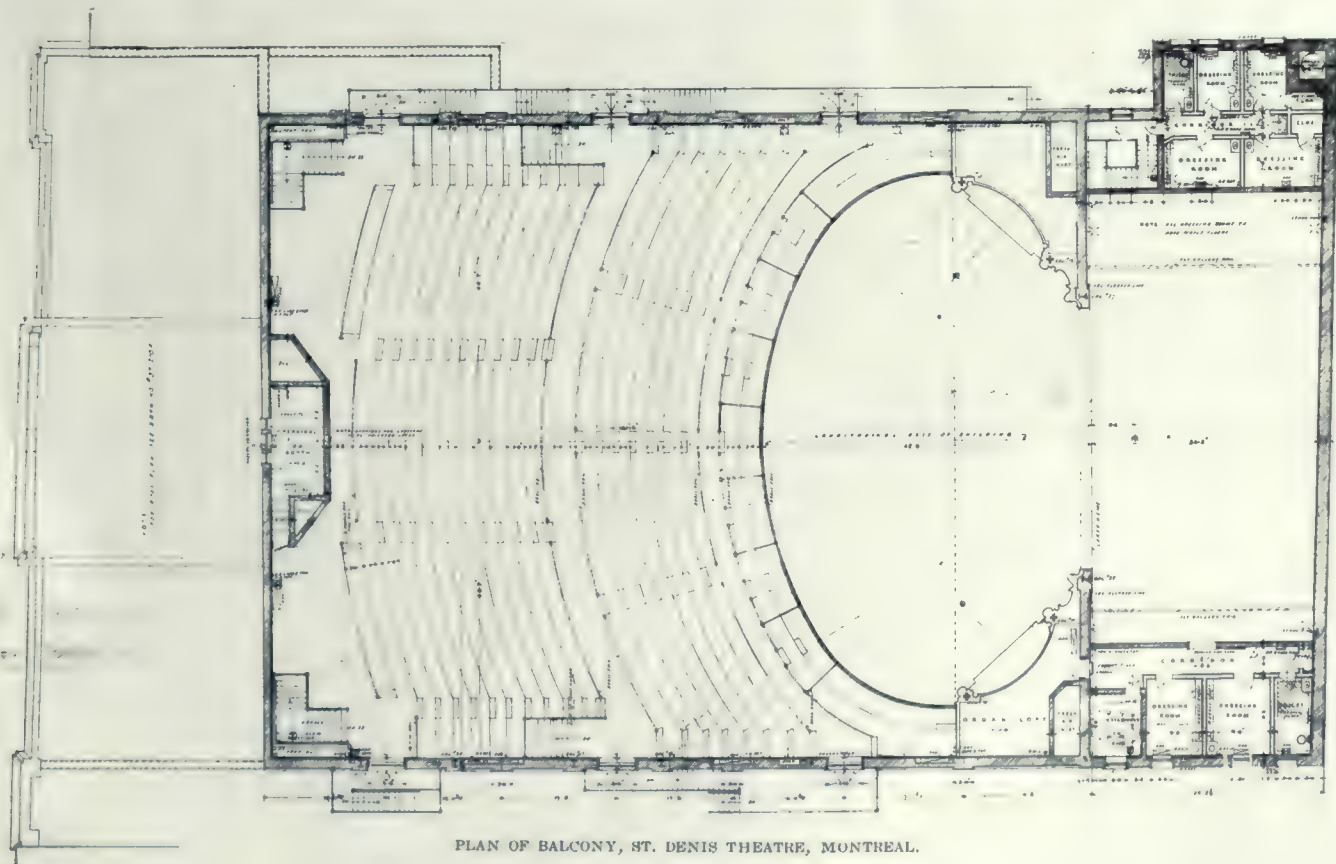
SECOND MEZZANINE FLOOR PLAN, ST. DENIS THEATRE, MONTREAL

be exhausted within a few months and great stagnation and unemployment in the building trades may be expected. Already several woodworking factories have ceased operations.

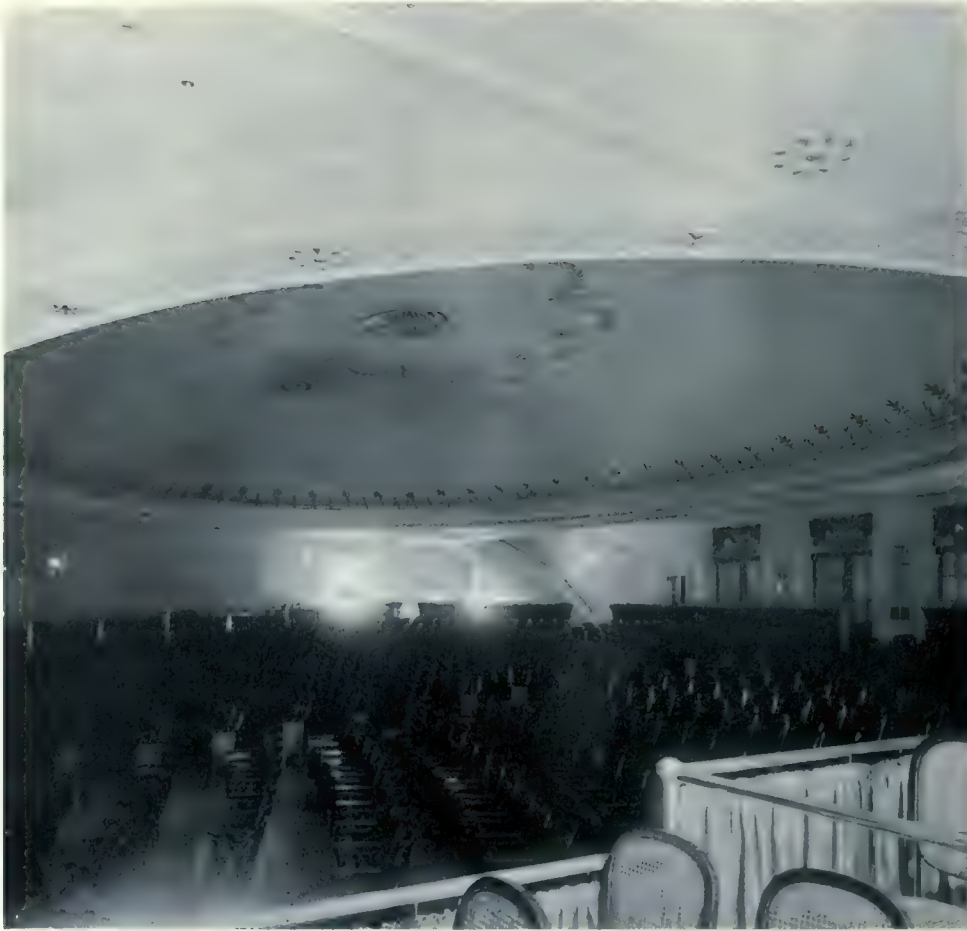
This situation suggests that American manufacturers and exporters of building materials might profitably give renewed and special attention to the Dutch market, with a view to both the present and the future.

MEASURES AIMED AT WHITE-PINE BLISTER RUST

The white-pine blister rust has reached a stage where, according to specialists of the United States Department of Agriculture, energetic action is imperative if the disease is to be controlled. Not only is all of the eastern white pine threatened already, but there is little



PLAN OF BALCONY, ST. DENIS THEATRE, MONTREAL.



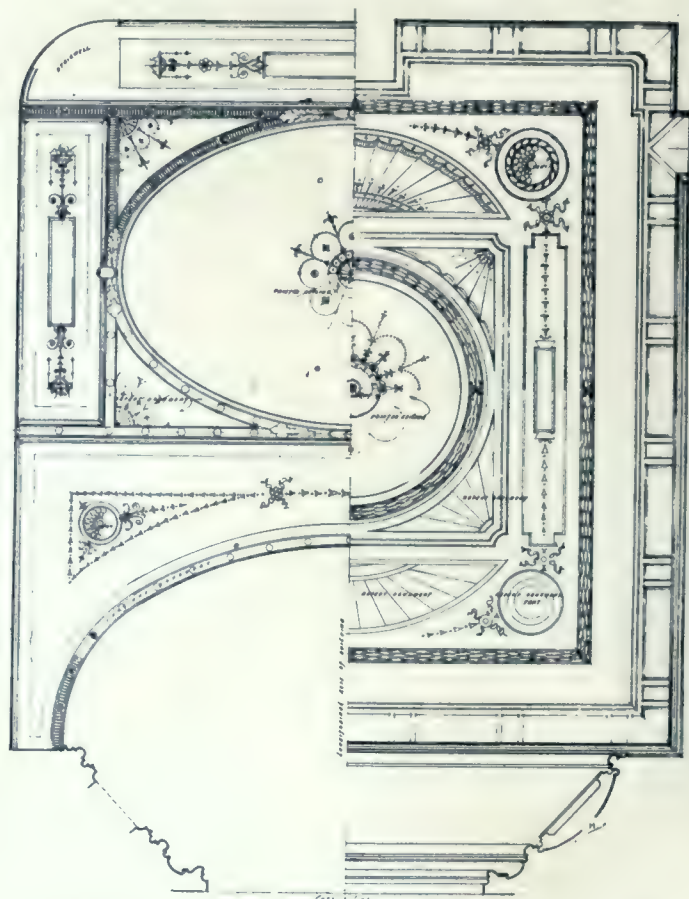
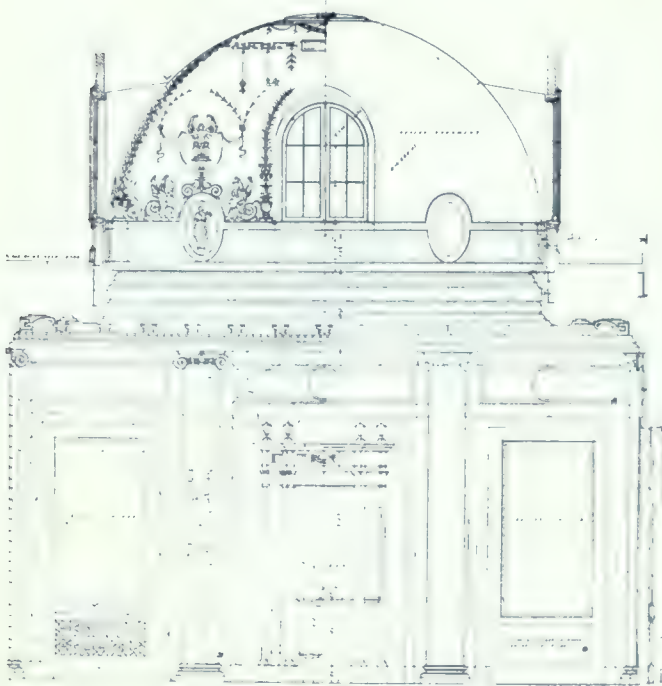
UPPER BALCONY, ST. DENIS THEATRE, MONTREAL.

doubt that if rigid State quarantines do not stop it the infection ultimately will ravage the great forests of the West.

The mature white pine in the Eastern States is valued at approximately \$186,000,000. In the West the mature stands of sugar and western white pine are valued at \$240,000,000. In Farmers' Bulletin 742, a new publication of

the Department of Agriculture, it is declared that each State west of the Missouri River should prohibit immediately all shipments from the East of 5-needle pines or of currants and gooseberries, which play an important part in the transmission of the disease.

The Canadian business of Estey Bros., manufacturers of ornamental iron and bronze work of 4 St. Cecile St., Montreal, has been taken over by Lymburner, Ltd., of Montreal, and will be operated by them as their architectural ironwork department. The offices will be consolidated as soon as the new building under construction on St. Paul St. has been completed. Mr. Park Bishop, formerly manager of Estey Bros., will continue as manager of this department.



HALF PLAN OF AUDITORIUM PLAN, ST. DENIS THEATRE, MONTREAL.

Heating and Ventilating by Warm Air Furnaces

By David Millar, Heating Engineer.

THERE are a number of things which should have consideration from the owner of any building to be occupied by human beings which is to be heated, and in order of importance they are as follows: 1st, Healthfulness; 2nd, Ventilation; 3rd, Humidity; 4th, Economy of Operation; 5th, Proper Installation.

Healthfulness is certainly the prime consideration in the installation of any system of heating and the consensus of opinion at the present time, of physicians and by laymen who are best qualified to judge is that heating by warm air is the most healthful of all systems.

Your heater is the only practical mechanism for rectifying the indoor conditions during the cold half-year. To excel in personal development, a family needs the best of air, day and night; any man or woman fully realizes that fresh air is absolutely essential to good health. Then why are so many homes poorly ventilated, or worse still, not ventilated at all, except in warm weather? Certainly the medical profession has done all in its power to awaken home

owners to the dangers of bad air, but year after year, as cold weather approaches, people close up their doors and windows tight until spring; then follows a wave of colds, headaches, catarrh, tonsillitis, bronchitis, pneumonia, and tuberculosis, which cause incalculable suffering and expense. Air isn't fit for breathing purposes unless it is fresh, and few people realize how quickly fresh air becomes bad. Many a man, woman and child possesses health but lacks vitality, lacks energy, lacks vim. What builds power and vitality? Plenty of food, water, exercise, rest and fresh air.

The system of heating with warm air involves the introduction into the building of fresh, pure air from the outside into a fresh air room with

filter screens, which passes through ducts, then over the heated surfaces of the furnace, and is discharged into the rooms to be heated through air conducting pipes and registers. Such method of heating appeals to common sense as being absolutely the best that has been devised up to the present time, as it is the only method by which pure air is introduced into the building with the single exception of indirect steam or hot water heating, which are rarely installed owing to the very great first cost and often expense in fuel, which make them practically prohibitive to persons of moderate means. It is clearly apparent that there are three functions in addition to heating incumbent in an efficient heating system, viz., It must supply the home with an

abundance of pure fresh air, a proper relative humidity, it must force out the old air before it becomes "dead" and it must do it so rapidly that the air of the home will not become dry through super-heating. Any heating system which fails to fulfill these functions is not only totally inefficient, but decidedly unhealthy. A

proper warm

air system with ventilation fulfils these functions by giving a constant and continuous stream of fresh air throughout the home, changing the air from three to five times every hour. It is possible for a man to live three weeks without food, three days without water, and three minutes without air. This simple statement of a well-known fact, should make it quite clear that air, fresh, pure air, is the most important element in the world for sustaining life. We have pure food laws, and their enforcement is upheld by a strong public sentiment, but it would be vastly more beneficial to the people to enact and enforce pure air laws. For one person who is injured by eating adulterated food, a thousand suffer from breathing



FIGURE 1.

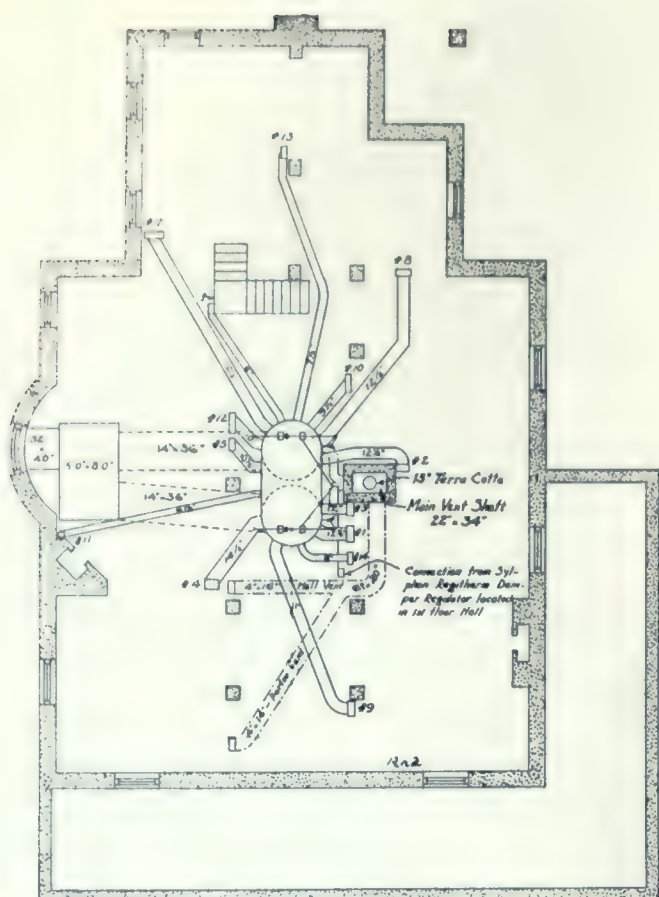


FIGURE 2.

impure air. Scientific tests show that the average person consumes the oxygen in 24 cubic feet of air every minute.

Ventilation—is the process of changing and renewing the air in a building so that it may be preserved in a state of sufficient purity to be healthful for breathing purposes; in fact, it is even more essential to health than heating. We could possibly manage to exist even in comparatively cold climates, without artificial heat; but, whether our houses are heated or not, if our rooms were perfectly tight, so that ventilation would be entirely absent, all occupants would quickly perish.

While it is one of the great merits of the warm air system, that it is impossible to heat a building under this system without at the same time changing or revolving the air in it, yet the heating is more surely and successfully accomplished and ventilation is much more adequate, certain and sanitary, when a formal system of ventilation is installed as a part of the heating plant. It is not necessary, however, to take the entire supply of air from without, but no part of the air supply should come from the basement. It is essential that sufficient fresh air from without the building be furnished to replace the vitiated air thrown out by the occupants.

Almost all cities and towns enforce strict rules regarding plumbing, with the purpose of preventing those who erect building from installing defective or unsanitary plumbing work. It

is of much greater importance to the public that municipalities should enact and enforce correct rules for heating and ventilation, so well established is the fact, that school boards in building school houses, almost everywhere now require the inflow of 30 cubic feet of fresh air per minute per pupil; and a corresponding out-flow of the same amount of "dead air." So is there any reason why a child or the mother should be forced to live in a home that lacks the same health-giving equipment as the school-room?

Humidity.—On the subject of humidity, which is a vital one from the standpoint of health, while the atmosphere of our houses in winter, when artificial heating is necessary, if not devoid of humidity, approaches it so close as to be very injurious to health.

During the heating season the air in houses is entirely too dry, no matter what system of heating is operated. The dryness of the indoor air varies with the difference between the outdoor and indoor temperature.

The average outdoor relative humidity during the healthy season is about 65 per cent. The average indoor humidity is about 22 per cent., and in zero it falls as low as 12 per cent. All medical and scientific experts are agreed that the indoor relative humidity should never be permitted to fall below 40 per cent., and they are further agreed that atmosphere with a relative humidity of 55 per cent. to 65 per cent. is best for human inspiration.

It is a well-known fact that a room is more comfortable at a temperature of 60 to 65 degrees

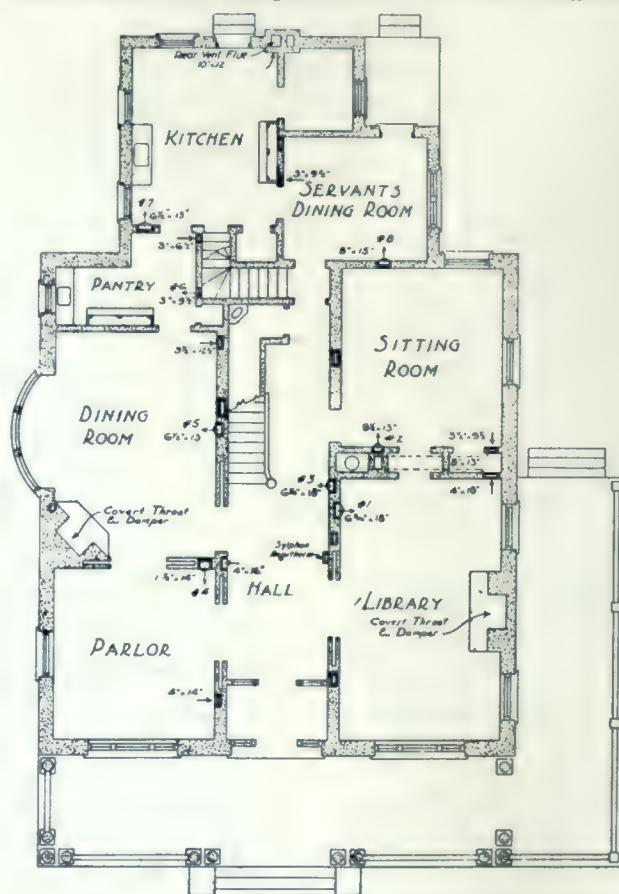


FIGURE 3.

and a relative humidity of 50 to 60 per cent., than it is at a temperature of 70 degrees and a relative humidity of only 30 per cent.

The point is this: When the air in our homes is lacking in moisture it tends to produce pneumonia, catarrh, bronchitis, and other diseases of the respiratory tract. The dry atmosphere absorbs the moisture from the lungs and membranous linings of the air passages, thus causing irritation and disease. How frequently have you seen the occupants of such homes place an unsightly pan of water on a radiator in each room in a vain effort to relieve this condition? There is no system of heating that provides for adequate humidity except that of a properly constructed warm air furnace, in which the moisture from the water pan of the furnace is supplied automatically.

Economy of Operation.—Comparatively few people can afford to overlook the cost of fuel in heating their homes.

It is a pretty well recognized and indisputable fact that all types of modern heating plants, properly installed, will deliver ample heat, but which system will deliver that heat at the minimum cost for fuel is the vital question of economical heating. The instant heat is generated in a warm air heater, the temperature of the home begins to rise. There are many weeks in the year when one needs heat, but only a little heat, a shovel of coal or a broken up box or a bunch of waste paper will furnish ample heat. Yet when cold weather comes, two or three firings a day

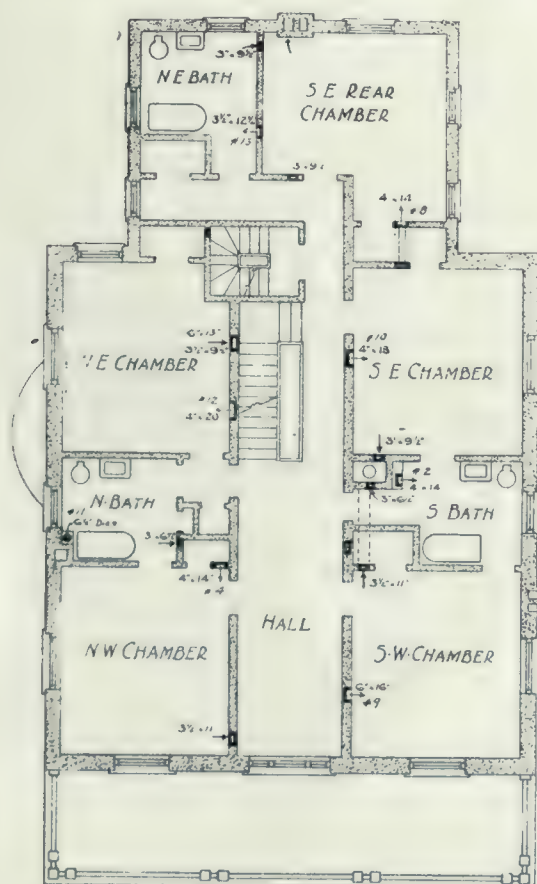


FIGURE 4.

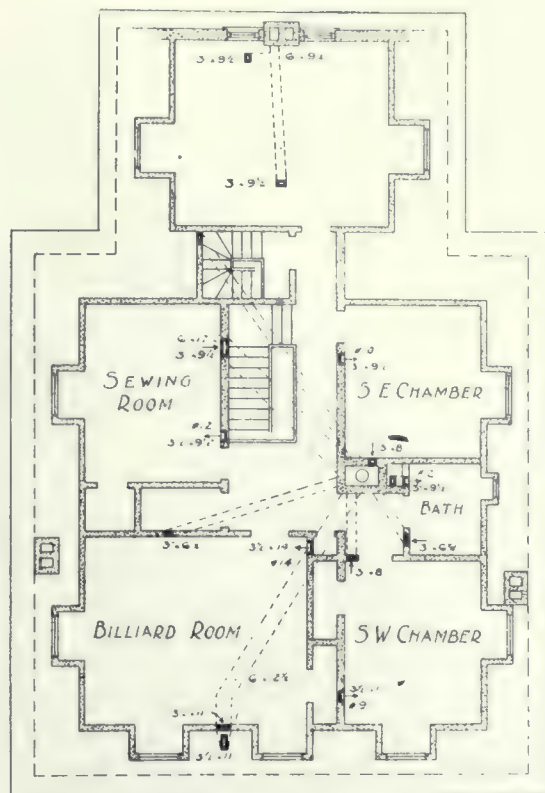


FIGURE 5.

will usually keep the building comfortably warm and ventilated.

Proper Installation.—The cost of installing a high-grade warm air system is not great, and it is decidedly less than for any other type of heating system.

Under no circumstances install a "cheap" furnace, that would prove one of the costliest investments you ever made. Get a high-grade furnace—one that is built on scientific lines and of worthy materials. You will save fuel and repairs. It is a good practice to put in a slightly larger size heater than is mathematically required; an over-size furnace consumes no more fuel in ordinary weather than the next size below; in bitter cold weather the over-size heater burns less fuel, because you do not have to force it. Too frequently the heating and ventilating is delayed until the contracts for erecting the building have been let, when it is often too late to introduce any system in the best manner, without alterations in plans and consequent annoyance; the heating and ventilating should be arranged for as soon as the general plan of the building has been decided upon, so as to provide for the necessary chimneys, flues, etc. Too often the heating is reserved for consideration until after everything else has been provided for; and as to ventilation, it is not even considered in one case out of a hundred. After the plans are completed it is the frequent practice to call for tenders for the heating, with the understanding that the lowest bidder shall receive the contract; each one is generally permitted to furnish what he pleases, the only question the owner is interested in is, "Who will do the job

the cheapest?" Thus stove dealers, tinsmiths, and plumbers are often permitted to compete for the contract, and their bids are considered, though they may not understand the simplest principles of heating and ventilating, or be in any way fitted to do work requiring education, skill and good judgment.

The acceptance of the lowest bid under such circumstances means that the man with the least knowledge or experience is entrusted with the

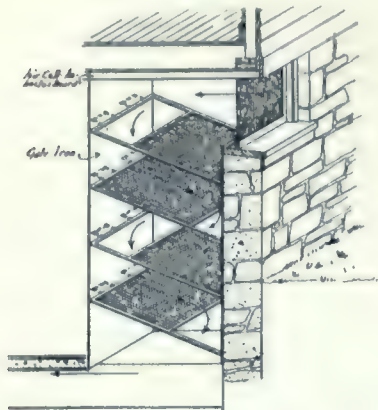


FIGURE 6.—FRESH AIR ROOM WITH FILTERING SCREENS, WHICH CAN BE REMOVED FOR CLEANING.

duty of providing for the health and comfort of those persons who will occupy the building; he then starts in to "skin" the job in an attempt to make a profit at a contract figure which has no possibility of a legitimate profit in it. If, however, at the very commencement the desirability of proper heating and ventilation is pointed out by the architect, as he should do in his capacity as expert professional adviser, he will in almost every case find that his client will accept his advice, just as he will that for a proper arrangement of the drains and plumbing work. By taking this course the architect will find his clients much better satisfied with their houses and with himself than if he defers to their ignorance in these matters.

From the mechanical standpoint also, one of the essentials of satisfactory furnace heating is ample ventilation, and lack of it has been the means of condemning many an otherwise excellent furnace installation.

In its low cost and the means that it affords for proper ventilation lies the superiority of furnace heating, every house, no matter how small, should have ventilating flues in connection with the chimneys with arrangements for connecting them with the different rooms. This is rarely done, but all the rules of health demand it, and it will greatly simplify the heating problem. The furnace is nothing more than an air pump worked by force of gravity and warming the air as it passes through. If outlets are not provided the flow is checked and heat units are wasted, while the cold and impure air remains in the room and holds the heat in the cellar.

WARM AIR FURNACE SYSTEM.

There is but one correct and sanitary method of heating and ventilating a house, and that is to pour pure warm air into the rooms in sufficient volume and to remove the colder and im-

pure air from the rooms at the bottom thereof, to a ventilating shaft.

It is accomplished perfectly by a warm air furnace system of heating provided the furnace has adequate capacity, is of high-grade construction and is correctly installed, then every room will be constantly filled with pure, fresh air.

This article will show how it can be done in a large suburban residence, as illustrated, which is perfectly heated and ventilated by this system, which contains twenty-two rooms and large halls on three floors. This heating plant is installed on the basis of maintaining a temperature of 70 degrees above zero in every room, containing a warm air register, when the outdoor temperature is at zero.

There are two furnaces (set as twin furnace). The advantage of this, is that in mild weather only one of the furnaces can be fired up, instead of firing up one large furnace, which means a great economy of fuel. The furnace is set over a fresh air pit, the fresh air supply is conducted from the fresh air room after passing through filtering screens, which is conducted through one or more underground ducts to furnace. The warm air pipes in basement are thoroughly insulated by covering them with corrugated air-cell asbestos board. The warm air pipes in partitions are double tin pipes. The main ventilating shaft is 20 x 45 inches in the clear, and the chimney flue (a 13-inch terra-cotta pipe) is run up inside thereof.

The automatically controlled humidifier (water-pan) is placed inside of casing over dome or combustion chamber of furnace. The size of warm air and vent ducts are shown on plan.

All the warm air and vent registers are placed in the walls, and not taking up valuable space. They can be furnished in designs and finishes that harmonize with any scheme of decoration or color. Every room is thoroughly and healthfully heated and ventilated at a lower cost than any other system.

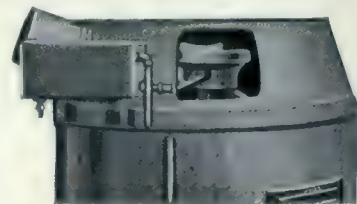


FIGURE 7.—SHOWING HOW THE HUMIDIFIER IS LOCATED WITH TANK AND CONNECTIONS.

There seems to be but one reasonable conclusion, namely, that the warm air furnace system, properly installed, is at present the only available system for the proper heating and ventilating of the home. In fact, I feel safe in saying that if the furnace system of heating with an efficient apparatus for maintaining a proper indoor relative humidity and with the proper amount of air supply taken from without, even universally adopted, in a few years the bad air diseases would be added to the list of rare diseases, except among the very poor.

Administration Building, Hydro-Electric Commission

IN view of the rapid development of the business interests with the necessary staff increases of the Hydro-Electric Power Commission, and in view of the difficulty in securing adequate accommodation, the Commission decided that the best solution of their problem in this respect was to erect an administration building suitable for present requirements, and capable of allowing for the inevitable future growth of the Commission's business. The result of this decision, made in 1914, is the handsome building on University avenue, just south of College street, recently occupied by the Hydro-Electric staff.

The structure is of steel construction, with exterior walls of cast stone and buff pressed face brick.

Architecturally the front facade of the building is of simple classic Greek design, the main feature of which is four large Ionic columns flanked with end pavilions and capped with massive column caps, all of Ionic design. The entire front is composed of light buff colored cast stone of pleasing appearance. An interesting feature is an artistic portico at the entrance of the building, having an arched roof supported by four simple Ionic columns. The arched roof of Grecian design carries a shield bearing the Com-

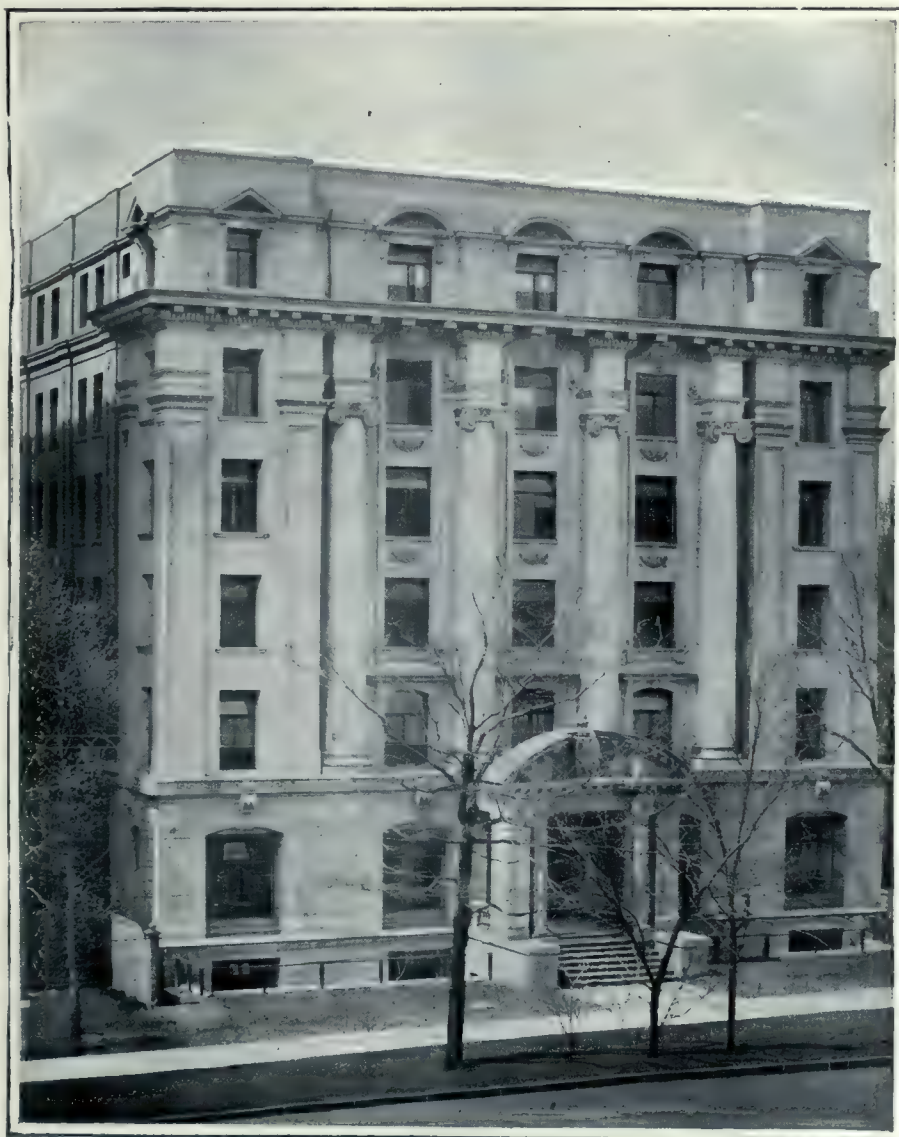
missioners' arms in a niche cut in the front.

The coat-of-arms of the Commission recently adopted was designed by Alexander Fraser, the Provincial Archivist, its purpose being to indicate the aims and activities of the Hydro-Electric Commission. In this coat-of-arms, which is shown in the illustration of the portico, the two wheels signify "Power," and, being at the

top of the shield, or "in chief," convey that power and its generation, distribution, etc., are the main function of the Commission. The wavy chevron, or angular band in the centre of the shield, with its two blue borders, is the heraldic representation of "running water," and the three stars with which it is charged signify "Light"; or, the combination, "Light from running water." The stars, with their emanating rays, are intended also, to convey the idea of light, figuratively.

The spray of maple leaves

and the supporters are taken from the shield of the Province of Ontario, and denote the Provincial scope of the Commission's work. The crest, an electric locomotive, symbolizes the railway activity of the Commission. The motto below the shield, "Dona naturæ pro populo sunt," or, translated, "Nature's gifts are for the people," may be regarded as peculiarly fitting, since



FRONT VIEW, HYDRO-ELECTRIC ADMINISTRATION BUILDING, TORONTO.

E. T. BRANDON, ARCHITECT AND ENGINEER.

GEO. W. GOVINLOCK, CONSULTING ENGINEER.

the Commission's work has enabled many thousands, who otherwise must inevitably have been deprived for many years, to enjoy the benefit of the gifts she has so bountifully provided.

At the main entrance to the building are two massive doors of solid bronze, with ornamental bronze grill work.

The main hall in this building is finished in white marble, and has a beautifully designed ornamental plaster ceiling finished in ivory tint. The same scheme obtains in the various halls throughout the building.

The floor of the main hall is likewise finished

ference room complete this floor. The entire floor is finished in mahogany with hollow steel doors and trim in the main corridors and hallways and the principal offices. The board room is finished in solid mahogany panel which matches the steel trim.

The upper floors are finished in circassian walnut, hollow steel doors and trim, with cork linoleum floors. These floors contain the municipal, engineering, purchasing, operating, railway, construction and other department offices and drafting rooms.

The basement is divided into a dining-room.



MAIN HALL, HYDRO-ELECTRIC ADMINISTRATION BUILDING, TORONTO.

E. T. BRANDON, ARCHITECT AND ENGINEER.

GEO. W. GOUINLOCK, CONSULTING ARCHITECT.

in white marble. The doors leading from this hall are of solid bronze, as well as the elevator doors and grill work surrounding the elevator shaft.

The first floor is occupied by the accounting and filing department. The second floor is devoted to executive purposes and contains the board room on the northwest corner, which connects with the chairman's office and private office for the use of the Commissioners, by a private passageway. The secretary's office, the chief engineer's office, and a large library and con-

where meals will be served to the employees of the Commission, and the necessary kitchen equipment. The kitchen will be practically electrical throughout, all cooking being done on heavy duty electric ranges.

A vacuum cleaner system is installed in the basement in the switchboard room, and each floor is provided with two outlets connecting with the basement plant. This plant can be started or stopped from any floor by means of a switch located near the cleaning outlet.

The refrigerating system will be installed in

this part of the basement and will also be electrically operated. The automatic switchboards for the telephone system are also installed in this room.

The remaining space in the basement is taken up with offices and filing and stationery storage rooms.

LIGHTING AND POWER.

The entire building is lighted with fixtures of the most modern design, which were selected as the result of careful experiments as the most efficient method of lighting the building. In addition to the standard lighting outlets each room is equipped with baseboard plugs for dictating and adding machines, desk lamps or fans.

Power for the operation of the electrical equipment throughout the building is furnished by the company's system at twenty-three hundred volts, twenty-five cycles. General distribution throughout the building is by three-wire system, one hundred and

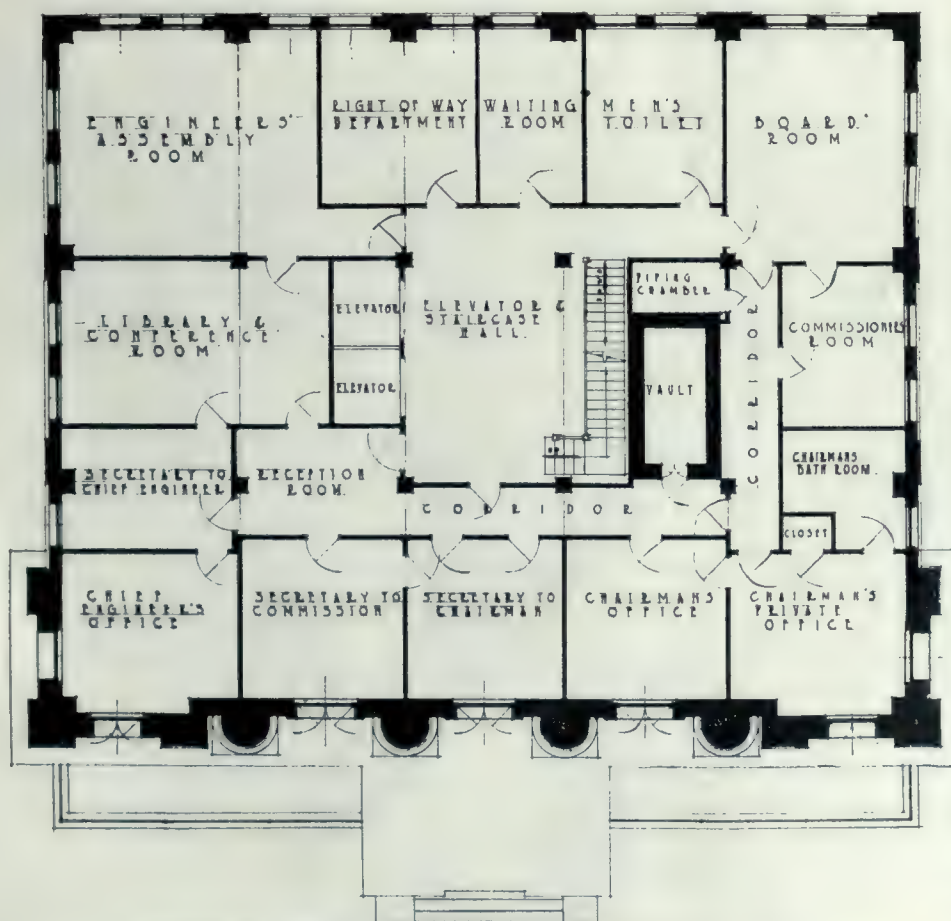
fifteen and two hundred and thirty volts.

The power service enters the building underground on the north side into the transformer room, where three thirty kva. transformers for lighting are installed. From the transformer

room lead cables transmit the power to the switchboard, which consists of two eighteen-inch panels seven feet six inches high, and two panels twenty-four inches wide, seven feet six inches high, of black slate. The metering equipment of the board consists of high tension volt meter, four hundred k.w. watt-hour maximum demand meter, two ammeters, one to measure the total load and the other to measure the load on any individual circuit. The incoming panels of the board are equipped with two automatic oil breakers, protected by overload relays. The feeder panels are equipped with switches for the individual feeder circuits. One of the ammeters is wired so that an indication of the current in any one of the circuits may be obtained.



UPPER HALLWAY, HYDRO-ELECTRIC BUILDING, TORONTO.



ADMINISTRATION FLOOR, HYDRO-ELECTRIC COMMISSION BUILDING, TORONTO.

To facilitate rapid despatching of orders and correspondence the building is provided with an automatic electric dumb waiter. The shaft for this elevator houses all cables and conduits, etc. The control for the waiter is on the main floor, where the main filing room is located, and it is so arranged that pressing a button on the main floor sends the elevator to the floor corresponding to the button pressed. Upon reaching this floor it automatically stops. As a safeguard against possible accidents the waiter can only be operated when all the doors are closed.

The passenger elevator service for the building is provided by two elevators operated by twenty-five cycle motors.



REAR VIEW, HYDRO-ELECTRIC BUILDING, TORONTO.
E. T. BRANDON, ARCHITECT AND ENGINEER.
GEO. W. GOUINLOCK, CONSULTING ARCHITECT.

An interesting feature of the electrical equipment is the automatic telephone system, by means of which any office may be called from practically any point in the building without delay, and communication can also be obtained with all the municipalities in the Province having the Commission's private line.

HEATING SYSTEM.

The heating plant, as designed by the Canadian Domestic Engineering Company, of Montreal, is installed on the forced hot water principle. Two water-tube magazine self-feed boilers are used as heaters, either of the boilers being large enough to supply all the heat required in ordinary winter weather.

This building being



PORTICO, HYDRO-ELECTRIC BUILDING, TORONTO.



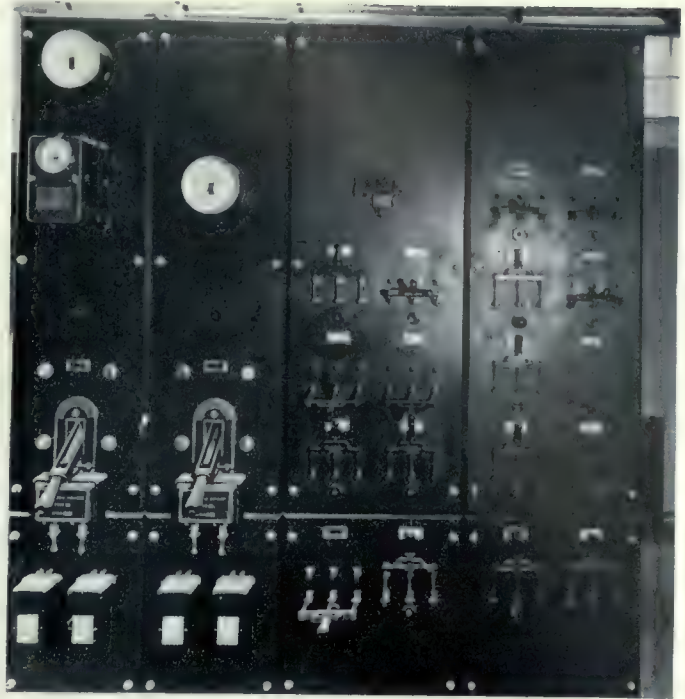
DETAIL OF ELECTRIC FIXTURE AND CEILING DECORATION.

situated in a district where the smoke nuisance must be avoided, anthracite coal is used as fuel. Because of the construction of the grates in these boilers, small anthracite coal, sold at the price of soft coal, is used.

From the boilers a large main is carried to a space between the ceiling of the top storey and the roof. In this space distributing mains are run to various down-feed pipes. The return mains are run in the basement, and connected to the boilers by way of automatic pumps, fitted with by-passes. All of the radiators are supplied with two valves; the valve on the return end of each radiator being of the lock-shield type.

THE LADY ARCHITECT

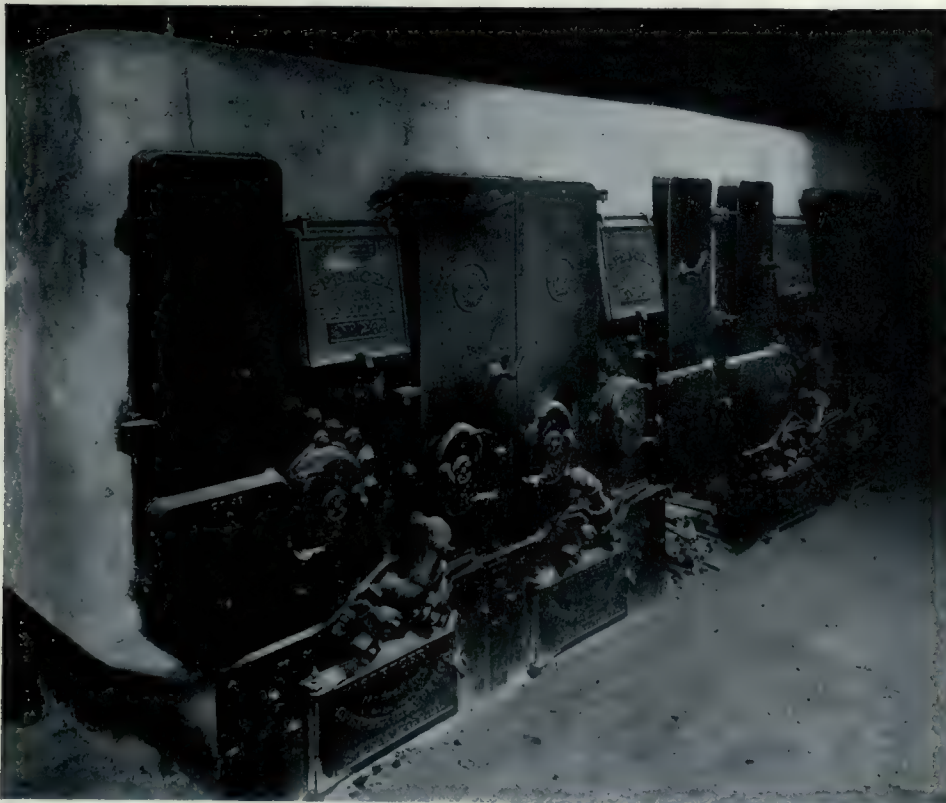
The pages of the *Bystander* contain an eloquent plea for the lady architect and a vigorous denunciation of the sins of the ordinary men who fail so pitifully in that capacity. Why, it is asked, is woman, who lives most of her time in houses, which are shockingly planned by man, not to have any room she may call her own? The man has his dressing-room and his study all to himself; while woman is only allowed an uncertain share of the common rooms of the house. The article is illustrated, not with plans of an ideal house, or even diagrams showing the errors made by man in his planning, but by figure studies which, though charming and attractive, are scarcely germane to the subject. We have that hardy perennial complaint of the



SWITCHBOARD, HYDRO-ELECTRIC BUILDING.

absence of cupboards which, until she comes to plan, the woman imagines takes up no space and costs nothing at all. There is a great opportunity which the pioneers of the woman's movement might seize at the end of the war. Why not have a garden city laid out by women, its houses built by women, and its finances organized by women? In such a city truly we might be a little nearer Heaven than elsewhere; in such a city every house might be a haven of refuge. No chimney would smoke, no draughts

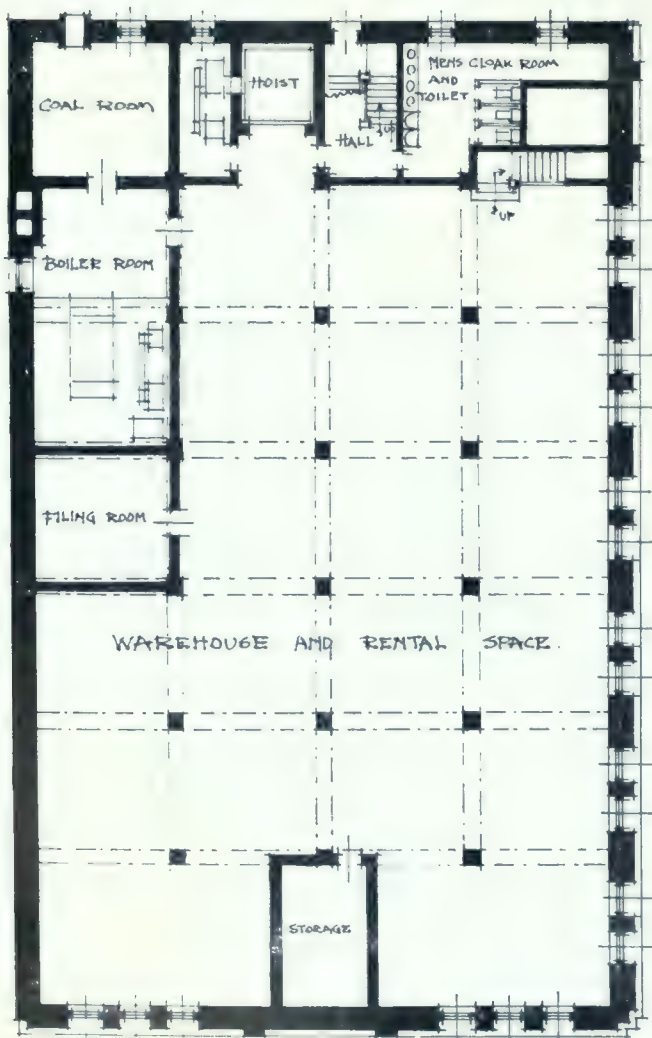
be felt; we should be surrounded with cupboards in every room; all windows would look due south except the kitchen and larder; all windows would have the best views. The rates might indeed be high, as such houses, though economical to build—for nothing would be forgotten or overlooked—would be so much sought after that rents and rates would rise, unless, indeed, the syndicate removed that difficulty by wise enactments. The only drawback would be the nuisance caused by the remaining men architects—the last of evil generation—who would be always measuring and sketching in the vicinity.



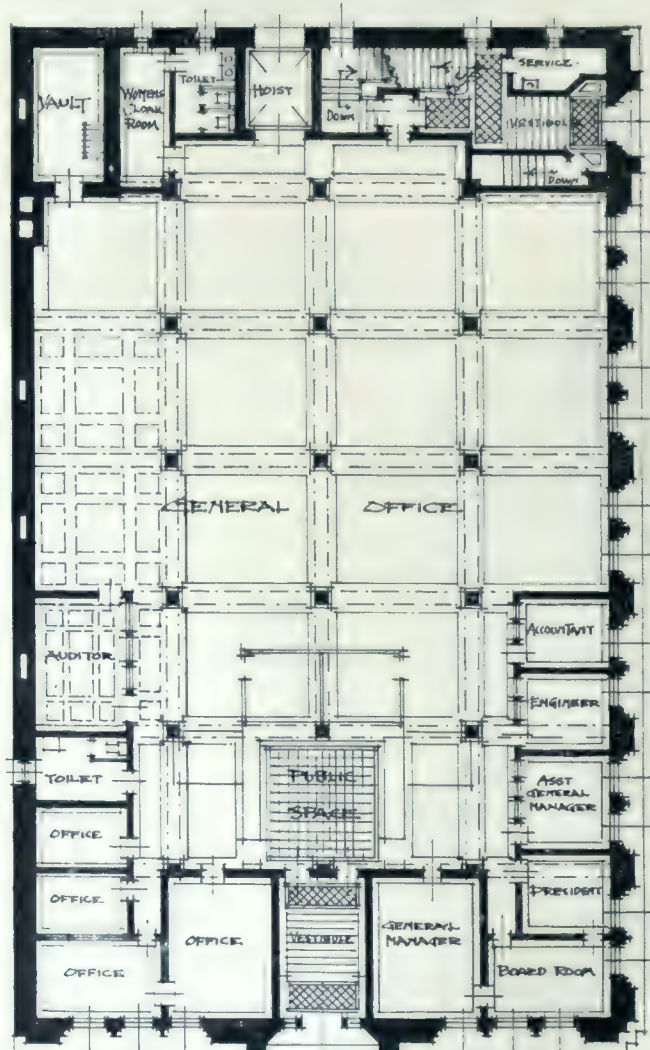
HEATING PLANT, HYDRO-ELECTRIC BUILDING, TORONTO.



VIEW OF SASKATCHEWAN CO-OPERATIVE ELEVATOR CO., LTD., OFFICE, REGINA, SASK.
STOREY & VAN EGMOND, ARCHITECTS.



BASEMENT PLAN.



GROUND FLOOR PLAN.

Reinforced Concrete Office Building

Erected For The Saskatchewan Co-Operative Elevator Co., Limited, Regina, Sask.

THE accompanying cuts illustrate an office building that has just been erected in Regina by the organized farmers of the Province of Saskatchewan.

When the proposal was first made that the Saskatchewan Co-operative Elevator Co. should abandon its rented quarters and build for itself, with its own money, a permanent home which should provide not only for the present needs but also for the great expansion which is expected in the next few years, some of the farmer shareholders were inclined to question the expenditure.

Nowhere else in Canada had the organized farmers reached that stage in development at which such a step would be the natural one for them to take, and the proposal therefore came to some not only as new, but as somewhat startling.

It was finally decided, however, that the farmers should erect a building on which they might look with pride, and which would stand as



INTERIOR VIEW, SHOWING CONCRETE CONSTRUCTION.

a perpetual object lesson of the advantages of co-operation. As one shareholder stated: "The farmers of Western Canada have been engaged for long enough in erecting handsome buildings for others. Isn't it time we built one for ourselves?"

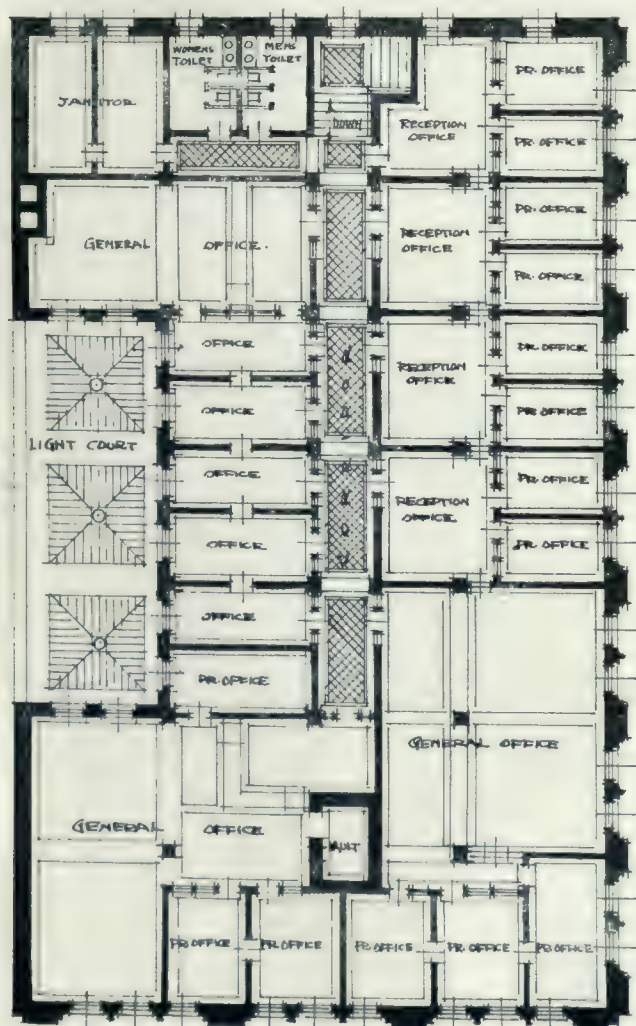
The absence of any spirit of niggardliness has resulted in the erection of a structure of which the sixteen thousand farmer shareholders may well feel proud.

Occupying a space of seventy-five feet by one hundred and twenty-five feet, and centrally situated on the corner of Smith street and Twelfth avenue, Regina, the structure presents a striking appearance, even in a quarter where stand many of Regina's largest and most imposing buildings. It is of two storeys, with a high basement, and has been so constructed with a view to future demands, that when the company require more space two additional storeys can be added, wells being left for future elevator service.

The building is of absolutely fireproof construction throughout, with reinforced concrete frame of beams, columns and floors, and with brick and tile walls and partitions, and each floor isolated by fire doors automatically controlled.

The main entrance, which faces Smith street, presents a most imposing appearance, being panelled in grey and brown marble, with marble floors and steps and domed ceiling.

The design of the exterior is carried out in light cream terra cotta and rough grey astrakhan brick, laid with heavily raked joints, the terra cotta being ornamented in relief symbolical of the business of the company, green and blue



FIRST FLOOR PLAN.

colors being used effectively in the ornamentation and in tile inserts in walls.

Sheaves of wheat and elevators serve as the motif for the ornamentation, and over the main entrance is the emblem of the company, executed in cream and blue terra cotta, and representing a large sheaf of wheat with elevator relief, on which is the monogram of the letters S.C.E. Co., and supported by a wheat garland. The windows and castiron panels are finished in a dark green oxidized finish, and the awnings were carefully selected by the architects to harmonize with the color scheme of the building.

The entire ground floor is given over to the head offices of the company, the main entrance from Smith street leading to a public space having marble floor and arranged around the public space are the private offices for the various officials. The general office is immediately behind the public space, and is exceptionally well lighted, and provides accommodation for seventy clerks. A large vault and women's cloak and toilet rooms are provided off the general office, and the men's cloak room and toilet are in the basement, adjoining the employees' separate entrance.

The first floor is divided up into various sized offices, which will be rented until this floor is required by the company for its own use. The entrance to this floor is from Twelfth avenue, and



MAIN ENTRANCE, SASKATCHEWAN CO-OPERATIVE ELEVATOR CO., LTD., REGINA, SASK.

separate from the main entrance. Adjoining this entrance provision is made for the installation of an elevator when the building is extended in height.

The basement is so arranged that part may be rented and the remainder utilized as a warehouse, and for this purpose a hoist has been provided.

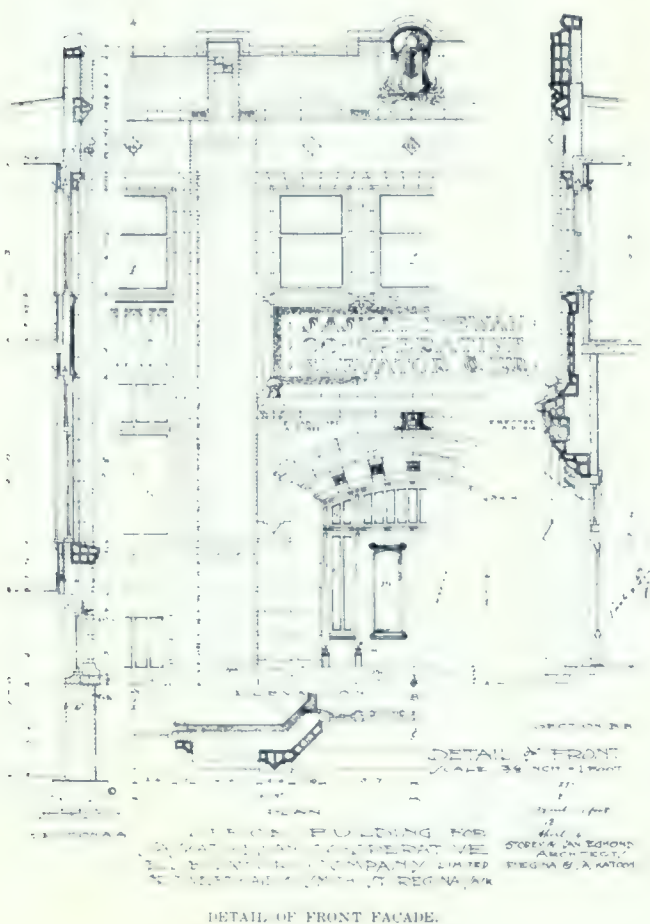
The building is finished in oak throughout, maple floors in offices, marble floors and paneling to both entrances, iron and marble stairs, terrazo floors to toilets and corridors, and all walls decorated in buff shades of tinting.

The heating system is a vacuum system, with automatic electrically-driven vacuum pump and smokeless down-draft boiler. All radiators on main floor are controlled by an automatic regulation system. Pullman ventilators are provided in windows, and ample vent ducts in walls to ensure efficient ventilation.

The architects for the building were Messrs. Storey & Van Egmond, of Regina, and the general contractors were Poole & Emery.

STATISTICS OF FIRE LOSSES

At the recent annual meeting of the Commission of Conservation a resolution was passed requesting the various provincial governments to take steps to secure complete reports of all losses from fires occurring within their boundaries, and the extent, if any, to which the property was insured.



Insulation Against Heat and Cold

A SUBJECT of great importance and one that is now receiving merited attention in the modern building, or the old building with newly installed modern equipment, is that of insulation against heat and cold.

From the largest power plants with high pressure boilers and miles of piping to be protected, to the smallest residence or apartment house with the usual installation of heating equipment, a saving can be effected of no small consideration by attention given to heat and cold resisting mediums, so that the engineers of to-day give special attention to insulation. In the power plant, the heat that is usually lost by radiation from the walls, arches and exposed parts of furnaces and ovens, represents a considerable wastage of fuel and increasing the temperature of the surrounding atmosphere, reduces the efficiency of the workers.

While there is no substance known that will not allow some heat to pass through, there are many materials which reduce the loss in heat emitted to a minimum. An excellent heat retardant is diatomaceous earth (kieselguhr), which is composed of small shells of almost pure silica, each one hollow and filled with air, this dead air making the substance an excellent non-conductor of heat.

The method of preparing diatomaceous earth for insulating purposes is briefly as follows: The earth is mixed with finely ground cork, moulded into brick form and then fired, the cork is in this way burned out leaving a porous insulating brick that will transmit only one-tenth as much heat as fire or ordinary brick.

By the use of this substance in this form the heat loss is greatly reduced and the temperature of the surrounding air made habitable. These bricks have sufficient strength to be built in the walls and arches of boilers, and will not crumble by weight or usage, and are also unaffected by steam or water.

As an example of the economy which results from the use of this substance in the above form a test has been made on a natural gas fired lehr operating with an inside temperature of 1,600 F., with the outside air at 70 F., the difference in temperature between the inside and outside was 1,530 F. With walls of fire brick 13½ inches thick the loss of heat per square foot of exposed surface was 7,554 B.T.U. per ten-hour day. With walls constructed of nine inches of fire brick and four and one-half inches of above material the thickness was equivalent to making them fifty-four inches thick with a reduced loss of 1,888.5 B.T.U. per ten-hour day. In refrigeration equipment it is estimated that one hundred and sev-

enty-six lineal feet of bare two-inch pipe carrying brine at 15 F., with the surrounding air at 75 F., will lose one ton of refrigeration every twenty-four hours, which, figured on the usual basis of cost, would total approximately \$180.00 per year, so that the total loss on the average installation if same were unprotected would be a considerable item.

Cork, because of its minute air-cell structure, is one of the best non-conductors of heat known and possesses maximum insulating efficiency; it will not take up moisture by capillary attraction (as do fibrous materials), and is therefore durable in service.

All coverings for insulation against heat and cold have merit in more or less degree, and all plants by careful attention given to this subject, can make a saving that will many times repay the initial expenditure involved.

AFTER THE WAR

A former president of the French Chamber of Commerce, Mr. Chouillou, who has just spent the past year in Paris studying the future of Franco-Canadian trade, gives some idea of the construction work that will be necessary in France and Belgium after the war and which will provide markets for Canadian manufactures and work for architects and contractors when he states that twenty million citizens in France and Belgium have had their cities, factories, stores and homes destroyed by the enemy. Some of the needed requirements will be portable houses of all descriptions, material for the construction of churches, homes and out-buildings, roofing materials, railway supplies and rolling stock, office and house furniture, heating apparatus and stoves, hardware and metal utensils, road machinery, agricultural implements, machinery used in cotton and woollen manufacturing, and numberless other articles.

Canadians have not yet learned to adopt the methods necessary to secure foreign business on a large scale. Just now, exporting firms and manufacturers have taken the advantage of high prices and are reaping a rich harvest. To get a fair share of the business that offers to building and contracting interests in the old world, a close study of the methods adopted in conducting international business will be required and the willingness to conform to these standards will be necessary. By accommodating ourselves to circumstances, a large share of this enormous business should be secured by Canada.

A Call to Construction Men

RESIDENTS in Toronto have ceased to be alarmed of a conflagration when they hear a loud and persistent ringing of bells in the main thoroughfares and the suburban districts. The noise is, in all probability, from the advertising car employed by the No. 1 Overseas Construction Battalion, now a popular sight in the city at noon-day, and more conspicuously at night, when it plies the streets, gaily illuminated, patriotically decorated, attracting attention to the imposing signs by the insistent ringing of bells.

Although only established a few weeks, Canada's first construction battalion is making big headway—more than one-half of total strength being recruited, and with the possibility of an enlarged field for recruiting activities the commanding officer has hopes that the new battalion may have its complement before the end of this month.

Construction men are urgently needed at the front, and as the British Government intimated this necessity to Ottawa, the Dominion, with characteristic spontaneity, will send her quota at an early date under command of Lieut.-Col. Ripley, late construction engineer C.P.R. Col. Ripley is selecting his staff from men who have had civil engineering experience, as well as the requisite military certificates. Readers of CONSTRUCTION will possibly recognize the names of the following officers connected with No. 1 Construction Battalion: Capts. T. R. Loudon (adjutant), Ketterson, Holland, Byrne, Lieuts. J. B. Heron, G. O. Fleming, A. E. V. Steele, F. G. Cross, F. A. R. McNair, M. Saul and O. B. Hailyberg, who recently returned from Flanders, where he had the misfortune to get wounded and

gassed. The functions of the battalion will be to assist in the lines of communication, which will embrace road-making, bridge building, rail laying and other means to facilitate the movement of troops. The majority of the men enlisting are of Canadian and Old Country origin, and have been mainly employed in the various departments of skilled labor.

So well officered and equipped, No. 1 Construction Battalion should be of valuable assistance to the troops now pending an advance.

DOUGLAS FIR IN DEMAND

A newly discovered method of creosoting Douglas fir so that it does not lose any of its natural strength as it does under the old system of forcing the boiling creosote into the wood under pressure, was announced by O. P. M. Goss, of Seattle, at a meeting of the Forest Club at the Hotel Vancouver, Vancouver, B.C. The discovery is expected to greatly increase the demand for Douglas fir for bridge building, ties and wharf construction throughout the world.

R. D. Craig, Commissioner of Conservation under the Dominion Government, presided over the gathering and introduced the speaker, who is engineer for the West Coast Lumber Manufacturers Association. The address dealt largely with the methods of the association for developing the coast lumber trade and aroused great interest among the lumber manufacturers and loggers present.

Before accepting his present position Mr. Goss was engaged in the timber testing laboratories of the United States forest service and is regarded as one of the greatest authorities on questions relating to the strength, durability, uses and weights of timber. He emphasized the necessity for the proper grading of lumber for special purposes and for treating timbers to secure long life.

The old system of creosoting with boiling creosote under pressure, said Mr. Goss, depreciated the strength of the fibres by from 33 to 35 per cent. The new system of creosoting which promises to greatly extend the uses of Douglas fir, provides for injecting the creosote into the timber by low temperature and under a low vacuum. While a slower process than the old method, tests show that the wood retains 99.7 per cent. of its original strength. In some of the individual tests the creosoted portions were stronger than the uncreosoted. In no case had it less than 95 per cent. of the strength of the original timber.



CONSTRUCTION BATTALION RECRUITING CAR.

CONSTRUCTION

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CONTRIBUTIONS.—The Editor will be glad to consider contributions dealing with matters of general interest to the readers of this Journal. When payment is desired, this fact should be stated. We are always glad to receive the loan of photographs and plans of interesting Canadian work. The originals will be carefully preserved and duly returned. Entered as Second Class Matter in the Post Office at Toronto, Canada.

FRASER S. KEITH - - - EDITOR AND MANAGER

Vol. IX Toronto, July, 1916 No. 7

REMEDYING CONDITIONS

Complaints are being freely made, and not without reason, by architects and contractors in this country, that an injustice is being done them in the way of a large amount of Canadian construction work being designed by American architects and erected by American contractors. That there is no excuse for this needs no defence, since men in the architectural profession in Canada are as a class not one whit less competent than their brothers across the line. Some of the most beautiful and substantial buildings in Canada, such as the Parliament Buildings in Ottawa and buildings of the University of Toronto, had their conception in the brains of Canadian architects, and were erected by Canadian contractors.

Figures supplied by the secretary of the Associated Builders' Exchange of Ontario, go to show that during the year 1915 plans and specifications for structures in Canada were prepared by American architects amounting to \$2,769,999. The result of favoring American architects was indicated by the fact that only \$90,000 of this amount went to Canadian contractors. Further, during that period American architects prepared plans for buildings to be erected in Can-

ada reaching a total of \$4,545,000, a large part of which is under way at the present time.

The absurdity of this situation is obvious, and surely a remedy can be obtained to prevent such injustice being done these important bodies in Canada. The plea of patriotism evidently carries no weight, otherwise the situation would not exist. Loyal Canadians, who are bearing their share of the additional burden caused by the European struggle, and who have sent large numbers of their profession to the front, particularly at such a time as this should have the first consideration on every structure that is planned to be erected in this country.

Apparently the only solution of this problem, as a means of remedying an almost intolerable situation, is in securing adequate protection by legislation. There is at present a statute existing in Canada whereby plans of buildings that are designed outside the country should be taxed twenty-two and one-half per cent. plus seven and one-half per cent. of one per cent. of the cost of the building to be erected. The architects owe it to themselves, in case of laxity on the part of customs officials, to see that this law is enforced. It would be an easy matter for the American architect coming into this country to bring in plans, perhaps merely in a rough stage, on which no duty would be collected, and which could be completed here. If there is any virtue in this statute at all, it should enable the customs authorities to collect the duty on such plans. If this were done on the various buildings which were doubtless designed in the United States, the customs coffers would be considerably enriched. It is a matter that the architectural associations might deal with to advantage.

The situation outlined above should surely bring home to the men of the architectural profession of Canada the necessity of obtaining protection, not only against unfair competition from a foreign country during a time of stress through which we are now going, but also against the man who styles himself an architect, and whose only claim to the title lies in his own assurance, backed by neither training nor education to give him the natural qualifications.

Since the contracting interests are also affected disadvantageously by the condition that prevails in Canada at the present time, it would appear that an occasion is afforded by this for them to meet the architects on mutual ground with the common object of discussing ways and means of remedying conditions which at present have been thrust upon them. The contractors have displayed more energy in this direction than the architects, and inasmuch as the latter are most vitally affected, it would appear that no time should be lost in going into this subject, with a view to arriving at a definite plan of action, having as its object overcoming the present undesirable situation.

Architectural Digest

Articles of More Than Passing Interest From Our Contemporaries

COMPARATIVE EFFECTS OF WIND AND SUNSHINE ON HEATING BUILDINGS.

By Donald B. Prentice.

Rules for determining the heat loss from buildings invariably include a clause regarding the exposure, in effect as follows: "Ten (or fifteen or twenty) per cent. should be added to the heat loss calculated with the above constants, for a windy exposure." Nothing is ever said about decreasing the calculated heat loss because of sunny exposure, for the building must be heated on cloudy as well as sunny days, and the radiation installed must be designed for the maximum heat loss and the minimum heat gain from the sun's radiation.

Although the radiation allowed for warming a building can not be decreased because of a sunny exposure, yet the latter must have considerable effect on the annual coal consumption for heating. Has it more or less effect than a windy exposure? Is it better to build at a distance from other structures, which would be wind protectors, to secure a plentiful sunlight; or is it better to sacrifice the sunshine to gain wind shelter?

The test reported in this article offers some interesting information on the subject. Obviously it is difficult to compare heating records of different houses, for the construction can never be regarded as identical. But results observed in the same house from day to day, under varying weather conditions, are of considerable value, provided the house has wind and sun exposures sufficient to be materially affected by changes in these quantities.

The present test was made in an apartment covering the entire second floor of a frame-and-clapboard house. The building faces south and has a length of sixty feet on this and the north sides. The depth is about thirty feet, and there is a fifteen-foot space at the west end and twenty-two-foot at the east. The apartment is, therefore, especially well situated for this particular experiment. As the long sides are exposed to the sun and the north and northwest winds, with practically no protection (no buildings nearer than two hundred feet), and the rooms are entirely on the second floor, the effects of sun and wind are very noticeable.

The test was made with normal operation of the furnace. The living rooms were kept at near 70 degrees F. as possible and the bedrooms about 60 degrees. Enough coal was burned to maintain this temperature during the day, the fire being banked at night. The heating system was hot-air, the furnace having a nineteen-inch firepot and burning so-called yard-pea anthracite, about the size of No. 1 buckwheat.

The weather data was secured from the local office of the U. S. Weather Bureau.

Test of Hot-air Furnace, Serving Second Floor Apartment.

Date.	24 hrs. period.	Coal burned (lbs.)	Mean outside temperature, deg. F.	Sunshine, per cent. of possible, hrs.	Average wind velocity, miles per hr.
December 6	98	30	26	14.2
December 7	69	30	61	10.0
December 8	115	31	0	5.2
December 9	63	32	57	10.0
December 10	98	24	100	20.0
December 11	98	24	97	11.8
December 12	92	25	94	5.6

The effects of wind on the heat loss from the apartment are shown by the results for December 10, 11 and 12. An average wind velocity for twenty-four hours of twenty miles per hour, as on the 10th, is quite high. On the 11th the velocity was about one-half that of the 10th, and on the 12th about one-fourth. The sunshine for these three days was about the same, as was the outside temperature. And the daily coal consumption required to keep the apartment at the usual temperature was also practically the same, being a little less on the warmer day.

The first four days of the week give an interesting proof of the marked effect of sunshine. The wind and outside temperature were nearly the same, while the sunshine varied from none at all to sixty-one per cent. of the possible number of hours. The necessary fuel consumption varied nearly inversely as the sunshine. The slightly less coal used on the 9th as compared with the 7th, despite fewer hours of sunshine, may be explained by the difference in outside temperature and the fact that on the 9th the period of sunshine was more nearly in the middle of the day at the sun's greatest intensity. Comparing the results for the 6th with those for the 10th and 11th it is interesting to observe that the longer periods of sunshine on the latter days compensate for a difference of 6 degrees in the average outdoor temperatures.

This test may be criticized for its shortness, and the writer realizes that many more observations should be made to verify or disprove the results. But the perfect consistency of these seven days is certainly interesting and inevitably leads to one conclusion. It may be relevant to state that the weather records were not secured from the Weather Bureau until the week following the coal measurement, so it was not possible to prove a preconceived notion.

From this week's record it is apparently true that wind velocity has very little effect on the heat loss from a reasonably well-built house, and that sunshine plays a very important part in decreasing coal consumption for residence heating. One would be justified, therefore, in exposing a house to fairly severe wind conditions, provided thereby an appreciable increase in direct sunshine was secured.—"Heating and Ventilating Magazine."

CONFUSION CONCERNING FIREPROOF BUILDINGS.

It is doubtful if any single factor has done more to confuse the public mind concerning fireproof construction than the irresponsible outgivings of insurance agents and others connected in some remote and indirect way with buildings and the problem of making them as nearly incombustible as may be deemed wise or economical. Seldom it is that a convention of insurance men is held—particularly if the gathering is in some of the smaller cities—that the local papers do not contain a sensational statement purporting to be the opinion of some insurance "expert" to

the general effect that the knowledge and ability required to construct a really fireproof building are not within human ken; at least are not possessed by modern architects and builders.

Of course it is now tolerably well established and understood among those who have even a limited knowledge of the subject that no degree of non-inflammability possessed by the structure proper will preserve the inflammable contents of a building from conflagration. On the other hand, it is also a recognized fact, demonstrated by a great number, if not innumerable experiences, that it is perfectly possible to build a building which in itself will not burn. Whether it is wise or economical to do so depends upon many factors, varying in almost every instance. If, however, it is desired and decided to build fireproof, and then care is taken to properly equip the building; if, in fact, nothing is used either in the construction of the building or in its equipment and furnishings that will support combustion, the danger from fire from within is obviously reduced to zero. Also, a fire from without could not by any possibility ignite such a building or its contents. If wall openings are adequately protected. In the case of a great conflagration, however, even such a building, surrounded by non-fireproof and highly inflammable structures and materials, might suffer, though not directly, from fire. If damage were done to it, such damage would probably be caused by the explosion of gases or the intense heat which might affect roofing, flashings, and other materials, even though they would not burn. It is admitted that even a fireproof building of the most advanced type is somewhat at the mercy of its neighbors, but the danger of fire is inversely in proportion to the number of such fireproof buildings in a city; and if it were feasible to construct only fireproof buildings in any given area, we would then find the fire hazard in that area very much reduced, if not practically eliminated. With the progress that has been made in fireproof construction, and the improvements in methods and materials recorded within recent years, there is every reason to believe that the unburnable city will be possible in the not remote future. The unburnable building is unquestionably a reality to-day, and can be produced whenever it is demonstrated that all things considered, it is the part of wisdom to construct such a building. Under these circumstances, statements to the effect that there is no such thing as a fireproof building is attempting to attract attention, which at best can only be local and passing, at the price of creating false impressions that inevitably are productive of much harm.—"American Architect."

CONCRETE IN COTTAGE BUILDING.

In the course of the proceedings of the recent conference held at Westminster under the auspices of the National Housing and Town Planning Council, several references were made to the necessity for using cheap materials in the building of cottages. Mr. H. L. Paterson, A.R.I.B.A., of Sheffield, in a memorandum, discussed some of the newer methods of construction. With regard to solid or hollow concrete blocks, he said that these built up as walling stones and sometimes cast with a rough rock face to imitate them cannot be recommended from an aesthetic point of view. If smooth, or if covered with rough-cast, there is not the same objection. Solid continuous walling in concrete is filled in between movable boards, and the face is afterwards covered with stucco. There are houses standing to-day which were built on this system over forty years ago. Monolithic concrete walls are built up by an ingenious method whereby hollow spaces are left in the centre of the wall, tending to keep the house warm and dry. The whole may afterwards be covered with smooth or rough-cast stucco. Solid concrete walls reinforced may be made quite satisfactorily about seven inches thick up to the first floor, and five inches thick above, but the trouble is that by-laws will not usually allow such thin walls whatever the construction may be. There are several patented systems on the lines stated, and if covered with stucco they appear to be quite as good as brickwork, if not better, for there is a natural affinity between concrete and the stucco covering. Concrete roofs are economically formed of concrete reinforced by one of the approved forms of bars. Unless, however, there is a ceiling under the concrete, the rooms immediately below are very susceptible to changes in temperature. In cold weather the moisture in the house condenses on the under side of the concrete and distemper peels off. They are usually nearly flat, but a good method is to form them in a segmental shape with a channel and moulding projecting over the wall faces. It is quite easy to form them in this way, and also at the same time to form dormer tops and sides, the whole becoming a monolithic structure without the necessity of lead gutters. It is safer to use asphalt to cover these, or at any rate one of the systems of rendering concrete waterproof. Professor S. D. Adshead, F.R.I.B.A., who discussed the possibilities of the future village, said the materials of which the solid walls of the cottages were constructed would depend on the possibilities of the district. Where there was plenty of gravel the construction would be of concrete. In a brick district it might be cheapest to build in brick or with a combination of brick and concrete reinforced. Small buildings constructed of almost any material would prove satisfactory if they stood on a good concrete slab. The inner lining of cottages should be constructed of coke breeze concrete slabs, and such slabs manufactured in immense quantities would make cottage building 25 per cent. cheaper.—"Concrete."

FIRE LOSSES.

PLEASANT POINT, ONT.—Pleasant Point mill was destroyed by fire; loss \$25,000.
HARROW, ONT.—C. F. Smith's planing mill was destroyed by fire; loss \$8,000.
MONTREAL, QUE.—N. J. Valliquette's building, 447 St. Catherine street, was damaged by fire; loss \$5,000.
BROCKVILLE, ONT.—Senator Fulford estate office building was damaged by fire; loss \$50,000.

INFORMATION WANTED.

Architect C. H. Baindle, Souris, Man., desires information regarding hardware, metal ceilings and skylights.

Construction News

The following information is obtained from our correspondents, from architects, engineers and by our staff. These items are published in our Daily Report Service, and are herein compiled for the use of subscribers to the monthly issue of "Construction." Should any of our readers desire this information daily we shall be pleased to submit prices upon request.

BUSINESS BUILDINGS.

BEAUCEVILLE, QUE.—La Banque Nationale, Quebec; P. Levesque, 115 St. John street, Quebec, is preparing plans for a branch bank to cost \$2,500.

CAMPBELLTON, ONT.—L. Belanger is having plans prepared for a brick house; cost \$8,000.

CAPE TRAVERSE, P.E.I.—Cape Traverse Hall Co., P.E.I., have plans from W. Lord for a brick and frame house.

CARLETON, N.B.—Telephone Co. have awarded contract to R. C. Clark for the erection of a brick building to cost \$12,000.

GALT, ONT.—Plans have been drawn by Architect W. Carmichael, Montreal, for Bell Telephone building, to be erected on Ainslie street.

GUELPH, ONT.—The Ontario Agricultural College have awarded contract to Secord & Son, Brantford, for a chemical building, to cost \$15,000.

LINDSAY, ONT.—J. O'Reilly has awarded contract to Neil Gray for an office building.

MARKHAM, ONT.—J. Miller, Unionville, has commenced work on a Fair building for the Agricultural Society.

PETROLIA, ONT.—The Crown Loan Co. have awarded contract to Robert Jackson for a bank building. The heating and plumbing is to be done by Van Tuyl & Fairbanks, Petrolia. The cost will be \$35,000.

PETERBORO, ONT.—Plans have been drawn for Crown building, to be reconstructed and one storey added.

PONOKA, ALTA.—The Provincial Architect, Calgary, has called for tenders on a bakery building for the asylum.

QUEBEC, QUE.—Melle Robitaille has had plans drawn for a brick house, to cost \$4,500.

QUEBEC, QUE.—E. & G. A. Carrette has had plans drawn for an office building, to cost \$25,000.

SARNIA, ONT.—H. Mueller Mfg. Co., Ltd., has drawn plans for an office building, and has called for bulk tenders.

ST. CATHARINES, ONT.—A building is being erected for J. Clench, county clerk.

ST. JOHN, N.B.—Architect J. E. Fairweather has called for tenders on a telephone building for the N. B. Telephone Co.; cost \$8,000.

TORONTO, ONT.—Plans have been drawn for showrooms and office building for the Singer estate, 133 Queen street west, to cost \$8,000. Plans have been drawn by Curry & Sparling, 105 Bond street, and contract has been awarded to Cowlin & Son, Mail Building, for an office building for the Trust and Guarantee. Plans have been drawn by Burk, Horwood & White for an office building to cost \$8,000. The Imperial Oil Co. has had plans drawn for a galvanized iron wagon shed, Esplanade, to cost \$2,000. The Ideal Bedding Co. has had plans drawn for a brick factory to cost \$2,000. Architect J. M. Lyle has drawn plans for a branch bank of the Bank of Toronto on Ossington avenue.

VICTORIA, B.C.—Plans have been drawn for a business building of the Investment and Securities Co., to cost \$7,500.

WINDSOR, ONT.—Huron and Erie Loan Co. has secured site on Pitt and Ouellette for an office building. The work is to be started February, 1917.

CIVIL ENGINEERING.

BERGEN STATION, MAN.—Plans have been drawn by W. H. Beachill, Kossar, Man., for a concrete bridge to be erected over Loon Creek.

CALEDONIA, ONT.—Clerk J. W. Avery has called for tenders on concrete bridge abutments.

CHATHAM, ONT.—Tenders have been called for three steel and concrete bridges.

CORNWALL TOWNSHIP—Tenders have been called for 28,000 feet of concrete walks.

DUNDAS, ONT.—Secretary J. E. McGinty has called for tenders on concrete dam, 18x80.

DUNNVILLE, ONT.—Clerk J. W. Holmes has called for tenders on sewers on Fairview avenue.

ESSEX, ONT.—Tenders have been called for sidewalks.

ESSEX, ONT.—Clerk R. R. Brett has called for tenders for 50 ft. concrete bridge.

FERGUS, ONT.—Tenders have been called for concrete sidewalks.

FORD CITY, ONT.—Tenders have been called for water mains.

GUELPH, ONT.—Tenders have been called for sewage plant.

GUELPH, ONT.—Engineer F. McArthur has called for tenders on 1,200 feet 42-inch castiron pipe, and also for concrete sidewalks.

HALIFAX, N.S.—Tenders have been called for 110 feet of steel bridge.

KEMPTVILLE, ONT.—Engineer E. R. Black, Brockville, has called for tenders on a bridge.

MAIDSTONE TWP.—Tenders have been called for concrete bridge.

MELANCTHON, TWP., ONT.—Tenders have been called for two steel bridges, concrete abutments.

MOOSE JAW, SASK.—Tenders have been called for 875 feet pile dam.

NAWER, SASK.—Tenders have been called for concrete reservoir.

NEW BRUNSWICK—W. R. Fawatt, Temperance Vale, N.B., has been awarded contracts for Provincial bridges, to cost \$40,000.

NORTH BAY, ONT.—Engineer H. J. McAuslan has called for tenders on concrete sidewalks.

OTTAWA, ONT.—Tenders have been called for pavements.

OTTAWA, ONT.—Contract has been awarded to Dominion Bridge Co. for a bridge to cost \$84,158.

PORT ELGIN, ONT.—Tenders have been called for reinforced concrete bridge.

PORT HOPE—Plans have been made by J. W. Sanders and tenders have been called for sewers in several sections.

QUEEN'S COUNTY, N.B.—Tenders have been called for a steel construction to cost \$20,000.

RIDGETOWN, ONT.—Clerk Geo. McDonald has called for tenders for concrete culverts.

ROSSER, MAN.—Tenders have been called for concrete bridge.

SASKATCHEWAN—Tenders have been called for telephone exchanges.

SAULT STE. MARIE, ONT.—Tenders have been called for 3,750 feet sewers.

SIMCOE, ONT.—Department of Public Works have called for tenders on fish hatchery building.

ST. CATHARINES, ONT.—Tenders have been called for 13,800 square yards of concrete pavement.

ST. JOHN, N.B.—Clerk G. Murdock has called for tenders on sidewalks.

ST. JOHN, N.B.—Contract has been awarded to Maritime Dredging Co. for 400 feet of concrete breakwater.

TORONTO, ONT.—Department of Public Works have awarded Orpen Co., Ltd., contract for 4,107 feet of sewers on Argyle street. Murphy & Barner have been awarded contract for 1,827 feet of sewers on Ethel avenue. R. J. Moyes & Co. have been awarded contract for 4,147 feet of sewers on St. Clair avenue. Connolly & Agnew have been awarded contract for 2,428 feet of sewers on Maria street. Tenders have been called for sewers, pavements, roadways.

THE PAS, MAN.—Engineers Murphy & Lenderwood, Saskatoon, have called for tenders on sewers.

TRAIL, B.C.—B. C. Government will build \$15,000 bridge. Engineer, T. Kilpatrick.

TRENTON, N.S.—Clerk W. Fraser has called for tenders on 3,000 feet of sewers.

VICTORIA, B.C.—Tenders have been called for 3,300 feet 12-in. castiron pipe and 600 feet 8-in. castiron pipe.

WATROUS, SASK.—Tenders have been called for construction of one mile road.

WELLAND, ONT.—Tenders have been called for sewers.

WELLAND, ONT.—Tenders have been called for repairs to Mooring's dock.

WESTBOURNE, MAN.—Tenders have been called for two concrete bridges.

WHEATLAND, MAN.—Tenders have been called for concrete bridge.

WINNIPEG, MAN.—J. Guilbault & Son have been awarded contract for tile sewers to cost \$5,000.

WINNIPEG, MAN.—Secretary M. Peterson has called for tenders on sewers.

WINNIPEG, MAN.—Tenders have been called for reinforced concrete bridge.

WOODSTOCK, ONT.—Engineer F. J. Ure has called for tenders on concrete walks, curbs and gutters.

CLUBS, HOSPITALS, THEATRES AND HOTELS.

BRANDON, MAN.—Tenders have been called for stores and theatres.

FREDERICTON, N.B.—Plans have been drawn for the Victoria Hospital.

HAMILTON, ONT.—Architects Stewart & Wetton have called for tenders on a nurses' home.

KINGSTON, ONT.—Architect E. R. Beckwith, C.E., has called for tenders for lodge building.

MONTREAL, QUE.—J. H. Spence has called for tenders on a theatre owned by the Canadian United Theatres, Ltd., to cost \$200,000.

NELSON, B.C.—When plans are drawn work is to proceed on a hospital to cost \$80,000.

PORT ARTHUR, ONT.—Tenders have been called for hotel to cost \$8,000.

STANSTEAD, QUE.—The Stanstead Inn Corp. propose building a hotel to cost \$35,000.

ST. JOHN, N.B.—Tenders have been called for a hospital to cost about \$60,000. Contract has been awarded for an isolation hospital.

TORONTO, ONT.—A picture theatre is to be erected at 581 Gerrard street east, and tenders have been called. Plans are being prepared for a theatre to cost \$20,000. Plans have been drawn for a theatre on Queen street east.

VANCOUVER, B.C.—The plans are being prepared for a theatre on Hastings avenue.

WELJAND, ONT.—Plans have been drawn for a hospital to cost \$35,000.

PLANTS, FACTORIES AND WAREHOUSES.

BERLIN, ONT.—Plans are being prepared for a factory on King street.

BRANTFORD, ONT.—Tenders have been called for a factory owned by the Hampel Paper Box Co., to cost \$8,000.

BURFORD, ONT.—Site has been purchased by the Canadian Milk Product Co. for a milk factory, to cost \$50,000.

CALGARY, ALTA.—The Automatic Thresher and Machinery Co. propose to build a threshing machine factory.

CHATHAM, ONT.—Tenders have been called for a factory owned by the American Pad and Textile Co., to cost \$15,000.

DUNKIRK, ONT.—Plans are being prepared for a factory owned by the Merrill Silk Co., Hornell, N.Y.

FERGUS, ONT.—Tenders have been called for a factory owned by Beatty Bros., to cost \$8,000.

GUELPH, ONT.—Tenders have been called for H. Walker & Son's new warehouse.

HALIFAX, N.S.—Three large shipbuilding concerns propose building plants here.

HAMILTON, ONT.—The Hamilton Foundry Co. have had plans drawn for a foundry. Victor Saw Works have had plans drawn for a factory to cost \$6,000. Oliver Chilled Plow Works have had plans drawn for a factory on Burlington street to cost \$2,000. Tenders have been called for a factory on Stirton avenue, owned by Appleford Counter Check Book Co., Ltd. Contract has been awarded to G. Frid & Co. for a factory owned by the Canadian Cartridge Co., to cost \$20,000. Plans have been drawn for a factory owned by W. A. Freeman to cost \$1,500. Plans have been drawn for a brick and frame construction owned by J. Marks to cost \$5,000. Contract has been awarded to G.

Mills for a factory owned by the Hamilton Stamp and Stencil Works to cost \$2,250. Plans have been drawn for a storage building owned by A. Krukowski to cost \$4,000. F. F. Dahey Co. have purchased a site for a factory to cost \$100,000.

LEAMINGTON, ONT.—Heintz Pickle Co., Leamington, are having plans prepared for a factory to cost \$30,000.

LONDON, ONT.—Contract has been awarded by W. H. Board, London, to James Patton for a factory to cost \$1,000. Contract has been awarded to Hyatt Bros. for a warehouse to cost \$18,000, owned by Webster-Harvey Co. Contract has been awarded to John Hayman & Sons, 432 Wellington street, for a factory to cost \$10,000, owned by E. Leonard & Son.

LINDSAY, ONT.—Contract has been awarded H. T. Hickey, Peterboro, for a woolen mill, owned by Horn Bros.

MONTREAL, QUE.—The Misses Scott, 81 Redpath, have had plans drawn for a factory on Redpath street to cost \$1,900. The Canadian Tube and Iron Co. have had plans drawn for an office in the rear of Hamilton street to cost \$2,500. Lymburger, Ltd., 515 Commissioner, have had plans drawn for a warehouse to cost \$8,000. Plans have been drawn for a warehouse at St. Adeline and Marlborough for a warehouse to cost \$3,000. Contract has been awarded to John Quinlan for a plant owned by the Armstrong-Whitworth Co. to cost \$750,000. Plans have been drawn for a warehouse owned by H. Fortier to cost \$7,000. The Dominion Oilcloth Co. have had plans drawn for a factory to cost \$4,000.

NIAGARA FALLS, ONT.—Broas Bros. have commenced work on a factory owned by McGlashan-Clark Co. to cost \$25,000.

ORILLIA, ONT.—Contract has been awarded to E. Webb & Son for a factory owned by G. Forbes, Hespeler, Ont.

POINT EDWARD, ONT.—Geo. Oakley, Toronto, and E. F. Giberson, Illinois, propose building a stone-cutting concern here.

QUÉBEC, QUE.—The International Land and Lumber Co., Ottawa, are having plans drawn for a paper mill.

SIMCOE, ONT.—Tenders have been called for the factory owned by the Unique Shoe Co.

ST. CATHARINES, ONT.—Tenders have been called on a factory owned by Packard Electric Co. McKinnon Sash and Metal Co. have had plans drawn for a factory to cost \$50,000.

ST. THOMAS, ONT.—C. Phillips propose building a glove factory.

TIMMINS, ONT.—Premier Mines proposes building a power plant.

TORONTO, ONT.—The Canadian Bag Co., Paton road, have had plans drawn for a factory. Contract has been awarded to W. Wheeler, 54 Tecumseh, for a warehouse owned by F. T. James, Church and Colborne. Northrop & Lyman Co. has awarded contract to Witchell & Son on a factory to cost \$50,000. Work has commenced on the factory of L. White & Son, William street. Tenders have been called by the Department of Public Works on an examining warehouse to cost \$500,000, on Front street. Henschien & McLaren, Chicago, have had tenders called on Wm. Davies Co.'s ice plant, Front street, to cost \$45,000. Tenders will be called in three months on the Wm. Davies Co.'s packing plant, Don and Queen streets, to cost \$1,500,000. Contract has been awarded to C. Tonkin, Oakwood avenue, on a factory owned by Soper & Co., Lawton avenue, to cost \$5,000. Tenders have been called on a factory owned by Canada Cycle and Motor Works to cost \$100,000. The Campbell Flour Mill Co. has awarded contract to Tromanhouse Co., Temple Building, for a warehouse. Architect F. R. Phillips has drawn plans for the new factory on Queen street east, owned by the Hamilton Carhartt Co.

VANCOUVER, B.C.—The Canadian Products have had a by-law passed for an evaporating plant to cost \$30,000. Contract has been awarded to Cotton Co., Ltd., on the plant owned by Canadian Fishing Co., Ltd.

WAIKERVILLE, ONT.—Motor Products Co., Detroit, propose building a motor plant.

WELLAND, ONT.—Architect A. E. Nicholas, St. Catharines, is preparing plans for the factory owned by Welland Valve Co. The Central Macaroni Works, Buffalo, N.Y., have purchased a site and propose building a factory at a cost of \$10,000.

VICTORIA, B.C.—Parfitt Bros., contractors, have commenced work on the Department of Marine and Fisheries warehouse to cost \$16,300.

PUBLIC BUILDINGS AND STATIONS.

LEVIS, QUE.—Tenders have been called for station and train shed.

MONTREAL, QUE.—Tenders have been called for comfort stations.

TILBURY, ONT.—M. C. Ry. Co., St. Thomas, are having plans prepared for a station to cost \$10,000.

TORONTO, ONT.—Tenders have been called for a sub-station belonging to Toronto Hydro-Electric.

VANCOUVER, B.C.—Tenders have been called for a station owned by the C.N.R., which will cost \$100,000. Tenders have been called for a station belonging to the Canadian Northern Railway to cost \$1,000,000.

WINDSOR, ONT.—The Detroit and Windsor Ferry Co. are having plans drawn for a ferry dock and waiting room to cost \$125,000.

RESIDENCES, STORES AND FLATS.

ARNER, ONT.—Plans are being prepared for a residence owned by A. Ayner to cost \$3,000.

ATWOOD, ONT.—Plans are being prepared for a residence for Mrs. B. Hanna to cost \$4,000.

AUBURN, ONT.—Plans are being prepared for a residence belonging to C. E. Asquith to cost \$3,500. Plans are being prepared for a residence owned by E. Helwid to cost \$4,000.

AYLMER, ONT.—Contract has been awarded to C. M. Smith for a residence owned by John H. Strachan to cost \$4,000.

BELLEVILLE, ONT.—Work has started on D. V. Doyle's residence to cost \$4,000. Work has started on M. R. Doyle's residence to cost \$3,600.

BELMONT, ONT.—Plans have been drawn for A. Harkness' residence to cost \$2,500. Plans are being prepared for C. Baron's residence to cost \$3,000.

BLENHEIM, ONT.—Plans have been drawn for H. L. Bismuth's store to cost \$4,000.

BRANTFORD, ONT.—Plans have been drawn for H. W. Turnbull's residence to cost \$2,000. Plans have been drawn for a galvanized iron warehouse owned by Ham & Nott to cost \$3,000.

BRIDGEN, ONT.—Contract has been awarded to A. Blaikie, Inwood, Ont., for John Poland's residence to cost \$4,000. Plans have been drawn for a manse for the Presbyterian Church to cost \$4,000. Plans are being prepared for a residence belonging to Wm. Shaw to cost \$4,000.

BROCKVILLE, ONT.—Plans are to be prepared for a business block owned by the Fulford estate to cost \$30,000.

BRUSSELS, ONT.—Plans are being prepared for W. F. Strutton's residence to cost \$1,000.

CAUGHNAWAGA, QUE.—Tenders are being called for a teachers' residence owned by the Department of Indian Affairs, Ottawa.

CHATSWORTH, ONT.—Tenders have been called for E. P. McConvey's residence to cost \$4,000.

CHIPPÉWA, ONT.—Plans are prepared for Norton & Co. residences to cost \$2,500 each. The company will build twenty-five frame residences.

DORCHESTER, ONT.—Plans are being prepared for N. Nugent's residence to cost \$4,000.

HAMILTON, ONT.—Plans have been drawn for E. R. Bond's residence to cost \$3,500, and E. Wright's residence to cost \$2,000. Plans have been drawn for A. V. Smith's five brick residences to cost \$2,000 each, and for J. H. Stewart's brick garage to cost \$2,500. Plans have been drawn for residence of Stuart Bros. to cost \$4,000. Plans have been drawn for C. G. Hudson's residence to cost \$3,000. Plans have been drawn for J. McNaught's residence, Somerset avenue, to cost \$2,000. Hamilton Dwelling Co. have plans drawn for three frame residences to cost \$4,000. Contract awarded to R. Isbister for residence owned by F. T. Moore to cost \$8,000. Work commenced on residence belonging to S. Golden, cost \$2,500. F. Havers has plans drawn for three residences, two to cost \$3,500, and one to cost \$6,000. W. E. Blatz has plans drawn for five residences to cost \$10,000. W. E. McKim has plans drawn for two residences to cost \$7,000. C. Widdup has plans drawn for residence to cost \$2,400. A. J. McFadden has plans drawn for residence to cost \$2,000. Contract awarded to J. E. Saddler for W. Cook's residence to cost \$2,000.

E. A. Seymour has plans drawn for residence to cost \$2,000. Mrs. P. Wilson has plans drawn for residence to cost \$3,000. J. W. Williamson has plans drawn for residence to cost \$3,000. Mrs. Walton has plans drawn for residence to cost \$2,000. W. Taylor has plans drawn for residence to cost \$2,000. Ida M. Gillard has plans drawn for six residences to cost \$7,000. Contract has been awarded to W. Hobbs for W. Chiswell's residence to cost \$3,500. Dr. Truman has plans drawn for residence to cost \$5,000. C. Rudolph has plans drawn for residence to cost \$2,000. Contract has been awarded to W. Teaker on two residences owned by F. New to cost \$2,000 each.

RESPELER, ONT.—Contract has been awarded to Grill Bros. and Prestien & Bartles on seven residences to cost \$2,000 each, belonging to F. Forbes Co.

LISTOWEL, ONT.—Plans are being prepared for bungalow belonging to Misses Hay, to cost \$4,000. Plans are being prepared for residence owned by E. Bennett to cost \$3,500.

LONDON, ONT.—Contract has been awarded to James Neilson, Pottersburg, Ont., for residence owned by F. G. Moore to cost \$3,000. Work has commenced on W. Lane's residence to cost \$3,000. Plans are being prepared for residence belonging to Major H. N. Abel to cost \$10,000. Contract awarded to F. Corley on residence belonging to A. Speir to cost \$3,000. Contract awarded to John Putherbough for Dr. Hadley Williams' residence to cost \$12,000. Contract awarded to R. J. Kelly for residence belonging to Henry Taylor to cost \$3,500. Plans are being prepared for four residences owned and built by Conn Syndicate to cost \$4,000. Contract awarded to G. H. Wallis for residence owned by T. Dickson to cost \$3,000. Contract awarded to Contr. Buzzard for residence owned by Fred Reelhoff to cost \$3,000. Contract awarded to R. J. Kelly for residence owned by T. H. Jones to cost \$3,000. Plans are being prepared addition to store and garage owned by West Floral Co. to cost \$6,000. Excavating four residences owned by the Copp Syndicate to cost \$12,000. Contract has been awarded on Charles Hunter's residence to cost \$3,000. Contract has been awarded to Hyatt Bros. on residence owned by J. Routledge to cost \$3,200. Contract has been awarded to T. Bottrill on residence owned by Geo. Poole to cost \$3,500. Plans are being prepared for J. Henderson's residence to cost \$7,000. Plans have been drawn for residence owned by J. Orme to cost \$4,000. Plans have been drawn for residence owned by R. H. Smith to cost \$3,000. Plans have been drawn for residence owned by W. Bossence to cost \$4,500. Plans have been drawn for residence owned by F. H. Kilbourne to cost \$6,500. Plans are being prepared for residence belonging to A. O. Hunt to cost \$5,000. Contract awarded to Martyn, London, for residence owned by Geo. Howe to cost \$4,000. Contract awarded to A. Dickinson for residence owned by Wm. R. Reid to cost \$3,500. Contract awarded to Hopp for residence owned by Chas. E. Pratt to cost \$3,500. Contract has been awarded to Hyatt Bros. for residence owned by Wm. Hardy to cost \$3,500. Contract has been awarded to Tambling & Jones for apartments owned by Bank of Montreal to cost \$7,000. Plans have been drawn for residence owned by D. Leckee to cost \$4,000. Plans are being prepared for apartment house owned by R. McKnight to cost \$4,600. E. Emery has plans drawn for two residences to Church of Redeemer congregation to cost \$4,000.

MELFORT, SASK.—Gillespie & Murphy have purchased site for a garage on Alberta avenue. The work is to commence in the fall.

MILTON, ONT.—Messrs. J. E. Bell, J. W. Smith, J. W. Blight and J. D. Hume are erecting residences.

MILVERTON, ONT.—J. Eiben is having plans prepared for his residence on Main street to cost \$3,500.

MITCHELL, ONT.—D. Etty has had work commenced on his residence to cost \$2,000. A. B. Barley has had work commenced on his residence to cost \$2,200. F. C. Horde has had work commenced on his residence to cost \$2,500.

MONTREAL, QUE.—Jos. Gregoire has plans drawn for three residences to cost \$2,000 each. John Walsh has plans drawn for two residences to cost \$2,000 each. John Parisien has plans drawn for four residences to cost \$6,000. White Construction and Realty have had plans drawn for two residences to cost \$8,000. Spardokos has had plans drawn for two stores to cost \$2,000 each. E. P. Wallace has had plans drawn for a residence to cost \$4,500. E. Emery has plans drawn for two residences to cost \$3,200. G. Paradis has plans drawn for two residences to cost \$2,800 each. Lord Shaughnessy has plans drawn for alterations to residence on Dorchester west to cost \$5,000. Geo. Blackett has plans drawn for two residences to cost \$10,000. Geo. Winsper has plans drawn for residence to cost \$1,500. M. Chromer has plans drawn for residence to cost \$2,000. Jeanne Bruinette has plans drawn for eight residences to cost \$32,000. Arthur Clouthier has plans drawn for one residence on Old Orchard, near Church, to cost \$3,300; two residences on Wilson, near Church, to cost \$6,800; one residence on Harward, near Church, to cost \$3,300. A. L. Brochu has plans drawn for a residence to cost \$4,000. M. Lapierre has plans drawn for a residence to cost \$5,000. St. Germaine has plans drawn for six residences to cost \$8,000. H. Legault has plans drawn for two residences to cost \$3,200. Russell Cowans has plans drawn for a residence, cost \$7,000. John Dominique has plans drawn for two residences to cost \$6,000. H. Wilinsky has plans drawn for two residences to cost \$5,000. T. N. Southam has plans drawn for three stores and twelve residences to cost \$2,000. H. Brunelle

has plans drawn for residence to cost \$5,000. J. A. Colletet has plans drawn for store and flats to cost \$2,500.

MOULT FOREST, ONT.—W. J. Giroy is preparing plans for a residence to cost \$3,500.

NEW WESTMINSTER, B.C.—Mrs. J. C. Armstrong has awarded contract to J. C. Allen for residence to cost \$6,000.

OWEN SOUND, ONT.—Lemon Bros. are preparing plans for a produce store to cost \$60,000.

OTTAWA, ONT.—L. E. Stanley & Co. proposes building a departmental store.

PORT BURWELL, ONT.—A. R. Might & Son have awarded contract to Meyers Bros. for addition to store to cost \$6,000.

QUEBEC, QUE.—J. E. Bedard has work commenced on his residence to cost \$5,000; Alf. Couture has plans drawn for a residence to cost \$4,500; Chas. Jobin has plans drawn for a residence to cost \$16,000; Alf. Bedard has plans drawn for a residence to cost \$10,000; J. R. Demers has plans drawn for a residence to cost \$7,000; Martel & Beaulieu have plans drawn for residences to cost \$12,000; Fred Cote has plans drawn for residence to cost \$7,500; Ed. Tremblay has plans drawn for residence to cost \$18,000; J. H. Jobin has plans drawn for residence to cost \$6,000; La Caisse D'Economie has plans drawn for alterations to residence to cost \$5,000.

RIDGETOWN, ONT.—Watson Taylor has plans drawn for a residence to cost \$3,200.

RIPLEY, ONT.—W. Knight has plans drawn for residence to cost \$3,000.

SAULT STE. MARIE, ONT.—W. H. Ewing has had work started on residence to cost \$8,000.

SHERBROOKE, QUE.—J. O. Darche has commenced work on residence to cost \$8,000.

STANSTEAD, QUE.—G. Coffey has commenced work on residence to cost \$2,000; E. Brock has commenced work on residence to cost \$3,000.

STRATHROY, ONT.—E. Morron is preparing plans for residence to cost \$4,000.

SYDNEY, N.S.—J. J. Power has awarded contract to R. C. Bully for residence to cost \$6,000.

SUDBURY, ONT.—Woodward & Co., Winnipeg, have awarded contract to Laberge Lumber Co. for 50 residences.

THAMESFORD, ONT.—G. Hamilton has plans drawn for residence to cost \$3,000.

TORONTO, ONT.—Joseph Hill has plans drawn for two residences to cost \$5,000. Architect P. A. Finney has drawn plans for Mrs. W. A. Wilson's residence to cost \$6,500. H. Moore has plans drawn for residence to cost \$3,000. Tenders have been called on stores owned by M. Hambly on St. Clair avenue. S. Jackson has plans drawn for residence to cost \$3,200. Tenders have been called on three pair residences owned by Dr. Grimshaw. Dr. J. B. Hall has had plans drawn for store and flats to be built by Jas. Paterson. Wm. Edmonds has plans drawn for residence to cost \$3,500. Architect has drawn plans for one pair residences owned by R. G. Hammill to cost \$4,500. S. F. Lankin has plans drawn for residence to cost \$3,200. H. A. Johnston has plans drawn for residence on Pine crescent to cost \$3,500. D. Bunker has plans drawn for stores and apartments on Royce avenue to cost \$12,000. Architects Wickson & Gregg, Kent Building, have drawn plans for store front at 95 Bloor west, owned by Mrs. John Wilson. A. F. Walford has commenced work on one pair residences at Golfview and Gerrard to cost \$4,000. F. Forsythe has awarded contract to Sharp & Brown for residence at 138 Runnymede road to cost \$4,000. S. R. Foxall, 123 McRoberts avenue, has plans drawn for addition to his residence. Architect E. G. Wilson, 77 Victoria street, has plans drawn for alterations to residence at 96 Albany avenue, owned by M. H. Cook, 501 Bloor west, to cost \$3,000. S. G. Smith, 98 Pacific avenue, has plans drawn for residence at 261 Windemere to cost \$3,500. E. Scotton, 33 Taunton road, has plans drawn for a residence on Taunton road to cost \$2,500. J. Lucas is having plans prepared for one pair residences on Gilliard, near Pape. Architects William & Ure has drawn plans for residence for E. J. Lavitz, 20 Lowther, on Glenholme, to cost \$4,500. Architect C. A. Cobb, 71 Bay street, has called for tenders on residence on Lonsdale to cost \$25,000. C. MacIntosh, 110 Hiawatha, has had plans drawn for a residence on Hiawatha to cost \$3,000. J. Slade, 189 Beach avenue, has plans drawn for two pairs residences at 181 Beach avenue to cost \$14,000. W. Ostygen, 11 Cobourg avenue, has plans drawn for residence on Coburg avenue to cost \$1,800. Kerr & Martin have had plans drawn for residence on Golfview avenue to cost \$3,500. W. Mellish, 128 Boon avenue, has plans drawn for alterations to residence on Boon avenue. R. Lankin, 85 Hogarth avenue, is having excavation done at 34 Arundel for residence to cost \$3,000. Architects Molesworth, West & Secord, 2 College street, have plans drawn for H. L. Kerr, Kent Building, for residence on Douglas avenue to cost \$8,000. Max Velisk has plans drawn for store front at 2171 Dundas street. Dodge Mfg. Co. has plans drawn for a garage to cost \$2,000. A. W. Clendennan & Son, 262 Brunswick avenue, have plans drawn for one pair residences at 797 Euclid avenue to cost \$4,500. W. W. Dale, 12 Butternut avenue, has plans drawn for residence on Ellerbeck to cost \$2,500. Architect W. R. Gregg, 23 Jordan street, is preparing plans for store front and painting for John Wanless, 243 Yonge street. Architect C. S. Cobb, 71 Bay street, has called for tenders on cottage at Weston, owned by the National Sanitarium Association, to cost \$5,000. Wm. Davies, 331 Front street, has plans drawn for a garage at Mill street to cost \$3,000. Architects Sproat & Rolph, 34 North street, are preparing plans for a residence at York Mills to cost \$25,000, owned by H. S. Strathy, 71 Queen's Park. M. C. Charters, 110 Caroline, has called for tenders on residence on Caroline avenue. Architect F. R. Barry has drawn plans for a residence and garage on Lytton avenue to cost \$6,000, owned by S. N. Hughes, 35 Roxboro. W. R. Gibb, 24 Stacey, has drawn plans for a residence on Stacey street to cost \$2,700. F. W. Smith, 178 Sheldrake, has commenced work on his residence in Lawrence Park. H. C. Warren, 178 Howick, has had plans drawn for cottage on Howick to cost \$2,000. J. Montgomery, 326 Gladstone avenue, has plans drawn for one pair residences on Blackthorn avenue to cost \$4,500. Chas. Gibson, 70 Lynhurst, has called for tenders on residence. B. Grant has plans drawn for one pair residences on Eaton avenue to cost \$5,000. M. H. McLeod, 32 Leopold, has plans drawn for alterations to residence. L. J. Wookey has called for tenders for residence in Castle Frank to cost \$10,000. W. J. Hill, 35 Woolfrey, has called for tenders on duplex residence at 133 Hamilton to cost \$5,000. Architect P. H. Finney, 79 Adelaide east, is preparing plans for two residences on Beach and Balsam to cost \$6,500, owned by Mrs. Wilson, Beach avenue. Contracts have been awarded by McEachren & Son, Royal Bank Building, for additions to residence; carpentering, S. Coombs, 66 Curzon; heating, McFadden; electric, S. A. Newman; plumbing, R. Nelson. M. C. Charters,

110 Caroline avenue, has plans drawn for residence on Caroline avenue to cost \$3,000. S. F. Fowler, 101 Bowood, has plans drawn for residence at 103 Bowood to cost \$3,000. F. A. McCake, 56 Mountview avenue, has plans drawn for residence at Clendenan avenue to cost \$3,000. Geo. Warrell, 1482 Bathurst street, has plans drawn for residence and garage on Westmount avenue to cost \$6,000. J. A. Russell, 1514 Yonge street, has plans drawn for stores and flats to cost \$7,000. W. Millichamp, 237 Poplar Plains road, has awarded contract to A. Webb, 13 Shirley street, for additions to residence on Poplar Plains road to cost \$5,000. Architect J. A. Thatcher, 37 Cowan avenue, has called for tenders on stores and apartments on Morley and Gerrard to cost \$15,000. C. Evans, 163 Westminster, has awarded contract for additions to residence on Glen road. Mrs. E. Taylor, 162 Deleware, has called for tenders on apartment house at 29 Breadalbane street to cost \$5,000. J. Devan, 51 Bird avenue, has the walls up on his residence on Lauder avenue to cost \$7,000. Chas. Howell has plans drawn for alterations to residence. W. A. Wilson, 9 Fernwood avenue, has plans drawn for two sun rooms. D. Rosana, 137 Vanhorne, has plans drawn for store front. S. Kevan, 255 Queen west, has plans drawn for store front. J. Cameron has awarded contract for residence on Warren road. G. Martin, 100 Wood street, has plans drawn for residence at 67 Sellers avenue to cost \$2,500. Erection is to commence of residence on Rainsford road, owned by Miss Isabella Mitchell, Fairford road. W. P. Leveck, 519 Roxton road, has plans drawn for residence on Geoffrey street to cost \$6,000. H. Lucas, 118 Feistead, is preparing plans for one pair residences to cost \$2,000. Architect J. G. Hedges, 1028½ Ossington avenue, has prepared plans for alterations to residence on Cherrywood Gardens, owned by F. Button, to cost \$2,500. Architect W. G. Hunt has prepared plans for one pair residences on Concord avenue to cost \$5,000, owned by J. J. Schoolery. Nightscale & Smith, 79 Woodbine avenue, have plans drawn for one pair residences on Neville Park boulevard to cost \$4,500. E. R. Hurst has plans drawn for garage and conservatory at 272 Poplar Plains road. A. P. Burrett has had plans drawn for garage on Maple avenue. W. J. Neeley, 262 Dovercourt road, has plans drawn for a residence and garage on Indian road to cost \$6,500. Dr. W. S. Grimshaw, 462 Avenue road, has plans drawn for three pairs duplex residences on Kent road to cost \$15,000. Dr. W. S. Grimshaw, 462 Avenue road, has plans drawn for three pairs residences at 16-26 Ashdale to cost \$15,000. G. J. Veale, 73 Drayton avenue, has plans drawn for residence on Drayton avenue to cost \$2,000. B. Alwood, 30 Bastedo, has plans drawn for additions to residence to cost \$1,800. Architect W. Bredin Galbraith, 22 St. Leonards avenue, has plans drawn for a residence on Oriole road to cost \$6,000, owned by R. J. MacLennan, Kent Building. E. C. Hurlbut, 44 Castlefield, has plans drawn for a residence at Briar Hill to cost \$3,000. N. J. Craig, 137 Marchmont road, has had excavation started on the residence on Marchmont road to cost \$4,500. Hayard & Whitehorn, 17 Lauder avenue, have plans drawn for residence on Lauder avenue to cost \$6,000. W. W. Dundas has plans drawn for alterations to residence at 2143 St. Clair avenue. Engineers James, Loudon & Hertzberg, Toronto street, have called for tenders for residence on Oakwood avenue, owner 490 Oakwood avenue.

TRURO, N.S.—P. O. McCurdy has commenced work on stores on Princess street to cost \$7,000.

VANCOUVER, B.C.—R. M. Tod has plans drawn for residence at 2378 York street to cost \$4,000.

WELLAND, ONT.—F. Adley, Scotland Woollen Mills store, has called for tenders on residence. S. L. Lambert has plans drawn for residence on Main street to cost \$5,000. J. A. Morris has plans drawn for residence to cost \$2,500.

WHEATLEY, ONT.—J. Crowther is preparing plans for residence to cost \$3,500.

WOODSTOCK, ONT.—E. J. Coles, Dundas street, has awarded contract to A. J. King for alterations to general store to cost \$12,000.

ZURICH, ONT.—F. W. Hess is preparing plans for residence to cost \$7,000. W. Ruby is preparing plans for residence to cost \$4,000. F. Kalbfleish is preparing plans for residence to cost \$4,000.

SCHOOLS, COLLEGES AND CHURCHES.

AMARANTH TWP.—The School Board have awarded contract to Leitch & Hughson, Shelburne, for a school.

BEETON, ONT.—Tenders have been called for a school.

BRAMPTON, ONT.—Secretary J. D. Gordon has called for tenders on a school.

BRANTFORD, ONT.—The Separate School Board have called for tenders on a school. Secretary H. Attwell, Tutela P.O., has called for tenders on a school.

BRANT, ALTA.—Secretary Wm. Thomas has called for tenders on a new school.

BIG VALLEY, ALTA.—Secretary W. Wamsley has called for tenders on a new school.

CAINSVILLE, ONT.—Architect L. D. Barber, Brantford, has called for tenders on a church, owned by the Baptist congregation, to cost \$15,000.

CALGARY, ALTA.—The School Board has awarded contract to Rodger Bros. for a new school on Centre avenue to cost \$16,000.

CARLTON, P.E.I.—Tenders are called on a new school to cost \$6,000.

CHATHAM TWP.—Secretary John S. Knight has called for tenders on a new school to cost \$5,000.

CHINOOK, ALTA.—Competitive plans wanted for a new school; secretary, L. Proudfoot.

CLANDEBOY, MAN.—Tenders have been called for a new school; secretary, G. Sutherland, Boyd Building, Winnipeg.

DUNDURN, SASK.—F. E. Livingstone, secretary of School Board, has called for tenders on a new school.

ELMVALE, ONT.—Architect John Wilson is preparing plans for a new school to cost \$12,000.

ELROSE, SASK.—Dr. R. H. Burrell, secretary of School Board, has called for tenders on the new school.

FERRIS TWP., ONT.—Angus & Angus, architects, North Bay, Ont., have called for tenders on the new school.

FORD, ONT.—Architect J. C. Pennington, Windsor, has called for tenders on the new school to cost \$40,000.

FOREMOST CONSOLIDATED S.D., NO. 2, ALTA.—Secretary G. L. Schinnour has called for tenders on the new school.

FREDERICTON, N.B.—Plans have been drawn for St. Paul's Presbyterian Church. The School Board proposes to build a school to cost \$5,000.

FRANKLAND, ALTA.—Tenders have been called for the new school; secretary, A. L. McPhee.

GALT, ONT.—Architect J. Evans, 30 North Water street, is preparing plans for additions to school to cost \$10,000. Tenders

have been called by the Separate School Board for the new school on Rose avenue.

GLENSIDE, SASK.—J. B. Stoeck, secretary, has called for tenders on the new church to cost \$4,500.

GRIFFIN, MAN.—Tenders have been called for the new school to cost \$6,000.

GRIFFIN, SASK.—Architect G. J. Jarrett, Weyburn, has called for tenders on the new school to cost \$6,500.

GUELPH, ONT.—The Agricultural College has awarded contract to Secord & Son, Brantford, for a chemistry building to cost \$20,000.

HAMILTON, ONT.—Architect F. W. Warren, Bank of Hamilton Building, has called for tenders on the new church owned by the Union Protestant Church. Architects Stewart & Wiltson have drawn plans for a Sunday school owned by Christ Church Cathedral to cost \$15,000.

HEBRON, MAN.—Architect C. H. Brindle has called for tenders on the new school.

HOUGHTON, SASK.—Secretary A. C. Story has called for tenders on the new school.

HOUSE LAKE, ALTA.—W. A. Stickle, trustee of the School Board, has called for tenders on the new school.

KINGSTON, ONT.—Tenders have been called on the new riding school owned by the Department of Militia to cost \$18,000.

LONDON, ONT.—The Board of Education has awarded contracts for the new Technical school to cost \$200,000. Architect Miller, Toronto, is preparing plans for the new Salvation Army Citadel to cost \$15,000.

MELFORT, SASK.—Secretary Carl Haggland has called for tenders on the new school.

SANDY LAKE, MAN.—Secretary C. Ramsden has called for tenders on the new school.

MINDEMOYA, ONT.—Secretary A. J. Wagg has called for tenders on the new church.

MONTREAL, QUE.—The Jacques Cartier Normal School, 992 Sherbrooke street, have had plans drawn for a new church to cost \$65,000. The Protestant School Board have had plans drawn for a new school. The School Board has awarded contract to L. Beaudry, Fairmount avenue west, for new school on Robin street.

MONTROSE, MAN.—Secretary J. Muirhead, Carberry, has called for tenders on the school.

OTTAWA, ONT.—Secretary J. Bethune has called for tenders on the new school on Albert street.

PARRY SOUND, ONT.—Secretary J. D. Broughton has called for tenders on the new school.

PEMBROKE, ONT.—Architect W. C. Keighleys is preparing plans for a new school.

PETERBORO, ONT.—Secretary G. Thompson has called for tenders on alterations to South Central School. Secretary A. E. Prest, 242 Lansdowne street, has called for tenders on the new church owned by St. James' Methodist Church.

PORTAGE LA PRAIRIE, MAN.—Architect F. E. Evans has called for tenders on the new school to cost \$65,000.

PORT CREDIT, ONT.—Architect D. C. Cotton, Adelaide street east, Toronto, is preparing plans for a new school to cost \$20,000.

PRICEVILLE, ONT.—Secretary F. P. Reiley has called for tenders on the new school.

QUEBEC, QUE.—Architect E. Tanguay is preparing plans for the new school on St. Luke street to cost \$12,000. Plans are to be prepared for the new Girls' Home, owned by the Y.W.C.A., to cost \$50,000.

RAPID CREEK, ALTA.—Rapid Creek S.D., Alta., has awarded contract to Contractor Beaton for the new school.

SARNIA, ONT.—The Separate School Board has awarded contract to James Shanks for the new school to cost \$16,000. The Board of Education has awarded contract to Schultz Bros., Brantford, for the new school to cost \$58,000.

SASKATOON, SASK.—The School Board is having plans prepared for alterations to the school.

SELKIRK, MAN.—Secretary J. E. Hoover has called for tenders on the new school.

SHERBROOKE, QUE.—Tenders have been called on the new school owned by the East Sherbrooke Mothers' School.

SIMCOE, ONT.—Architects Chapman & McGiffin, Toronto, are preparing plans for two schools to cost \$40,000.

STRATFORD, ONT.—Tenders have been called for the new school to cost \$15,000.

ST. DAMASE, QUE.—The R. C. congregation propose building a new church.

ST. ELIE ORFORD, QUE.—The Presbyterian Church are having plans prepared for a church and presbytery to cost \$20,000.

ST. THOMAS, ONT.—Contract has been awarded to A. E. Ponsford for the new Sunday school to cost \$10,000.

SUDBURY, ONT.—Secretary J. Fowler has called for tenders on the new school on College street.

TAVISTOCK, ONT.—Architect Russell, Stratford, has called for tenders on the new school to cost \$9,000.

TORONTO, ONT.—Work has commenced on the additions to the Separate School at 783 Bathurst street. The Board of Education have called for tenders on repairs to schools. Architect A. A. Post, Brinsford Building, Buffalo, is preparing plans for a training school on Kingston road to cost \$250,000. Rev. F. Carr, of St. Michael's College, is to have plans prepared for a college building. Plans are being prepared for a church to be built on Weston road, owned by Weston Road Baptist Church. Tenders have been called on the mission hall on Davisville avenue, owned by Davisville Baptist Mission.

TRAIL, B.C.—Secretary F. E. Dockerill has called for tenders on additions to a school.

VANCOUVER, B.C.—Tenders have been called for alterations to the university building.

WALPOLE ISLAND, ONT.—Tenders have been called on additions to a school owned by the Department of Indian Affairs.

WEBB, SASK.—Secretary J. B. Austin has called for tenders on a school.

WEST LORNE, ONT.—The School Board has awarded contract to Horton Bros., St. Thomas, for a school to cost \$7,500.

WEST SHEFFORD, QUE.—The Methodist congregation has awarded contract to Geo. Wallace, Sherbrooke, Que., for a Methodist church.

WIARTON, ONT.—Secretary W. M. Newman has called for tenders on additions to High School.

WINDSOR, ONT.—The School Board has awarded contract to Wells & Gray for a new school to cost \$165,000.

WINNIPEG, MAN.—Tenders have been called for a new school to be erected on Aberdeen street. The School Board is preparing plans for a new school on McPhillips street to cost \$27,500.

MISCELLANEOUS.

ARNER, ONT.—Chester J. Quick is building a stock barn to cost \$3,000.

BERLIN, ONT.—Plans are being prepared for a pavilion.

BLAIR, ONT.—Contract has been awarded to Preston Metal Shingle Co. for a barn to cost \$5,000.

BROCKVILLE, ONT.—Tenders are being called up to July 5 on J. McCaw's garage.

CLINTON, ONT.—The Doherty Piano Co. is erecting a dry kiln to cost \$4,000.

CORNWALL, ONT.—Tenders are being called by the Department of Public Works, Ottawa, up to July 12, for the interior fittings of post office.

BROME, P.Q.—H. A. Holden has had work commenced on a creamery.

DAUPHIN, MAN.—Tenders are being called by the Department of Public Works, Winnipeg, on a public building.

DAVIDSON, SASK.—Contract has been awarded to Geo. Golleymore for barns.

DUTTON, ONT.—J. Dant is preparing plans for his saw mill to cost \$5,000.

EDMONTON, ALTA.—The C. N. Railway, Toronto, is preparing plans for a roundhouse.

ELORA, ONT.—D. J. Smith is preparing plans for a tannery to cost \$12,000.

FREDERICTON, N.B.—Tenders are being called on track supplies by the I. C. Railway.

GREY TWP.—Charles Knight is having plans prepared for stables to cost \$3,000.

HALIFAX, N.S.—The Naval Department, Ottawa, are calling tenders for a watch house.

HARRISTON, ONT.—The School Board are calling tenders for school plumbing.

HARROW, ONT.—C. F. Smith is preparing plans for a planing mill to cost \$7,000.

KINGSTON, ONT.—Contract has been awarded for a lodge building owned by L.O.L.

KINGSVILLE, ONT.—Tenders have been called by the Department Naval Service for fish hatchery and residence.

LEAMINGTON, ONT.—The Town Council proposes building a firehall. Contract has been awarded to A. E. Law for a house of refuge to cost \$7,000.

LONDON, ONT.—Contract has been awarded to J. McDonald for a stable to cost \$3,500. B. F. Kingsmill is having plans prepared for a garage to cost \$8,000. Plans are being prepared by Inspector Piper, City Hall, for garbage stables to cost \$12,000.

MONTMORENCY, QUE.—The Dominion Textile Co. are building a cotton mill.

MONTREAL, QUE.—Secretary R. L. Deschamps has called tenders for a heating system.

NEW WESTMINSTER, B.C.—The Canadian Produce Co. have had plans drawn for an evaporator.

NORTH DUMFRIES, ONT.—J. Milroy is having plans prepared for stock barns on St. George road to cost \$3,500.

NINETTE, MAN.—Architect J. D. Aitchison has plans drawn for an infirmary.

OTTAWA, ONT.—Contract has been awarded by the Isolation Hospital to A. E. Farley for sun rooms to cost \$9,473. The Isolation Hospital Board have called tenders on sun rooms to cost \$7,500.

PORTAGE LA PRAIRIE, MAN.—Woodward & Co., Winnipeg, has awarded Western Improvement Co. contract for an elevator, capacity 60,000 bushels.

PORT COLBORNE, ONT.—Tenders have been called for an elevator dock.

PORT GLASGOW, ONT.—Plans are to be prepared for storehouses owned by Galbraith & Dromdale to cost \$4,000.

QUEBEC, QUE.—Y.W.C.A. have had plans drawn for a Girls' Home to cost \$57,000.

SAULT STE. MARIE, ONT.—Tenders are being called up to July 21 for the court house.

SOUTH NORWICH TWP.—Contract has been awarded to W. Hall, Tillsonburg, Ont., for stock barn owned by W. Oatman, to cost \$3,000.

STRATHROY, ONT.—Secretary G. M. Haldane has had plans drawn for the seating repairs of the Methodist Church.

ST. BONIFACE, MAN.—Plans are being prepared for an abattoir to cost \$500,000.

ST. JOHN, N.B.—Work has commenced by P. W. Carson on his garage. Site has been purchased by C.P.R., Montreal, for a roundhouse.

ST. THOMAS, ONT.—The Neal Bread Co., London, Ont., propose building a bread factory.

THREE RIVERS, QUE.—Wayagamack Pulp and Paper Co. are preparing plans for a pulp and paper mill to cost \$1,500,000.

TORONTO, ONT.—The city of Toronto has awarded contract on car barns: Masonry, R. Chalkley, 34 Victoria street; carpentering, T. Lewis, 329 Davenport road; steel, Dominion Bridge; plumbing and heating, McNaughton & McKenzie, 1029 Shaw street; plastering, Gander & Son, 250 Gladstone; roofing, A. Matthews, 556 Adelaide west; painting, J. Casey, 30 Dalhousie street. Tenders have been called by A. Senn, 100 Barton avenue for brickwork and carpentering. Plans have been drawn for a garage at 387 Keele street, owned by Mrs. K. Devaney, to cost \$1,400. Tenders have been called by Dr. Grimshaw, 16 Ashdale avenue, and F. Wainwright, 5 Sword street, for plastering, heating, electric wiring, masonry. Tenders have been called 754 St. Clair, 351 Clinton, 3 Scarborough road. Contract has been awarded to Witchell & Son by the Sick Children's Hospital for a power house. Tenders have been called H. Wakeman, 62 Auburn, tenders open for drains, concrete work and plastering; 3 McMurrich, tenders open for gasfitting. H. J. Harron, 876 Bathurst, tenders for two verandahs and sun rooms. Tenders for painting 32 Columbine street. Tenders have been called for a mission erected by Beulah Hall to cost \$20,000. Work has been commenced by W. Charlton, 397 Brunswick avenue, on his garage to cost \$2,000. Suroff Hardware, 872 Bloor street west, is erecting a garage. Tenders being called for plastering and tinsmithing on Boon Avenue Baptist Church. Plans have been drawn for Canadian Alis Chalmers, King and Simcoe, for a storehouse. Plans have been drawn for dining room, rest room and lavatory for the Canadian Alis Chalmers, King and Simcoe, to cost \$7,000. Plans have been drawn by Architect W. Connery for a blacksmith shop belonging to W. R. Trayer. Contract has been awarded to McLeod & Co., 110 Church street, for a dormitory to cost \$53,000. Tenders are being called by Wells Bros., 96 Gould, for the home owned by R. Simpson Co. to cost \$200,000. Plans have been drawn by Architects Denison & Stephenson for a garage owned by J. P. Rogers to cost \$1,800. Plans have been drawn for the work shop owned by J. L. Wilson & Sons to cost \$3,000.



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This Guaranty Bond exempts the owner from all expenses of maintenance and repairs for a period of twenty years and the bond is issued by the United States Fidelity & Guaranty Company, one of the largest surety companies in the world.

The roofer, in order to secure this Guaranty Bond, must be satisfactory to us, and must notify us as soon as a contract is taken and give us the right to inspect the workmanship and materials to see that both are in strict accordance with The Barrett Specification dated May 1st, 1916.

A copy of The Barrett Specification, with roofing diagrams, sent free on request.

THE PATERSON MANUFACTURING COMPANY, LIMITED
MONTREAL TORONTO WINNIPEG VANCOUVER

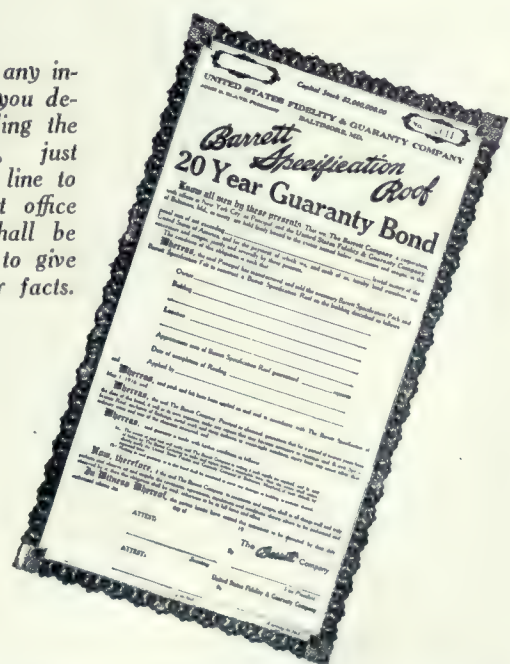
THE CARRITTE-PATERSON MANUFACTURING CO., LIMITED
ST. JOHN, N.B. HALIFAX, N.S. SYDNEY, N.S.

Naturally, if we are to give a twenty year Guaranty Bond, we must be assured that the proper amount and kinds of material are used so as to insure the roof giving the maximum service.

We know from experience of almost fifty years that a roof laid strictly according to The Barrett Specification with the workmanship properly safeguarded will last twenty years and more without repairs of any kind, and we are issuing this twenty year Surety Bond so that owners of these roofs will get the benefit of that experience.

The principal architects, engineers and roofing contractors throughout the Dominion are familiar with the plan.

If there is any information you desire regarding the proposition, just drop us a line to our nearest office and we shall be very glad to give you further facts.



Contract has been awarded to Hand, Harris & Merritt, 7 King street east, for a bakery owned by the Bowles Lunch. Plans have been drawn by Architects Bond & Smith for a bakery belonging to the Ideal Bread Co. to cost \$4,000. Plans have been drawn for storage bins owned by the Bowden Machine Co. Tenders have been called by A. H. Henderson, 63 Wells Hill, for an apartment house. Tenders have been called for painting two residences owned by J. A. Shier, 61 Standish. Tenders have been called for the Board of Education for painting and plumbing. A. W. Corlis has had plans drawn for a lodge to cost \$1,800. Cogen Lehigh Coal Co. has had plans drawn for a coal elevator to cost \$8,000.

VANCOUVER, B.C.—Plans have been drawn for a lumber mill owned by Wilson Bros. Revised plans have been prepared for the garage belonging to B. C. Sugar Refinery Co. to cost \$15,000. Tenders have been called for lighthouse and residence. Plans have been drawn for a ship building plant, owned by Cameron, Genoa, Mills, Ship Builders, Ltd.

WINNIPEG, MAN.—Plans are to be prepared for an institute belonging to the Oddfellows to cost \$35,000. Plans have been drawn for an elevator owned by the Dominion Government Railway, Ottawa. Tenders are being called for a building owned by the Manitoba Sanatorium for Consumptives.

CONTRACTORS and SUB-CONTRACTORS

As Supplied by The Architects of Buildings
Featured in This Issue

Building, St. Denis Theatre, 286 St. Denis street.
Brick, Interprovincial Brick Co., Toronto.
Boilers, L. E. Moulton (plumbers).
Casements and window construction, also doors and window trim, MacFarlane-Douglas Co., Ottawa.
Concrete work, Norcross Bros. Co.
Consulting engineer, Fred M. Headley, Montreal.
Electric fixtures, Tiffany Studios, New York.
Electric wiring and apparatus, L. K. Comstock, Douglas Milligan, Canadian agents.
Elevators and hoists, Walker Hardware (ash hoist).
Expanded metal, Pedlar People.
Fire doors, MacFarlane-Douglas.
Fire escapes, Estey Bros., Montreal.
Fire extinguishers, L. E. Moulton.
Wood flooring, Seaman-Kent.
Special flooring, The Marbleoid Co. Archibald & Co., agents, Montreal.
Fittings, mill work, V. E. Traversy.
Furniture, American Seating Co., New York.
Glass (plate), mirrors, Hobbs Mfg. Co.; (wired), MacFarlane-Douglas Co., Ottawa; (light globes), Tiffany Studios, New York.
Grille work, Estey Bros., Montreal.
Hardware, Durand Hardware Co. (Ruswin).
Interior fittings, cabinet, woodwork and decoration, L. E. Traversy.
Inter-phone system, Northern Electric Co., Montreal.
Marble, Missisquoi Marble Co., Montreal.

Ornamental iron, Estey Bros.
Paints, Shag Pat Studio, 6 Beaver Hall.
Plumbing, L. E. Moulton.
Plaster work (ceiling), R. D. Clark.
Refrigeration equipment, Audifern.
Refrigeration machinery, Griscom-Russell, Toronto.
Power machinery, L. K. Comstock.
Reinforcements, Slab Floor.
Radiators (manufacturers), L. E. Moulton.
Roofing, MacFarlane-Douglas.
Sprinkler equipment, Moulton.
Stone (artificial and natural), Jas. Brodie & Sons.
Structural iron and steel, Dominion Bridge Co.
Tile, Mueller Mosaic Co.
Terra cotta (face), New York Architectural Terra Cotta Co.
Vacuum cleaners, B. F. Sturtevant Co.
Varnish (floor and wall), C. W. Goodall.
Ventilating system, B. F. Sturtevant Co.
Weather strip, "Athey," Montreal Mosaic.
Contractors (general), Norcross Bros.

Building, Hydro-Electric Power Commission.

Awnings, T. Eaton Co.
Brick, Interprovincial Brick Co., Ltd., Sun Brick Co.
Boilers, Walden Heating Co.
Carpets and rugs, Murray-Kay.
Casements and window construction, also doors and window trim, A. B. Ormsby.
Chimneys, Witchell & Son.
Electric fixtures, Tallman Brass and Metal Co., Hamilton.
Electric wiring and apparatus, Hydro-Electric Co.'s own construction force.
Elevators and hoists, Otis-Fensom.
Expanded metal, A. B. Ormsby.
Fire escapes, Dominion Ornamental Iron.
Flooring, Witchell & Son.
Fittings, Witchell & Son.
Furniture, Hydro-Electric's own furniture.
Glass, Toronto Plate Glass.
Hardware, Aikenhead Hardware Co., Ltd.
Interior fittings, cabinets, woodwork and decoration, Jones Bros.
Marble, Can. Glass Mantel and Tile Co.
Ornamental iron, A. B. Ormsby Co.
Paints, Dominion Paint Works, Walkerville.
Plumbing, Imperial Products and Keith's, Ltd.
Plaster work, R. C. Dancy.
Power machinery, motors, Westinghouse.
Reinforcements, Witchell & Son.
Radiators, Steel and Radiation.
Roofing, Duthie & Son.
Stone, Cement Products, Witchell & Son.
Structural iron and steel, Dominion Bridge Co.
Telephones, Canadian Independent Telephone Co., Ltd.
Tile, Can. Glass Mantel and Tile Co.
Terra Cotta, Don Valley Brick Co.
Vacuum cleaners, Invincible Vacuum.
Vaults, J. J. Taylor Co., Ltd.
Wall tile, Sun Brick Co.
Contractors, Witchell & Son.

15,000 Sq. Ft. of MARBLELOID FLOOR

INSTALLED IN THE NEW

ST. DENIS THEATRE

BECAUSE it is fire-proof, sanitary, resilient, warm and "non-dusting," MARBLELOID is particularly adapted for use in THEATRES, HOTELS, HOSPITALS, BANKS, SCHOOLS and PUBLIC BUILDINGS.

BECAUSE of its remarkable durability, coupled with its other highly desirable features, MARBLELOID is an ideal flooring for INDUSTRIAL PLANTS. Some Canadian and American users are listed below:

DOMINION GOVERNMENT.
TERMINAL WAREHOUSE, LTD.
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THE MARBLELOID CO., NEW YORK, U.S.A.

CANADIAN REPRESENTATIVES:

E. L. DYER,
47 Wellington St. E.,
TORONTO.

ARCHIBALD & CO.,
1000 Transportation Bldg.,
MONTREAL.

AM. AGENCIES, LTD.,
Board of Trade Bldg.,
CALGARY.

W. J. BANKS,
Lindsay Bldg.,
QUEBEC.

Building Materials in South Africa

Limited Building at Cape Town.

Owing to excessive overbuilding during the boom immediately succeeding the Boer war, as well as on account of unusual public and private improvements necessitated in the Transvaal by the fixing of the administrative capital in Pretoria, the demand at Cape Town for building materials has been relatively small for several years. This will more fully appear from the following from the Cape "Times":

There is, however, a gradual recovery of normal conditions in the building trade in this district.

Style of Construction.

The great majority of private houses put up here are of brick. Most of them are plastered on the outside and inside. In the better class of these buildings a large percentage of cement is used. Where much cement is used, it is difficult to drive in nails. Where too little is used, the nails will not hold. This is overcome in many cases by fixing picture moulding before the plastering is put on.

In the majority of the buildings here, both public and private, the partitions are of brick, so that wall boarding or laths are not needed. Where needed, various supports for the plastering are employed. A considerable amount of expanded metal lathing (principally of English make) is used. The Germans have a wall boarding on the market here made of asbestos and cement, which is landed at about 19s. (\$4.62) per square (10 by 10 feet). They also sell roofing tiling of the same material, landed at 32s. 6d. (7.79) per square. This is slightly harder and heavier than the wall boarding. The boarding is three-sixteenths of an inch thick and comes in sheets 4 by 8 feet. The tiles are one-eighth of an inch thick and 16 x 16 inches square.

How to Introduce New Articles.

There is nothing manufactured here to compete with American wall board or the German asbestos-cement board. Clay tiles, however, are locally made. For this market it is suggested that the trade is not large enough to justify the effort of general distribution of American products of this character. It would appear advisable to arrange with one manufacturer's agent for the exclusive sale, who would be free to get in touch with the architects, on whose specifications the builder would have to buy any particular material designated. Probably the best way to introduce such an article would be to select a manufacturer's agent and get him to submit samples to the architects and then supply him free with enough of the board to put up in at least one room in some new house under the architect's direction. It will be necessary to introduce building novelties before any large orders may be expected. Material men here will not stock any article heavily until it has been demonstrated that there will be a reasonable demand.

TECHNICAL SOCIETIES.

ALBERTA ASSOCIATION OF ARCHITECTS.—President, Jas. A. Henderson, F.R.I., B.A., Edmonton; Hon. Secretary, W. D. Cromarty, Edmonton.

ARCHITECTURAL INSTITUTE OF BRITISH COLUMBIA.—President, R. Mackay Frapp; Secretary, Fred L. Townley, 325 Homer St., Vancouver, B.C.

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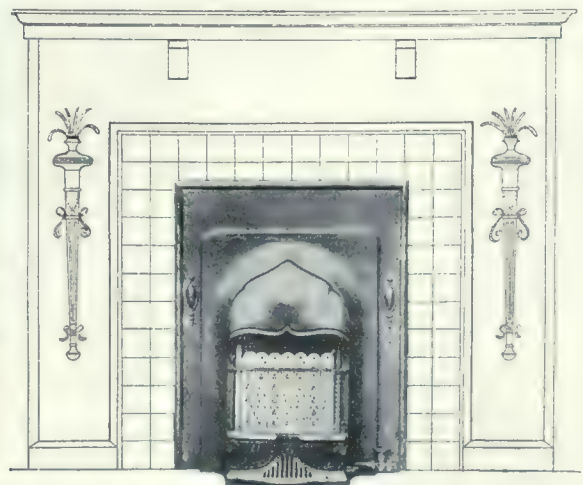
DEVELOPMENT IN GAS APPLIANCES

As in many other lines progress in gas appliances has been slow until late years, and the many interesting and wonderful appliances that are now being shown are indeed worthy of investigation. Gas in America has now been in use a full century, but it is only of late that the many benefits to be obtained from its use have been given the publicity that has been deserved. In the abatement of the smoke nuisance gas has played no inconspicuous part. The hygienic value of gas as an illuminant, and the health value of gas when properly used for heat, has lately been aptly dwelt upon by a number of eminent medical authorities. Gas can truly be called "The Silent Servant," and the user of the modern gas appliance can minimize life's little worries. Perhaps the most striking example of the development in modern

appliances is the radiant gas fire. In appearance these fires are equal to anything that can be purchased, and with the economy of operation that is possible and the absolute control of the heat are well worth investigating. The heat that is radiated is odorless. Prof. Leonard Hill, M.B., F.R.S., etc., has emphasized the health value of radiant heat. There are two distinct forms of heat—radiated and convected. Convection is the warming of the air by contact with a warm body. Radiation is the warming of the walls, floors and objects in the room by the direct issue of heat rays from the source of heat. Radiant heat does not noticeably warm the air, but passes through it, warming any material surfaces which intercept the rays. These surfaces gradually warm the air by convection to a comfortable degree. Heat and light radiations are given out by these heaters, and they correspond more closely in appearance to a coal grate than any other gas operated heater. The radiating power is speedily developed, and with freedom from dirt and noise accomplish a great deal in satisfactorily solving the domestic heating question. The designs and finishes of the panel and inset fires are adaptable to almost any surroundings, and consequently they rather lend attraction to the furnishings of a room.



RADIANT GAS FIRE INSTALLED IN HOUSE ON HUNTLEY ST., TORONTO, ONT.



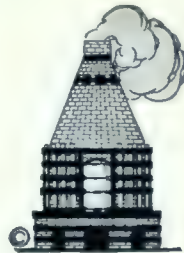
INSET FIRE RADIANT GAS APPLIANCE.

ATLANTIC Terra Cotta can be used for so many different kinds of buildings that it is hard to give definite information unless we know something about the building you have under consideration.

If at any time you find it convenient to write us a description or send us a few rough sketches we shall be glad to answer personally and in detail.

Perhaps we can supplement our answer with a copy of our monthly magazine, *Atlantic Terra Cotta*, containing illustrations of particular interest.

Anyway, we shall do our best to give you the information you want, and we shall *not* subject you to a long and mechanical series of "follow-up" letters and folders.



Atlantic Terra Cotta Company
1170 Broadway, New York

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August, 1916

Vol. 9, No. 8

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H. GAGNIER, Limited, Publishers

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MONTREAL BRANCH OFFICES NEW YORK



HATLEY PARK, RESIDENCE OF JAMES DUNSMUIR, VICTORIA, B.C., CANADA.

SAMUEL MACLURE, ARCHITECT.

New Type of School Construction

Ryerson School, London, Ont., Illustrates an Important Development in Canadian School Architecture

Watt and Blackwell, Architects; W. G. Murray, Associate.

THE Ryerson School is a distinct departure in school design for Canada, it being the first one-storey school building in Canada embodying the principles of modern construction as used in the larger cities of the United States. Of course there are many one-storey schools, but this one is entirely different and superior to the older ones on account of its up-to-date lighting and ventilation; one of the chief claims advanced in favor of this type is its lighting, nearly all the light is obtained from saw-tooth skylights, each one facing the north, ensuring an unvarying illumination, also avoiding glare and the light coming from above, as it gives all parts of the room even distribution of light without shadows. A strong feature in favor of such a

social centres in the near future, having all playgrounds under civic management, with trained supervisors. The auditorium is a rectangular room, connected on three sides by an arcade, giving the sense of an inner court in a classic mansion; here the children may listen to poetry, learn the art of interpretation, watch moving pictures of great events, etc., in the day time, and the grown people of the neighborhood come in at night for their club meetings, listen to lectures, and meet for social intercourse.

There are eight classrooms, all having concealed wardrobes, thoroughly ventilated, and equipped with umbrella holders and rubber racks, besides the usual equipment.

The manual training room has a large store-



RYERSON SCHOOL, LONDON, ONT.

WATT & BLACKWELL, ARCHITECTS; W. G. MURRAY, ASSOCIATED.

school is the emergency exit from each and every classroom at the ground level, and this feature is also a factor in the cost of building such schools, as it avoids the necessity for fire-proofing to a great extent. Each exit from classrooms has a panic bolt, which ensures sure exit in case of an emergency. The heating and ventilation is the most modern, as is also the plumbing throughout.

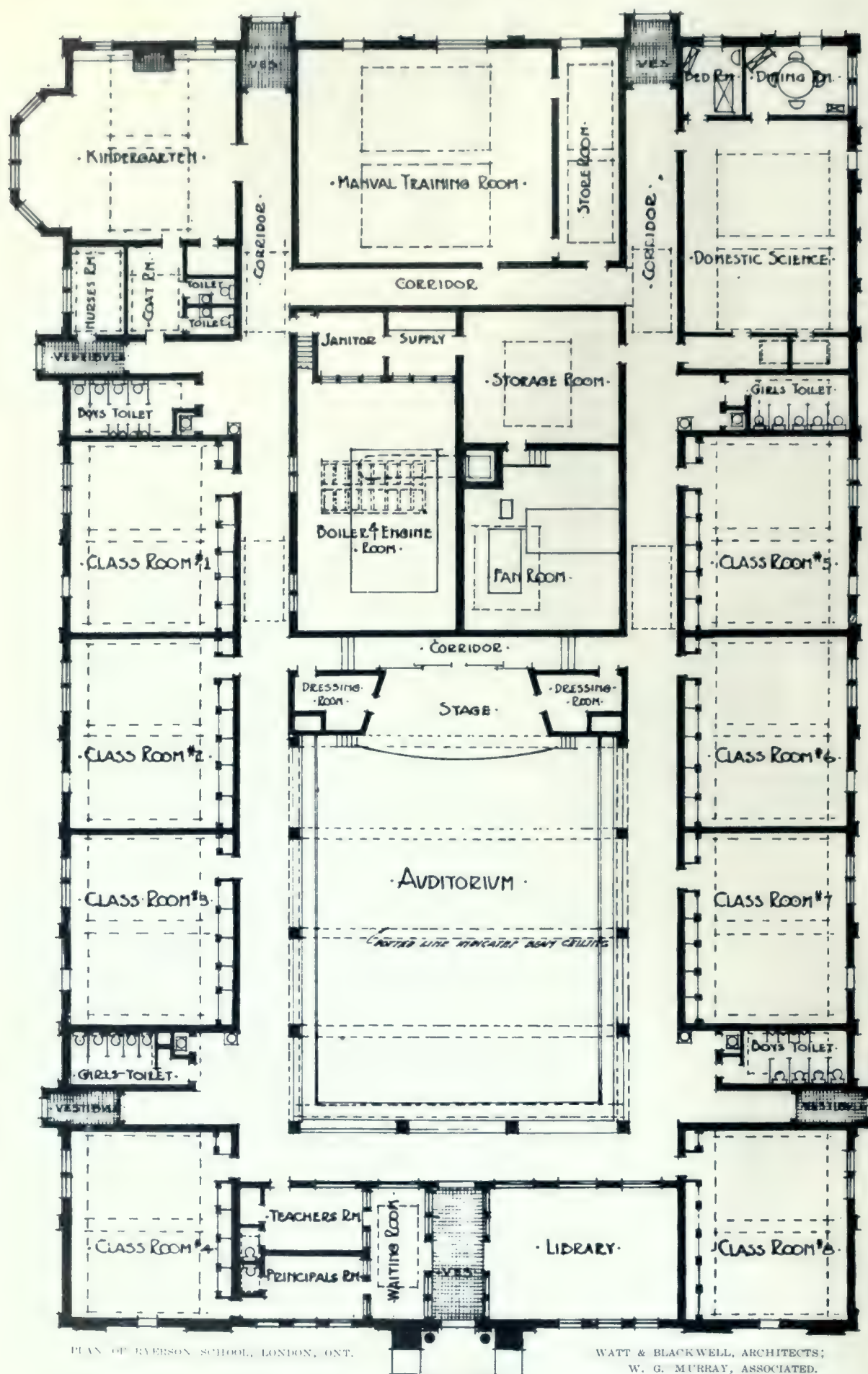
The plan is unique, the classrooms being grouped around a large auditorium, which can be utilized for school purposes in the day time, or for holding meetings and social functions by the community at night, thus making this school a true social centre; and it is the writer's belief that all Canadian schools will be planned as

room with several cupboards in it, and everything necessary for a modern carpenter shop; also an observation gallery, so that the pupils may watch their instructor in comfort.

The kindergarten is bright and cheery, has a separate entrance for the children, and is modern in every respect, even to the extent of having juvenile toilet fixtures for the "kiddies." Off the corridor to this room is a completely equipped nurses' room.

The domestic science room is complete with all equipment, and off same is a model dining-room, also a model bedroom, where children may be taught household duties.

The boiler room, fan room, etc., are placed in the central portion of the building, back of the



PLAN OF RYERSON SCHOOL, LONDON, ONT.

WATT & BLACKWELL, ARCHITECTS;
W. G. MURRAY, ASSOCIATED.

auditorium, and everything here is up-to-date and is built complete for the inspection of the public the same as the rest of the building.

Off the main entrance is situated the library, principal's and teachers' offices; in the principal's office, which is in direct connection with the principal's classroom, is situated the switchboard for the intercommunicating telephone system.

The exterior of the Ryerson School, which is of classic design and presents a particularly effective facade, was originally designed with a tapestry brick face, but owing to the extreme economy exercised by the trustees, was afterwards changed to stucco, which gives a very pleasing effect, and will improve with time, when the terracing is finished and the vines grow up on this trellis work.

The cost of this school was fifty-three thousand dollars, cost per cubic foot nine and one-half cents, a saving of at least six cents per cubic foot over the

ordinary type of school construction. The building was also completed with a deduction of thirty-five dollars from the contract. Watt &

Blackwell were the architects who prepared the plans and specifications; W. G. Murray, associated, who supervised the work.

CANADA'S FORESTS AND THE WAR

The economic importance of the forest resources of this continent will be greatly enhanced as a result of the war. Enormous quantities of timber are necessarily used for military purposes, in addition to what is unavoidably destroyed in the fighting zone.

The shortage of tonnage has made it impracticable for the needed supplies of timber to be furnished on any large scale from Canada or the United States, and, as a result, heavy cutting has become necessary in the belligerent countries. While England is not generally regarded as a forest country, and has made relatively little progress in public forestry, there is still in England and Scotland a considerable amount of timber, mostly on royal and private estates. The imperative necessity for utilizing this timber has resulted in the despatch of a battalion of Canadian woodsmen to cut it for war purposes. Very large quantities have also been cut in France and in Russia. In Belgium, the Germans have cut a large por-

portion of the timber and have used it in military operations, or shipped it to Germany.

The result of all this over-cutting will mean a heavy shortage of timber for reconstruction purposes after the war, when it should be possible to make large shipments from this continent. This will mean a largely increased drain upon Canadian forests, and serves to emphasize the necessity for still more complete conservation of this tremendously valuable asset, if Canada is to take full advantage of her opportunities for world-service in this direction.

The greatest enemy of the forest is, and always has been, fire. It has been estimated that the average annual forest fire loss in this country is sufficient to pay the interest on the recent Dominion loan of one hundred million dollars. To reduce this loss, it is necessary not only to grant larger appropriations for fire-rangings services, but also to reorganize such services in a number of cases, with a view of securing a dollar's worth of protection for every dollar spent. It has been stated on competent authority that at present more money is wasted on forest fire protection, for lack of proper organization and supervision, than is expended advantageously.

The importance of the



DOMESTIC SCIENCE ROOM, RYERSON SCHOOL, LONDON, ONT.



MANUAL TRAINING ROOM, RYERSON SCHOOL, LONDON, ONT.



AUDITORIUM FROM STAGE, RYERSON SCHOOL, LONDON, ONT.

WATT & BLACKWELL, ARCHITECTS; W. G. MURRAY, ASSOCIATED.



TYPICAL CLASSROOM, RYERSON SCHOOL, LONDON, ONT.

WATT & BLACKWELL, ARCHITECTS; W. G. MURRAY, ASSOCIATED.

forest in the internal economy of Canada is shown by the fact that the average total value of forest products of Canada is in the neighborhood of one hundred and eighty million dollars, or an average wealth production of about twenty-five dollars per head of population. Nearly eight million dollars in direct revenue is received annually by the Federal and Provincial Governments from the sale or lease of cutting rights to publicly-owned timber lands and from royalty and stumpage payments made upon timber so cut. Some five thousand wood-using industries in Canada are directly dependent upon the supply of timber cut from non-agricultural lands.

The importance of preventing the continued destruction of this great resource can scarcely be over-emphasized.

AGRICULTURE IN THE SCHOOLS

In the public schools of most of the Provinces of Canada, nature study and agriculture are included in the prescribed course of work, but the opportunity of correlating school subjects with practical life on the farm is not always fully

utilized. In rural and village schools, particularly, the interest of children in their school work should be aroused and held by its intimate contact with agriculture. A few suggestions are offered herewith for impressing upon the pupils the utility value of the subjects taught.

In connection with the teaching of arithmetic the following topics might be used as a basis for problems and general instruction:

Neat methods of compiling farm records, *e.g.*, milk and egg production, receipts and expenses, time sheets, etc. These records will form the basis for numerous problems.

Cost of production, rent, labor, wear and tear of machinery; marketing of farm products, computation of profits, mensuration of fields, wood-piles, lumber, ice-houses, etc.; invoices, cheques, receipts and commercial forms; taxation; mortgages.

The teaching of reading and the study of literature offer exceptional opportunities for arousing the interest of the pupil.

The best literature is replete with selections calculated to inspire a love of outdoor life and an interest in the plants and animals with which the country child comes in daily contact.—*Conservation.*



LIBRARY, RYERSON SCHOOL, LONDON, ONT.



KINDERGARTEN, RYERSON SCHOOL, LONDON, ONT.

Normal School, Victoria, B.C.

A Reinforced Concrete Structure Embodying Many Interesting Features

W. C. F. Gillam, Architect, Vancouver, B.C.

THE location of the Provincial Normal School at the intersection of Lansdowne avenue and Richmond road, Victoria, B.C., is an admirable one for such a building.

The site has its greatest depth along Richmond road, and as the ground slopes gently from Lansdowne avenue to the rear of the property, the building has been placed at the highest point of the site, thus giving a clear view of the building from both roads, as well as from a large portion of the surrounding country.

The general dimensions of the building are: Length, three hundred and nine feet four inches; average width, sixty-two feet eight inches, increasing at the centre of the building to seventy-five feet eight inches; height from ground to base of finial at top of tower, ninety-eight feet.

The excavation for the building and foundations was made in solid rock, evidently the native bedrock, since the marks of the glacier were clearly defined upon the surface of the rock when the top earth had been stripped. An interesting find made during the excavation was a huge boulder of limestone, of which there is none in the immediate vicinity, and which was evidently

deposited at this point during the glacial period. The foundations of the building are, therefore, laid upon this solid rock sub-stratum, and are composed of reinforced concrete, which at the walls extends up to ground level, being water-proofed to that point to keep out dampness.

The skeleton structure of the building is built of reinforced concrete, of a mixture of one part of cement, two of sand, and four of broken stone, the stone being taken from the excavation and crushed on the site. The reinforcing is of square steel rods twisted cold. The roof is carried on steel trusses, with steel purlins sheeted with plank, and then felted and slated. The ceiling below the roof is carried on the roof trusses by steel ceiling rafters and a reinforced concrete slab.

The walls are built of interlocking tile, faced with pressed brick laid up in English bond with horizontal joints raked back, and vertical joints flush. The stone is from Denman Island. The stone at entrances and upon the centre of the south facade is elaborately carved.

All interior partitions are of hollow clay tile, thus rendering the entire building fireproof.



VIEW IN AUDITORIUM, LOOKING TOWARDS PROSCENIUM, PROVINCIAL NORMAL SCHOOL, VICTORIA, B.C.



VIEW IN AUDITORIUM, LOOKING TOWARD GALLERY, PROVINCIAL NORMAL SCHOOL, VICTORIA, B.C.



PROVINCIAL NORMAL SCHOOL, VICTORIA, B.C.

W. C. F. GILLAM, ARCHITECT.

The heating is by steam on the direct-indirect system in conjunction with an exhaust ventilating system. Fresh air is admitted through suitable gratings in the walls at each radiator, and after being heated by passing over the radiator is exhausted with the foul air by means of a ventilating fan placed in the attic of the building and discharged up through the tower.

The temperature of the different rooms is automatically controlled by thermostats, which insure an even temperature throughout the building.

The plumbing throughout is of the most modern type, and is so installed that drains, supply pipes, etc., are accessible for inspection.

Gas for the building, for emergency lighting, and for the domestic science department and the laboratories, is supplied by a gas plant placed in a separate building to the north of the main structure.

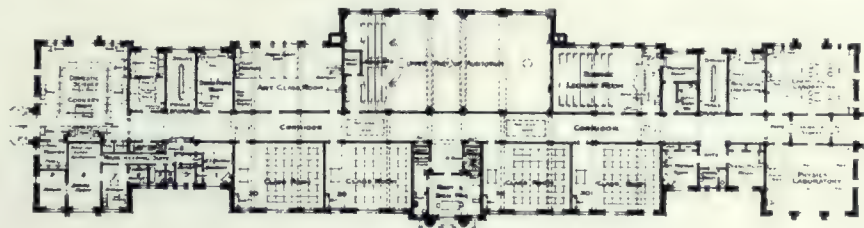
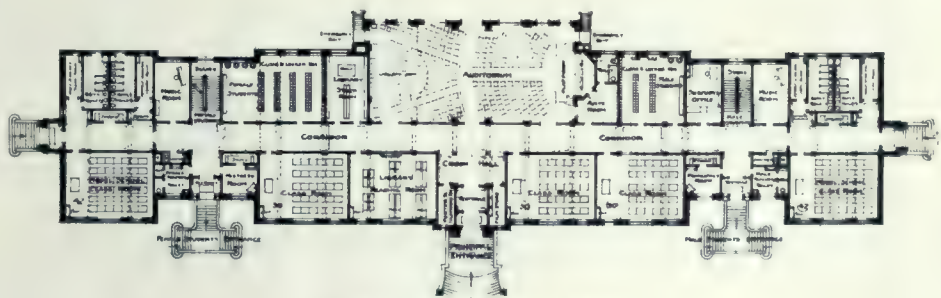
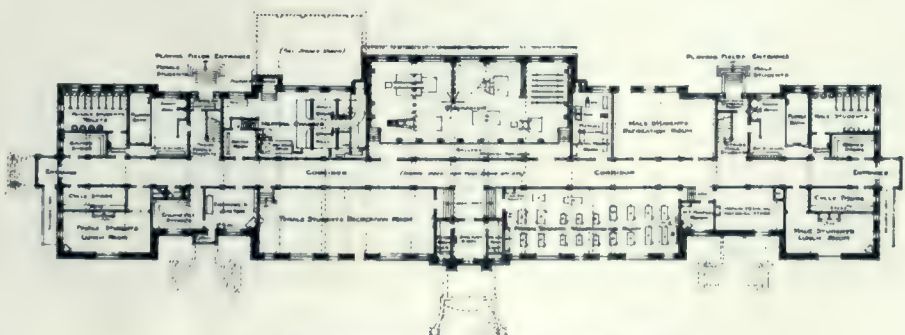
Underneath the corridor in the lower ground floor or basement, a tunnel is built running from end to end of the building, and in which are placed heating, plumbing, water, gas and other pipes, drains, etc.

The electrical equipment of the building for lighting, power, etc., is installed entirely in iron armored conduit, and is most complete for all purposes, such as the

vacuum cleaning apparatus, clock system, telephone system, etc.

The artificial lighting in all of the classrooms, lecture rooms, laboratories, auditorium, etc., is on the semi-indirect system, by which the light is well diffused throughout each room without glare.

The building is planned throughout to secure

THE FIRST FLOOR PLAN.THE GROUND FLOOR PLAN.THE LOWER GROUND FLOOR PLAN.



DOMESTIC SCIENCE (COOKERY) ROOM, PROVINCIAL NORMAL SCHOOL, VICTORIA, B.C.

W. C. F. GILLAM, ARCHITECT.

the greatest degree of co-operation between the several departments of the school and convenience in administration.

In the lower ground floor or basement are placed the manual training department, gymnasium, recreation and lunch rooms, general



TYPICAL CLASSROOM, PROVINCIAL NORMAL SCHOOL, VICTORIA, B.C.

W. C. F. GILLAM, ARCHITECT.

toilet rooms, boiler room, etc. The manual training department comprises a woodworking room, metalworking room, instructor's room and storage room. The woodworking room is sixty-four feet six inches by twenty-four feet by fifteen feet high, and is fitted up with the latest appliances for instruction and work. The metalworking room is fourteen feet six inches by twenty-four feet by twelve feet high, and is equipped with double forge, fan, etc., and anvil. The instructor's room is located so that complete supervision is obtained at all times. The gymnasium is seventy-three feet by thirty-five feet by seventeen feet high, and is equipped with the most modern apparatus. The students' toilet rooms are at opposite ends of the building, men's at the east end and women's at the west. Adjoining each toilet room is a bath and dressing room, equipped with shower baths, and each with a plunge bath seven feet six inches by twenty feet, and with a maximum depth of six feet. The toilet rooms, and bath and dressing rooms, as well as the plunge baths, are lined with ivory white glazed tiles, and have tiled floors. The female students' recreation room is sixty-four feet six inches by twenty-four feet by fifteen feet high, and the male students' recreation room is thirty-seven feet six inches by twenty-four feet by twelve feet high. Adjacent to these rooms are storage rooms for games and cycles, etc. The lunch rooms are fitted with gas



ONE OF MAIN STAIRCASES, PROVINCIAL NORMAL SCHOOL, VICTORIA, B.C.



FIRST FLOOR CORRIDOR, PROVINCIAL NORMAL SCHOOL, VICTORIA, B.C.

burners, for the purpose of boiling water for tea, or making toast, etc., and with the necessary tables and chairs. In addition to the rooms above noted, there are also in the basement a janitor's workshop and a general storage room. The boiler room is fifty-two feet by twenty-four feet by seventeen feet high, adjoining which is a fuel room (built under the roadway at north side of building) thirty-eight feet six inches by twenty-five feet.

The ground floor has main entrance hall and crush hall at the centre of the middle block, flanked by a special filing room on one side, and on the other by the hall porter's room and telephone switchboard. There are three classrooms on this floor, each thirty-two feet by twenty-four feet by twelve feet high, also a library stack room fourteen feet six inches by twenty-four feet by twelve feet high, and a reading room thirty-two feet by twenty-four feet by twelve feet high. The students' locker rooms are also on this floor, that for the women being thirty-seven feet six inches by twenty-four feet, and for the men twenty-four feet six inches by twenty-four feet by twelve feet high, and are fitted with metal lockers. The auditorium, placed directly opposite the main entrance, is seventy-three feet by thirty-five feet by twenty-five feet to top of cornice, and thirty-one feet nine inches to crown of ceiling arch. The ceiling is arched, and with decorated plaster ribs panelled be-

tween. A gallery is placed at one end of the auditorium, access to which is gained from the first floor corridor. A fireproof room for a moving picture apparatus is built into the gallery. The auditorium is wainscoted in British Columbia Douglas fir to a height of six feet six inches. The stage is fitted with a roller curtain for use as a moving picture screen. The seating capacity of the auditorium, including the gallery, is about four hundred and fifty.

In the portions of the building connecting the main building and the wings are located the principal's and head mistress' rooms, and rooms for teachers; also an office for the secretary, and a music room at each end.

The ground floor of each wing is used for the model schools. Each wing contains one classroom, thirty-two feet by twenty-four feet by twelve feet high; also cloak and toilet rooms for the children of the model school. The entrances for the model school are placed at each end of the main corridor, so that the children need not trespass into the main portion of the normal school. Entrances for the normal students are placed on both north and south sides in the connections between main building and wings.

The first floor contains in the main building three classrooms proper, each thirty-two feet by twenty-four feet by twelve feet high; also the art room, and the science lecture room. The art room and the science lecture room are each



DOOR IN AUDITORIUM, PROVINCIAL NORMAL SCHOOL, VICTORIA, B.C.

thirty-nine feet six inches by twenty-four feet, with arched ceiling fifteen feet from the spring of the arch to seventeen feet six inches to the crown.

The connections between main building and wings contain the preparation room for the science lecture room, optical dark room, biological laboratory, science master's room, assistant mistress' room, on the east side; and the sewing room, laundry of domestic science department, and domestic science mistress' room on the west side. The east wing contains the chemical laboratory, physics laboratory, balance and store rooms; while the west wing is given over to the domestic science department, and contains the cookery room, pantries, etc., attached, and the housekeeping suite, which contains living room, dining room, kitchen, bath and two bedrooms, and is used to teach the rudiments of good housekeeping.

In the centre of the building, over the entrance hall, is placed a rest or sick room, with medical storeroom attached.

The tower contains the ventilating outlet for the entire building, and the clock apparatus.

The floors of the corridor in basement, manual training rooms, storerooms, etc., are finished in cement, with cement compound as a surfacer. Corridors and stairways of the ground and first floors are finished in marble terrazzo, as well as the entrances. The general floors of the remain-



MAIN ENTRANCE VESTIBULE, PROVINCIAL NORMAL SCHOOL, VICTORIA, B.C.



PRINCIPAL ENTRANCE TO AUDITORIUM, PROVINCIAL NORMAL SCHOOL, VICTORIA, B.C.

ing instructional rooms and the auditorium are of wood-block, made of British Columbia Douglas fir. The blocks are cut nine inches by three inches by one and one-half inches thick, and are layed in a herringbone pattern, except for the border around each room, which is layed straight with broken joints. The blocks are rabbetted or grooved on the lower edges, both at sides and ends, and are set in a mastic preparation, which binds them to the concrete slab and to each other. The floor in the gymnasium is of tongued and grooved British Columbia Douglas fir, layed in the usual manner on sleepers on the concrete. The deadening quality of the wood-block floors is remarkable. So often in a concrete building the resonance of the floors is transmitted and multiplied through the structure, but with these wood-block floors there is no resonance, hence no multiplication of sound. In fact the floors are quite dead. All wood floors are finished with filler and wax polish. The floor of the cookery room in the domestic science department is of terrazo.

The fixtures throughout the building were specially designed by the architect, great care having been taken to embody the most recent ideas for the convenience of both teacher and student, as well as appliances which make for practicability in both instruction and demonstration.

The working tables of the physics laboratory are equipped with electric connections for direct

current from storage battery, as well as for direct current from power company's lines, and alternating current also from power company's lines. These connections are centred in a special switchboard in the physics laboratory, so designed that confusion or crossed currents cannot occur. In the work tables of the chemical laboratory are placed special Doulton sinks and waste connections which are acid proof, and the tables are arranged to give the student great capacity and convenience in working. In the cookery room of the domestic science department, the working tables are arranged in a hollow square, with the demonstrator's table closing the fourth side of the square. The tops of the tables are of opalite glass, about one inch in thickness, and each student's place has a swinging seat, and is fitted up with mixing board, drawers, cupboards, etc. Each table is equipped with a special gas burner designed especially for this building.

For general demonstration purposes the cookery room is equipped with a large coal range, a gas range (burning air gas), an electric range, together with the necessary boilers, broilers, etc. Porcelain sinks are placed at several points around the room, with plate drying racks above.

The demonstration table in the science lecture room is fitted up with all appliances for both chemical and physical lectures, as well as work in biology, photography, etc.

The sewing room of the domestic science de-



EASTERN ENTRANCE DOORWAY TO AUDITORIUM, PROVINCIAL NORMAL SCHOOL, VICTORIA, B.C.



MEDALLION IN AUDITORIUM (ONE OF FOUR PORTS), PROVINCIAL NORMAL SCHOOL, VICTORIA, B.C.

partment is equipped with demonstration table, cutting tables, special hanging and needle-work cupboards, spool-drawers, etc.

The laundry is equipped with a steam dryer and gas stove for heating flat-irons, as well as outlets for attachment of electric irons. The tubs are of porcelain, fitted with wringer boards.

The biological laboratory is fitted with an aquarium, and cases, sink and tables for demonstration and development of cultures, etc.

The entire building is equipped with a standard electric time system of clocks, controlled by a master and programme clock in the principal's room, which also controls the tower clock. The clock system is interconnected with the fire alarm system, so that in case of fire an alarm may be rung upon each of the programme bells in the different rooms, as well as upon the fire gongs in corridors. A system of interior telephones is also carried throughout the building. Public telephone connections are made from the principal's office, secretary's room, and porter's room at main entrance. Fire hydrants with underwriters' hose are placed throughout the building in such manner that all points can be reached. A vacuum cleaning system operated by electric motor is piped throughout the building.

At the end entrances to the basement the approach from the ground level to the basement level is made by an incline, concrete surfaced, so that bicycles may be conveniently taken in and out.

The gas house, in which is placed the gas making apparatus, is placed about sixty feet north of the building, about opposite centre; the piping being run underground and distributed through the pipe tunnel under corridor of basement. The gas house is built entirely of concrete, with slate roof, fireproof window frames with wired glass, kalomined doors, etc., being made as nearly preproof as possible. Gas is supplied for the cookery room, laundry, house-keeping suite, and other parts of the domestic science department, all laboratories, manual training rooms, lecture rooms, teachers' rooms, luncheon rooms, and for demonstration purposes on stage of auditorium. The gas supplied is an air gas made from gasoline by an air-gas apparatus. Gas is piped also for emergency illumination in corridors.

The heating system is on the direct-indirect system of radiation, fresh air being taken in through ducts passing through the exterior walls below each radiator. Two boilers comprise two units, each seventy-two inches by sixteen feet, and are of the return tubular type. One is sufficient to carry the load, and the other boiler is installed for relief. The heating system is equipped with the vacuum system and the system of temperature control. The domestic hot water supply is piped throughout the building to all basins and tubs.

The plumbing is of the most complete char-



PHYSICS LABORATORY, PROVINCIAL NORMAL SCHOOL, VICTORIA, B.C.

acter throughout. All wastes, vents, etc., above ground are of galvanized iron, and underground of cast iron. All supply piping is of galvanized iron. No lead is used anywhere in the building. Vent pipes are collected at convenient points in the roof space, and taken out on the inside slopes of roof so as not to be visible from the exterior of building. All piping is concealed throughout. A supply tank is placed in the lower storey of the tower, the bottom of tank being a trifle below ridge of main roof. This tank is supplied from the public waterworks, and has in conjunction an electric pump for boosting the pressure when the pressure in the street mains is down. The tower tank is built of steel.

The ventilating system is on the exhaust principal, and is operated by a fan placed in the roof space just north of the base of the tower, and exhausts through ducts up into the tower. The capacity of the heating and ventilating plants is such that the air throughout the building may be changed six times per hour. Fresh air is admitted through gratings placed in the walls immediately behind the radiators.

The cost of the work was in round numbers four hundred thousand dollars.

The architect was W. C. F. Gillam, M.S.A., Licentiate R.I.B.A., of the firm of Bryan & Gillam, Vancouver; and the general contractors were Luney Bros., Limited, of Victoria.

The New Bishop Strachan School

Toronto's Latest and Most Modern Residential School For Girls

THE continued encroachment of the business section of Toronto on districts which a few short years ago were considered uptown has added one more to the increasing number of institutions forced to seek larger and more spacious homes to provide accommodation for the growing needs of Toronto as an educational centre. The Bishop Strachan School, illustrated herewith, is an example of meeting this problem, and the long and honorable career of this institution continues in this most modern structure, which is a creditable addition to Toronto's many fine college buildings.

Designed in the collegiate Gothic style, the building is an expression in stone, surrounded

by beautiful homes on College Heights, overlooking Greater Toronto.

A city block, bounded by Lonsdale road on the south and front facade, Russell Hill road on the west, Warren road on the east, and Frybrook avenue on the north, provide a worthy setting for the impressive building within. Built of grey Credit Valley sandstone, with copings, facings, cornices and window casements of cut stone, the school and residence are as two sides of a quadrangle, connected on the east side by the assembly hall, and on the west by music rooms and domestic quarters.

The building has a southern frontage on Lonsdale road of two hundred and eighty-five



ART ROOM, BISHOP STRACHAN SCHOOL, TORONTO, ONT.

SPROATT & ROLPH, ARCHITECTS.



THE BISHOP STRACHAN SCHOOL, TORONTO, ONT.

SPROATT & ROLPH, ARCHITECTS.

feet, and an east and west frontage of two hundred and forty feet, and while the southern or front portion contains three storeys in height, the remaining portions has four floors.

The assembly hall is a spacious room, thirty-two feet six inches by eighty-seven feet six inches, and some thirty feet in height, and provides seating accommodation for four hundred

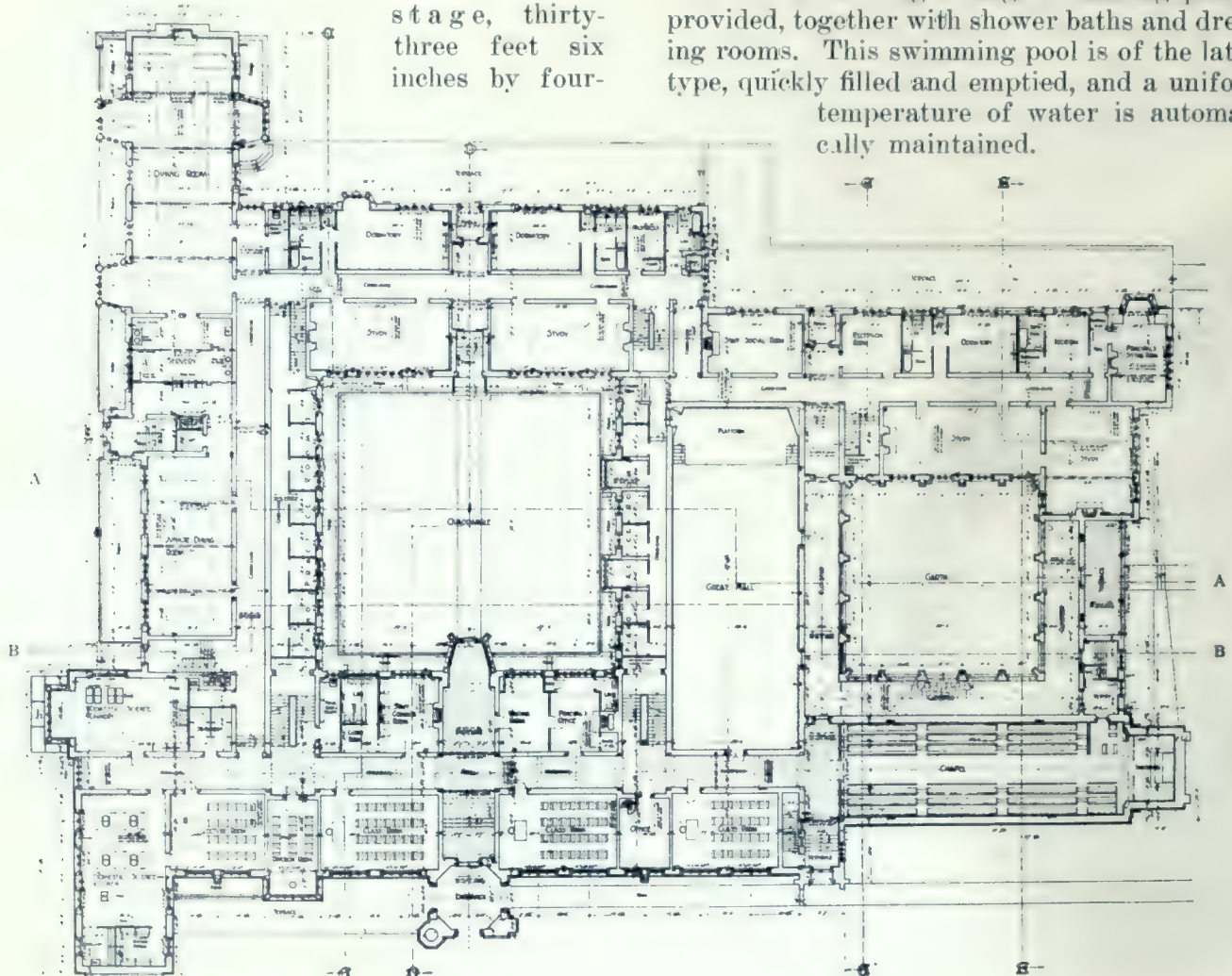
persons. A large stage, thirty-three feet six inches by four-

teen feet six inches is at one end of the room. In the basement separate cloak rooms are provided for the different grades of pupils, with necessary lavatory accommodation adjoining.

The domestic service equipment, which is an extensive de-

partment of the modern institution, has ample space provided for the many departments, which include kitchen, bakery, dairy, fruit, vegetable and meat rooms, while a laundry plant complete in every detail is installed. Servants' dining rooms are located here, and in the northwest section a gymnasium occupies space of some seventy by twenty-five feet.

In the north wing a large swimming pool is provided, together with shower baths and dressing rooms. This swimming pool is of the latest type, quickly filled and emptied, and a uniform temperature of water is automatically maintained.



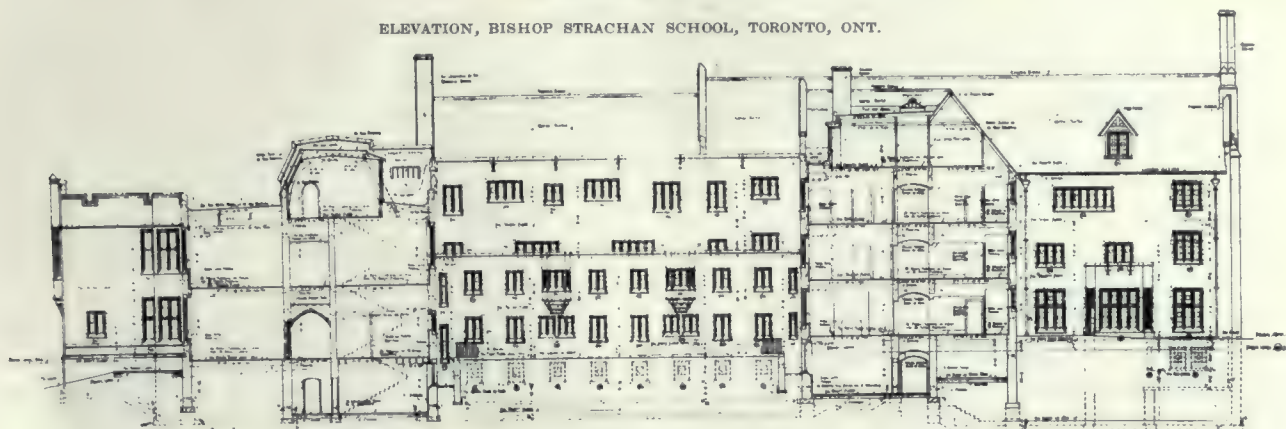
SECOND FLOOR PLAN, BISHOP STRACHAN SCHOOL, TORONTO, ONT.

SPROATT & ROLPH, ARCHITECTS.



SECTION - B-B

ELEVATION, BISHOP STRACHAN SCHOOL, TORONTO, ONT.



SECTION - A-A

On the first floor close to the main entrance is the principal's office, with waiting and general office on either side of the main hall.

Reference to the plans will indicate the arrangements of the class rooms. The west wing contains laboratories, the junior dining room, servery and main dining room, with dumb waiters to kitchen immediately below. The north wing comprises two dormitories and the same number of study rooms, and in the east, as mentioned before, the assembly room is located. Individual noise-proof practice rooms are placed

on the first and second floors. The second floor is largely allotted to dormitories, with class rooms over the school proper. A large library is situated directly over the main entrance, while science laboratories are in the southwest corner. The third floor is fitted up as art studios facing the northern light, with skylights in roof. The fourth floor over residence contains the students' sleeping quarters.

A forced hot water system provides heat throughout, circulating through the mains and radiators under pressure with a very slight loss



GREAT HALL, BISHOP STRACHAN SCHOOL, TORONTO, ONT.

SPROATT & ROLPH, ARCHITECTS.



TYPICAL CLASS ROOM, BISHOP STRACHAN SCHOOL, TORONTO, ONT.

of heat units. The hot water system gives a lower temperature of heat emitted, and thereby does not absorb the natural humidity of the room, as would be the case were steam the medium. The heating plant is in a separate building, flow and return mains running underground through a tunnel. An artificial ice-making plant is a part of the power plant equipment, providing cold storage facilities.

Of fireproof construction throughout, the interior does not chill the sensibilities, the wall finish of grey plaster giving a feeling of warmth. The floors are of beech on the ground and upper storeys, while concrete with a finish of granolithic is used in the basement. The interior finish is in oak, dark stained, with fittings in harmony. The roof of the building is of felt and gravel, with green slate shingles on the eave slopes.

Abundance of sunlight is assured by the many windows of leaded glass in metal sash, while the artificial lighting is diffused by a system well planned. Ventilation, an important consideration in buildings of concourse, is assured by fresh air passing through water, then heated and forced to all parts of the building.

The building and equipment is a tribute to the skill of the Canadian architects, Canadian contractors and Canadian manufacturers, whose combined efforts have reared from the resources of Canada the new home of the Bishop Strachan School.

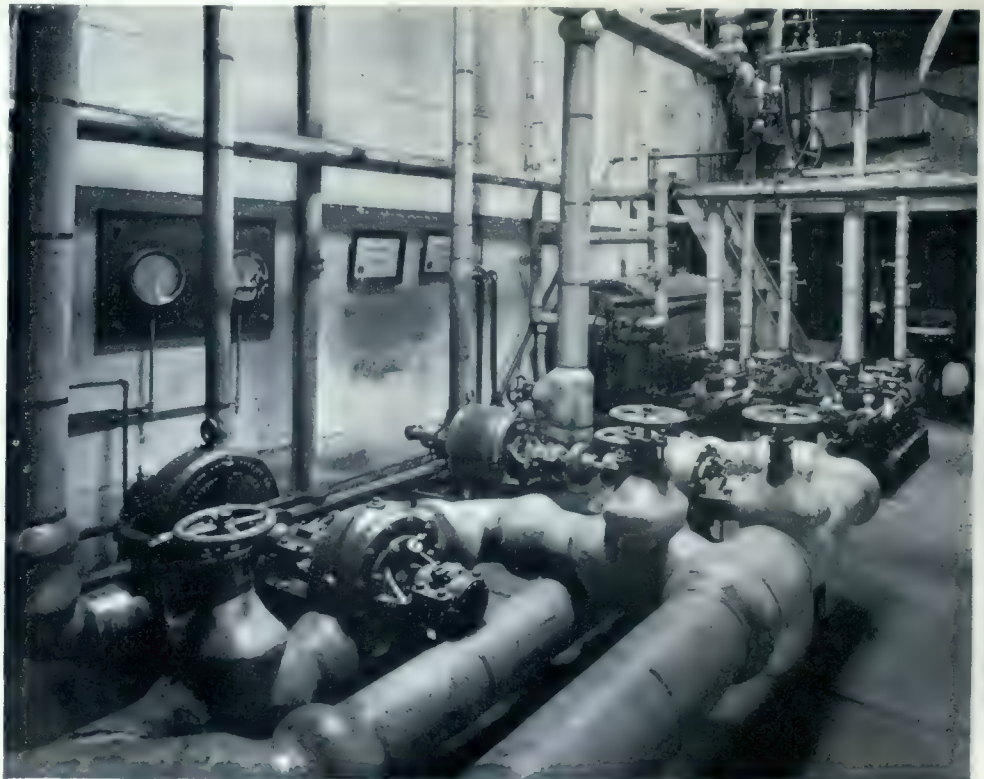
SETTLERS' PERMITS FOR FIRES

During the last session of the Legislature of Quebec several amendments were made to the Fire Act, which are calculated to add materially to its strength and efficiency.

One of these provisions requires that settlers engaged in clearing operations must, between April 1 and November 15 of each year, secure a burning permit from an authorized forest officer before setting out clearing fires. Wherever this provision is properly enforced, it will undoubtedly effect a very material reduction in the forest fire loss. One of the most serious features of the fire situation throughout Canada is the tendency of settlers to burn debris during dry periods, when fire is likely to spread and cause serious damage. A similar provision is urgently needed in Northern Ontario, where there is practically no control of settlers' clearing operations.

Another amendment to the Quebec Act provides that the debris from settlers' clearing operations must, before burning, be piled in heaps or rows at a distance of at least fifty feet from the forest. On this basis, it is much more practicable to control the fire than where the old method of broadcast burning is employed.

Holders of timber licenses on Crown lands are required to clear away the debris on a depth of one hundred feet from railway rights of way. This is an excellent provision, but should be made applicable to privately owned lands as well. In many cases, the efforts of railway companies in the direction of fire protection are



POWER PLANT, BISHOP STRACHAN SCHOOL, TORONTO, ONT.

largely neutralized through the presence of large quantities of the most inflammable debris on lands immediately adjacent to railway rights of way.

Another excellent provision of the new Quebec Act is that any fire ranger or other forest officer may summon any male citizen between 18 and 55 years of age to assist in extinguishing any forest fire, the rate of pay being specified, and penalty being provided for failure to obey the summons.

The fire laws of the Province of Quebec are among the most progressive in Canada, but larger appropriations are needed to make them fully effective. In particular, provision should be made for a larger staff of inspectors. The present staff is not sufficient to exercise proper supervision over the fire rangers on licensed lands, nor is there adequate provision for the protection of Crown lands not under license.

NEW BRUNSWICK FORESTS

Three field parties are now at work in New Brunswick, in connection with the forest survey and classification of Crown lands. The project is under the supervision of P. Z. Caverhill, Provincial Forester, subject to the general direction of the Minister of Lands and Forests. The size and importance of the undertaking is indicated by the fact that the Crown lands in this province comprise 10,000 square miles and return a direct revenue to the provincial treasury averaging more than \$500,000 annually from timber alone, in addition to large revenues from the sale of hunting and fishing privileges.



DINING HALL, BISHOP STRACHAN SCHOOL, TORONTO, ONT.

The best agricultural lands are naturally along the valleys, where settlement has, for the most part, been concentrated. In some cases, however, settlement has extended to the uplands. Some of these lands are well suited for agriculture, but, in other cases, the settlers have apparently been attracted primarily by the timber or by the desire merely to locate a home and have settled on lands wholly unfit for permanent agricultural use.

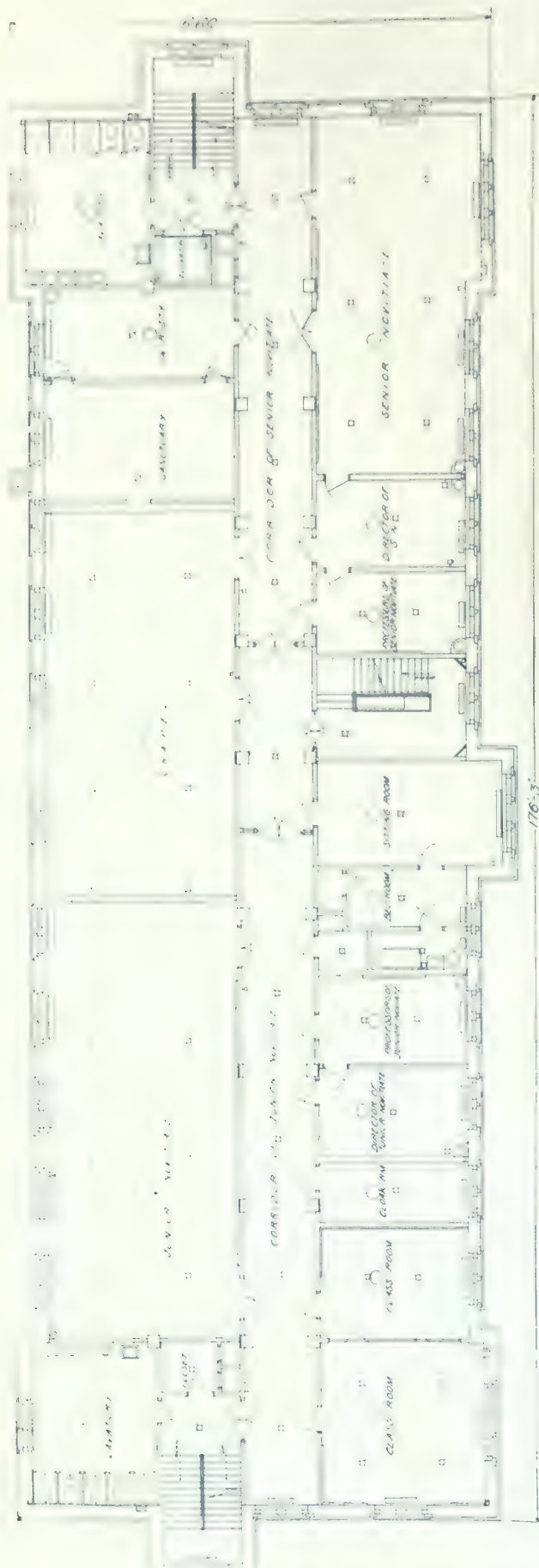
There is considerable pressure upon the Provincial Government for the opening up of new lands, to provide for immigration and for the surplus native population. An important feature of the Act of 1913 was the provision for a classification of soils with the object of directing settlement to lands really suitable for farming purposes.

This wise provision is now being carried out, and the result will no doubt be to reduce to a minimum settlement upon non-agricultural lands. The evil effects of such settlement may be seen in every province of Canada, and are due to the previous absence of a definite policy for the directing of settlement to lands really fit for that purpose.

The Province of New Brunswick has undertaken to avoid the recurrence of such tragedies as were discovered by the Commission of Conservation to have been enacted in certain portions of the Trent watershed, Ontario, where settlers were allowed to locate on poor, sandy soils,

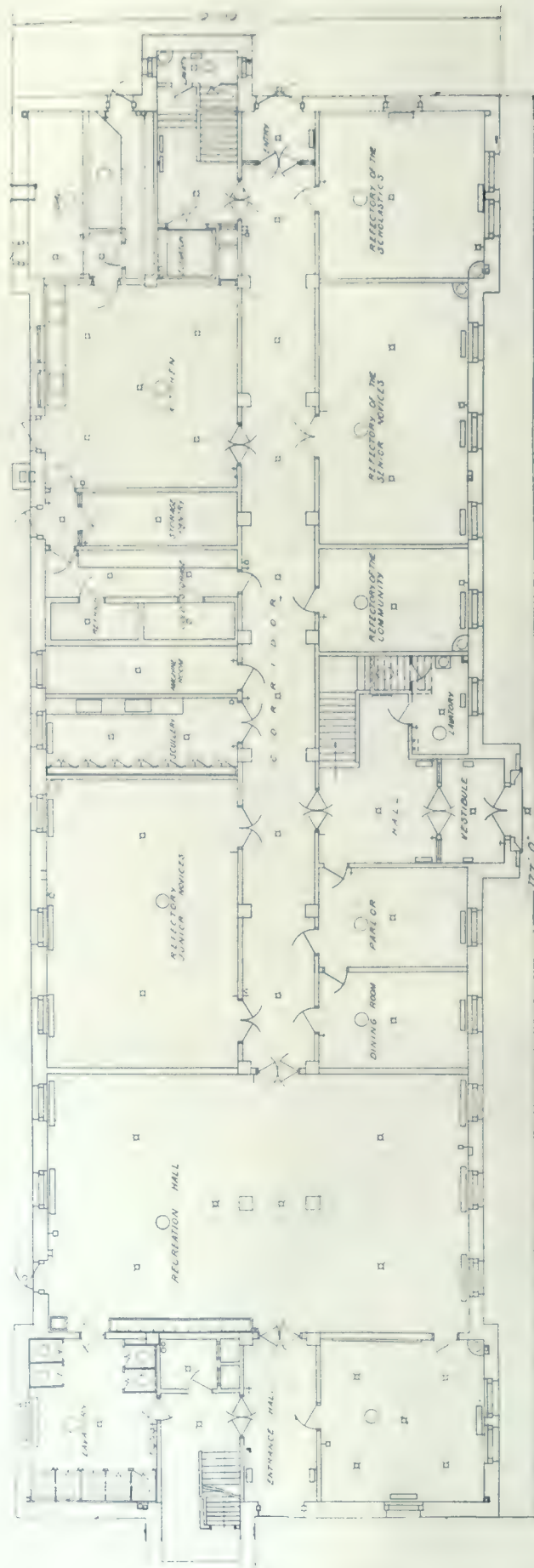


PRINCIPAL'S ROOM, BISHOP STRACHAN SCHOOL, TORONTO, ONT.



HYNES, FELDMAN & WATSON, ARCHITECTS.

FIRST FLOOR PLAN, DE LA SALLE TRAINING COLLEGE, OAK RIDGES, ONT.



HYNES, FELDMAN & WATSON, ARCHITECTS.

GROUND FLOOR PLAN, DE LA SALLE TRAINING COLLEGE, OAK RIDGES, ONT.

then chiefly valuable only for their timber. With the removal of the timber and the exodus of the lumbering industry, these settlers have been left stranded, with no opportunity to make a comfortable living, and faced with the necessity of constantly lowering their standards.

There are 73 buildings, large and small, used for exhibit purposes at the Canadian National.

This is the thirty-eighth year of the Canadian National Exhibition. It came into existence in 1879, and has been run continuously ever since.

De La Salle Training School

Built For The Brothers of The Christian Schools at Oak Ridges

THE De La Salle Training College, recently completed at Oak Ridges, Ontario, is located on property of one hundred and fifteen acres fronting on Yonge street, at the highest point between Lake Ontario and Lake Simcoe, commanding a view of all the surrounding country, and well chosen for the welfare of the students.

The building provides for a residence for the students and teachers, as well as the scholastic departments. The training is in conformity with the Department of Education of Ontario, equipping the students to take teacher's certificates, and also to enter the School of Pedagogy and Toronto University. At present there are about sixty students in attendance, with a staff of twenty teachers.

The building presents the appearance of a red brick structure with stone trimmings, but in reality it is a reinforced concrete skeleton building, with the exterior walls built of interlocking tile and faced only with brick, giving a practically fireproof building of four storeys

in height, with a separate power building located at some distance to the north of the main structure.

A feature of the construction of this building is that the basement has been dispensed with; a large tunnel being the only space beneath the ground floor, which is used exclusively for the pipe systems of heating, water and electricity, where they are readily accessible for repairs or alterations. Another feature is that the floors throughout have linoleum laid directly on the concrete, which provides a noiseless and sanitary surface and eliminates all wood.

The ground floor accommodates the entries, staircases, refectories, kitchen department and gymnasium.

The second floor accommodates the chapel, classrooms, laboratory and lavatories.

The third floor accommodates additional classrooms, with bedroom accommodation for the teaching staff, while the top floor contains large dormitories for the students with very ample lavatory accommodation.

A building has been erected a short distance north of the main building to take care of the heating and power of the institution. It is a two-storey building of brick and concrete. The upper floor contains the manual training department, a well equipped laundry and a room for storage.

The power plant proper consists of two sixty-inch by sixteen-foot tubular boilers, which are



DE LA SALLE TRAINING COLLEGE, OAK RIDGES, ONT.

HYNES, FELDMAN & WATSON, ARCHITECTS.

fitted with automatic fuel feed and inclined grates.

The water service system installed is of more than passing interest. A pond on the property provides the water required. This pond is of the same nature as Bond Lake and Wilcox Lake, which are in the near vicinity. A crib has been sunk in the pond, running from which is a ten-inch pipe, enabling the water to be delivered by gravity to a concrete well four feet by four feet by twenty feet deep, which serves as a reservoir. An electrically driven pump placed fifty feet up the bank forces the water a distance of six hundred feet to the building, then through the tunnel to the power house and direct to a filter, which, with motor and pump, is shown in illus-



CHAPEL, DE LA SALLE TRAINING COLLEGE, OAK RIDGES, ONT.

HYNES, FELDMAN & WATSON, ARCHITECTS.

tration. This filter is arranged to discharge to either of two concrete reservoirs, each twenty-two feet by eighteen feet, and holding a depth of water eight feet. These reservoirs are located underneath the filter, or machine room, of the power house and underneath the coal bunkers. Another pump similar to the one in the field (the one shown in illustration) pumps the water from these reservoirs into two five thousand gallon

rivetted metal pressure tanks, which are buried outside the power house. This electrically driven pump is controlled by an automatic switch, regulated by the pressure in the tanks. When the water is pumped into these tanks an air pressure is obtained. When this pressure falls below thirty pounds to the square inch the switch automatically starts the motor. Auxiliary to this for pressure purposes is an air com-



TYPICAL CLASS ROOM, DE LA SALLE TRAINING COLLEGE, OAK RIDGES, ONT.

HYNES, FELDMAN & WATSON, ARCHITECTS.

pressor to maintain an air pressure in the tanks, which operates between thirty and sixty-five pounds, at which latter point the power is automatically shut off. This system is found to maintain a good water pressure throughout the building. The air compressor serves another purpose, that of raising the returned condensation water from the steam trap to the boilers. The reservoirs are fitted with perforated brass pipes to permit of chlorination or other treatment of the water should it be necessary.

Power for operating the motors and for lighting is obtained from the line of the radial railway which passes the property. It is received in transformers on the roof of the power house, which deliver at two hundred and twenty volts for lighting and five hundred and fifty volts for power. Motors are installed to operate the pump, which supplies the filter, the pump in the machine room, the air compressor, manual training room, the laundry and the ice plant, which are located near the kitchen.

Sewerage disposal is taken care of by means of septic tanks, installed in accordance with the regulations of the Department of Health of Ontario.

The problems arising in connection with the building and equipping of this school and power plant have been well taken care of by the architects, Hynes, Feldman & Watson, who designed

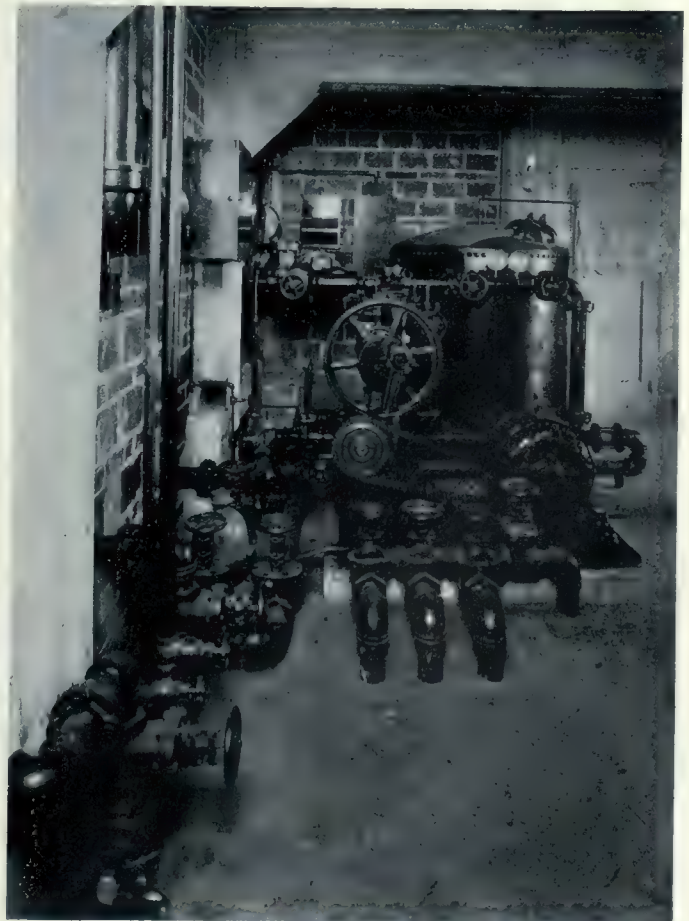


MAIN CORRIDOR, DE LA SALLE TRAINING COLLEGE, OAK RIDGES, ONT.

the buildings and superintended their erection and the installation of their equipment.



REINFORCED CONCRETE COLUMNS IN DORMITORY, DE LA SALLE TRAINING COLLEGE, OAK RIDGES, ONT.



FILTER AND PUMPING EQUIPMENT IN POWER HOUSE, DE LA SALLE, TRAINING COLLEGE, OAK RIDGES, ONT.

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CONTRIBUTIONS.—The Editor will be glad to consider contributions dealing with matters of general interest to the readers of this Journal. When payment is desired, this fact should be stated. We are always glad to receive the loan of photographs and plans of interesting Canadian work. The originals will be carefully preserved and duly returned.

Entered as Second Class Matter in the Post Office at Toronto, Canada.

FRASER S. KEITH - - - EDITOR AND MANAGER

Vol. IX Toronto, August, 1916 No. 8

Architectural Affairs

Pertinent to the present existence and to the future development of the architectural profession are a number of important matters concerning which a free discussion, both by the individual and by the association, with a view to future action, is advisable. On the opposite page of this issue we are pleased to publish a timely discussion of the situation by Mr. John M. Lyle, of Toronto. Lack of space prevented its being set in larger type, which its importance warranted. An open discussion in these pages will, we believe, do much to further the interests of the architectural profession, and we trust that architects throughout Canada will not hesitate to use these columns to give expression to their views on architectural questions.

Development in School Construction

Amongst the splendid educational institutions illustrated in the current issue of CONSTRUCTION the Ryerson School, at London, Ontario, is worthy of particular notice. It illustrates a type new to Canadian architecture, and contains several features which will commend themselves to municipalities where the price of land is not a controlling factor. The block plan shows the well-designed arrangement of the various rooms and departments, complete in one storey. A novel feature is the saw-toothed roof, providing additional lighting, and making possible the effected arrangement, the inner rooms having ample light. It is hoped that the architects will be enabled to keep in close enough touch with this school so that they may later provide figures regarding the cost of maintenance, particularly the heating plant, for comparison with the usual type of school construction.

Getting a Square Deal

Obviously the architects, engineers and builders, and incidentally the manufacturers, of Canada are being subjected to what amounts to a gross injustice. The laws of this country impose upon our Canadian architects, engineers and builders unrestricted competition with the more strongly, financially entrenched firms in the United States, while they are absolutely barred from doing business in that country. How this reacts against the general welfare of the Dominion was shown in figures quoted in our last issue, which proved that the American architect favors American contractors and American made goods. The situation is manifestly too one-sided.

In this connection Mr. R. K. Shepard, chairman of the Toronto Chapter O.A.A., wrote a letter to the Montreal office of the U. S. Department of Labor, asking for information as to the laws of the United States which applied to Canadian architects desiring to practice in the United States. Herewith is the reply received:

Mr. R. K. Shepard,

36 Toronto Street, Toronto, Ont.

Sir,—Replying to your communication of the 4th inst., I beg to quote the following from our laws as applied to contract laborers:

"Persons hereinafter called contract laborers who have been induced or solicited to migrate to this country by offers or promises of employment, or in consequence of agreements, oral, written or printed, expressed or implied, to perform labor in this country of any kind, skilled or unskilled."

The word "persons" covers aliens or any one not a citizen of the United States.

There is nothing in our laws which prevents a business concern, not a resident of the United States, submitting bids or specifications, but in order to enable a foreign concern to send into the United States workmen who are not American citizens, it becomes necessary to show that skilled labor of like kind, unemployed, cannot be found in the United States.

Aliens who are architects, builders or engineers fall within the provisions of our law quoted above.

Respectfully,

JOHN H. CLARK, Commissioner.

Besides this a number of the States of the Union have class legislation in favor of architects and engineers. Leaving the question of

provincial laws aside, it seems clear that the Alien Labor Law of Canada might easily be extended to cover the same ground as that of the

United States. It is only right that such should be the case. It is likewise apparent that it would be good business.

Status of The Canadian Architect

A Discussion of The Problems Confronting The Architectural Profession, With Suggestions as to How Conditions May Be Improved

By John M. Lyle.

The time seems opportune for a frank discussion among the members of our profession as to conditions under which we are working in Canada, in order that after the war is over, when times become normal again, some radical changes may be made and some concerted action taken to right the many growing abuses.

If we contrast the standing of the Canadian architect with his American, English or Continental confreres, both as regards his remuneration and as regards his position in the community, we would find that he is decidedly the worst off.

For the purposes of discussion let us divide the subject into the following headings:

- First—The relations between the client and the architect.
- Second—The relations between the contractor and the architect.
- Third—The relations between the engineer and the architect.
- Fourth—The schedule of charges for professional services.
- Fifth—The enactment of legislation.
- Sixth—The employment of foreign architects.

The Relations Between the Client and the Architect.

The Canadian client pays less for his professional services than almost any other client. He demands more from his architect, and the law protects him and holds the architect responsible to a greater degree than in many countries, with the exception, possibly, of England. We have lately had in Canada several cases where the architect has been held directly liable for faulty work executed by contractors.

If the present tendency now abroad in the land of having practically all the municipal, governmental and large corporation work executed under the care of governmental or corporation architects continues, we shall find the client of to-day as rare almost as the dodo bird. For, in addition to the above growing tendency, we have building and engineering firms undertaking architectural service, and speculative builders galore. The natural query is: What are the remedies to offset these conditions?

I would suggest the following:

- First—That it should be obligatory for the client to employ and pay for a quantity surveyor.
- Second—That on all jobs of twenty thousand dollars and cost a clerk of the works should be obligatory, whose salary should be paid by the client.
- Third—United efforts should be made to persuade the governments, etc., to give out more work to the profession.

The Relations Between the Contractor and the Architect.

The relations between the contractor and the architect, especially under the separate contract basis, is most unsatisfactory. The vast majority of the contractors do not maintain a business organization such as pertains under the general contracting system. The work of co-ordinating the different trades, and of carrying the work to a successful completion, largely devolves on the architect, thereby placing an extra burden and expense on his shoulders. This, of course, is not true of the whole of Canada, as in Montreal the practice of general contracting is almost universal.

It would be a distinct gain to the architect, and to his client, to have the practice of general contracting made universal in Canada, at least for all buildings of a cost of over ten thousand dollars.

The Relations Between the Engineer and the Architect.

At present there does not seem to be any satisfactory or definite ruling as to the relations between the engineer and architect for special service work, particularly as regards the commission to be charged the client by the architect and engineer for their joint services.

For any work of importance, involving engineering services, an architect must either employ a structural or service engineer in his own office, or he must employ outside consulting engineers to collaborate with him in connection with the special services and structural work. It is manifestly unfair that the architect should receive no commission on the engineer's work, as there is bound to be a great deal of time put in by the architect in consultation with the engineer and in the revising, both of the engineer's and architect's drawings to conform one with the other. In the case of expert service, it is the American custom that a certain percentage should be paid, over and above the regular commission, to take care of expert engineering service. It is sometimes a difficult matter to get the client to see the value of these services. It is, therefore, important from the architect's viewpoint that his work, in collaborating with the engineer, should be protected. There should be a conference between the engineers and architects to arrive at a satisfactory solution of this difficulty.

The Schedule of Charges for Professional Services.

Every architect knows that residential work, which is really the bulk of the work carried on by architects in Ontario, is not remunerative, provided always that the architect gives full modern professional services for his fee. We have always had to contend with the theory advanced by the architects in smaller towns that it is difficult for them to get their clients to pay more

than the old five per cent. Would it not be very much better to establish a proper standard, and have our confreres work up to that standard, rather than work down to a low standard.

We are all aware that a contractor, in figuring on a job, would estimate on the average job to have a profit varying anywhere between ten and thirty per cent., and it is no uncommon thing to have work carried out under the percentage basis of ten and fifteen per cent., this percentage to be a percentage over and above all overhead charges of every description. Why, then, should the architect be grudging a greater commission than five per cent., which is to include all overhead and working expenses of every description, and not a murmur be made by the client as to the contractor's charges.

The minimum charge of the New York Chapter of the American Institute of Architects for general work is six per cent., and for residential work, within the city of New York, eight per cent. on the first fifty thousand of cost, and six per cent. on the balance of cost. For private dwellings outside the city of New York, including stables and other appendages, ten per cent. on the first fifty thousand of cost, and eight per cent. on the balance of cost. For all monumental, decorative, special interior and cabinet work or alteration work the charge is ten per cent. It is a well known fact that the majority of the leading firms charge considerably in excess of these commissions. There is also an established practice in New York that all work, no matter of what character, under twenty thousand dollars, is charged for on the minimum basis of ten per cent. I would suggest that the professional charge for all residential work be ten per cent., and that the minimum for other work should be six per cent., instead of, as at present, seven and five per cent. respectively.

If the architects of Canada are to build up strong office organizations to meet foreign competition it is absolutely necessary that a change be made in the schedule of professional charges.

It is a notorious fact, emphasized by this war, that the vast majority of the Canadian architects, even those with the most important work under their supervision, are not in a strong financial position to meet the strain of hard times. When you consider the vast sums of money that are entrusted to the architect's care, and the responsibilities which he assumes in the conduct of large jobs, it will be readily seen that his remuneration for the services rendered are out of all proportion.

The Enactment of Legislation.

The writer has always felt that the proper way to raise the standard of our profession is through the medium of education, rather than legislation. After some years of Canadian experience I am inclined to think that, while the first argument is entirely sound, there are at present certain conditions in Canada which make it necessary to have more drastic legislation enacted as regards the practice of architecture in Canada. Steps should be taken by the members of our profession to enact legislation governing the employment of quantity surveyors, a clerk of the works, and the registration of architects.

The Employment of Foreign Architects.

Every genuine artist feels that art should be international, but, at the same time, every patriotic Canadian should exert all possible effort to develop a national Canadian architecture. This can not be done if the custom of employing foreign architects increases in the same ratio as it has during the past ten years.

There would certainly be no quarrel if an occasional American architect came over to Canada to erect a building, but when we look around to-day, when jobs are pretty scarce, and see American architects building hotels and factories in Hamilton—American architects building theatres, office buildings, factories, warehouses and hotels in Toronto, and American contractors putting them up, we are bound to feel that the time has come for a more outspoken stand on the part of our profession as regards this American invasion. If the general public realized that the American architect, being naturally familiar with American materials, specified American goods to the detriment of Canadian goods, to the value of hundreds of millions of dollars during the past twenty-five years, a great outcry might arise.

Canadian architects can not be expected to build up strong office organizations if the cream of the work goes to outsiders, and we have to meet, in addition, the competition of municipal and governmental architects and contracting engineers.

What chance would there be in England of developing a national English architecture if a great many of the important buildings were designed by German or Swedish architects, or, again, what chance would French architecture have if a large number of their buildings were designed by Dutch or Spanish architects?

In conclusion, I am firmly of the opinion that there should be more and continual inspection on buildings of a moderate cost, and that the cost of this inspection should not be borne by the architect, but by the client. That the architect should receive more for his services, thereby enabling him to build up better office organizations to carry over his staff during bad times, and to enable him to give better service to his client, and, therefore, better buildings for the community in general. He should endeavor to persuade the different governments, municipalities and corporations to give out their work among the profession. He should aim, where possible, to encourage the use of Canadian materials and the employment of Canadian contractors.



THE GARDEN FRONT, HATLEY PARK, RESIDENCE OF JAMES D'UNSMUIR, VICTORIA, B.C., CANADA.

SAMUEL MACLURE, ARCHITECT.

The Heating and Ventilation of Schoolhouses

The subject of heating and ventilating the schoolhouse has undoubtedly been given as much attention and thought as any other one particular type of building, and it is quite possible that owing to the constant recurrence of this problem in all portions of the country, it might be said that it has been met by a greater variety of solutions than can be found in any other form of building. Yet, with all of the thought, time, and money which has been put into this problem, it is a peculiar fact that it is not yet possible to assert that the perfect ventilating system has been devised.

In the first place—what is a perfect ventilating system? We cannot by any possibility maintain air inside of a building at the standard of purity possessed by the air before entering, owing to the fact that impurities are constantly added to the air within an occupied room. The only exception to this is when the outside air is so bad that mechanical or physical methods of cleaning may remove a quantity of undesirable exterior elements which might be accounted more deadly than those which the air would pick up within the room before being expelled through the vent openings.

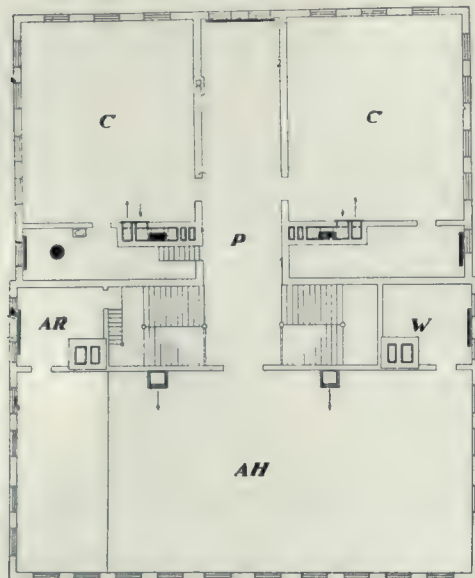


Fig. 1

It is not within the province of this article to enter into the theory of ventilation so much in regard to the scientific or medical side as it is to point out to the conservative architect the methods which are giving the greatest satisfaction to-day according to the standards based upon well recognized and generally accepted theories. Yet, in passing over this point of the discussion, it is hard to omit the mention of an actual test in a regular schoolroom operating under normal conditions. It was demonstrated that it is possible to re-use the air of the fully occupied room for continuous periods of three hours with the usual recess interval and without the use of any of the outside air whatsoever, except that which leaked in through crevices and occasionally opened doors, it being impossible, of course, to keep the class rooms absolutely air tight. It is also

interesting to note that this test was carried on for five hours a day for three weeks without perceptible effect on the school children, who were carefully observed by experts making psychological and physiological tests; these tests were compared with a corresponding class in another room which was ventilated according to the best standard methods and practices of to-day, with no apparent difference between the two.

In spite of this experiment, however, there are few who are yet ready to admit that fresh air is not required or that the condition of the air in a room can artificially be made as desirable for human being without a fresh air supply as with it. Until experiments demonstrating this fact have been made in multiple, with results of an invariably successful nature, the engineer and architect are not justified in departing from the old standards of the required amount of fresh air per pupil per minute.

It is a question if the average architect in designing a schoolhouse takes into proper consideration on his preliminary sketches the requirements of the ventilation system. While the modern trend is towards the elimination of this trouble, there are still

many architects who cause themselves much needless work and later revising of plans by not making proper allowances in the preliminary drawings for the necessary ducts and flues.

In schoolhouse ventilation work there are three systems of piping which are in common use. These may be termed the trunk line, or single duct system, the double duct system, and the individual duct system.

The trunk line system is the one which is most familiar, a large percentage of the air blast duct work being laid out by this method. The double duct system, which consists of a warm air duct supplying two-thirds of hot air and the cold-air duct supplying one-third of cold air to the base of the flues, the air becoming mixed in the flues and entering the room at a desired tempered degree, is also fairly well known.

The individual duct system, however, has advantages over the other two. This system gives every room its own duct and flue continuously from the fan to the room outlet and regulates the temperature of the air to suit the requirements of each individual room. It has been found by experience that rooms situated on the north and south sides, or on the windward and leeward sides, of a building

will not require air at the same temperature, the difference being several degrees. The main objection to the common trunk line system ordinarily used is that this variation of requirement cannot be satisfied.

Another advantage possessed by the individual ducts is the matter of head room in the basement. The argument is often advanced, however, that the double ducts, with the air mixing in the vertical flue, give the same temperature control as the individual duct in which the air mixes back at the heater, and at the same time they permit the use of the trunk line system. This is true, but between the heater and the base of the flue not only must two ducts be carried, but they must have a cross-sectional area of approximately 50 per cent. more than actually required. This is clearly understood when it is noted

that on a very cold day the cold air duct may be almost entirely shut off at the base of each flue, thus requiring all the ventilation for the building to come through the hot air duct, while on a warmer day the warm air duct may be 50 per cent. closed and the cold air duct utilized to its full capacity. Therefore where these ducts are extended along the basement ceiling, as is usually the case (or any place where head room is an object), the individual duct will make an appreciable saving in the height.

The first form of heating which was applied to schoolhouses was that of the fireplace and the stove. Later, however, as advancement in the art of heating became more pronounced and ventilation was required, furnaces were substituted and are still in use at the present time in some of the older schools, although generally with more or less dissatisfaction.

In order to show the progress of modern heating and ventilation, let us first take Figs. 1, 2, 3 and 4, which show the third, second, first and basement floor plans respectively of one of the older schools of moderate size in which furnaces had been in

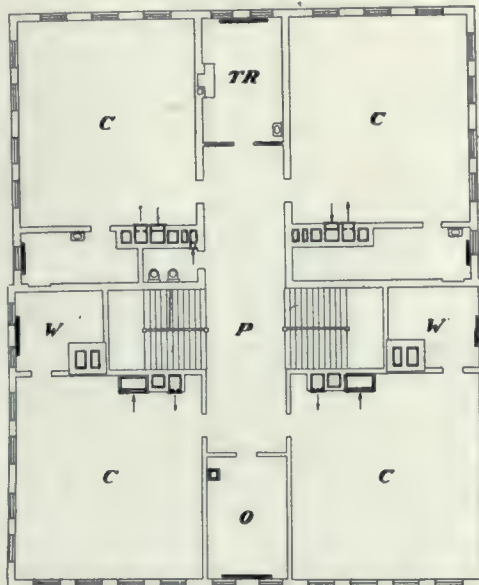


Fig. 2

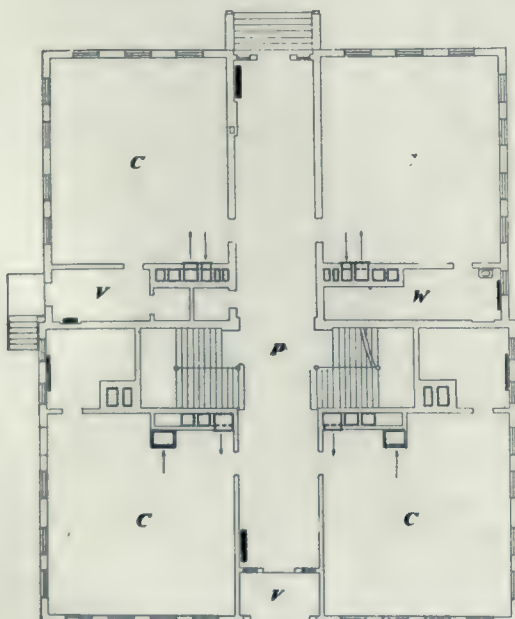


Fig. 3

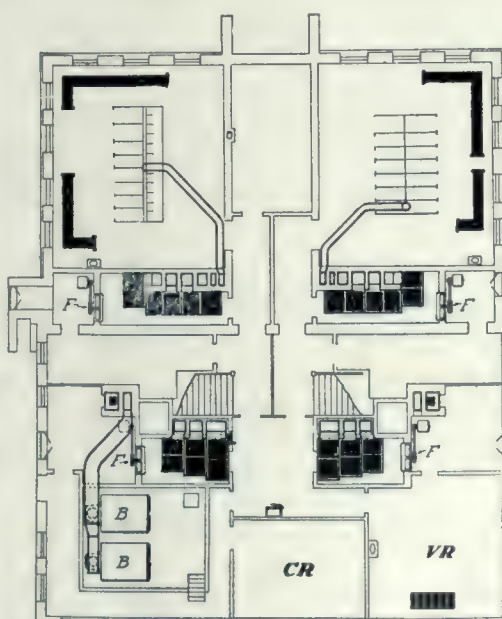


Fig. 4

use. These furnaces required maintaining four separate fires, and at their best were subject to back drafts on days of high winds and to other gravity hot air heating troubles as well. This school was recently remodeled as shown, so as to eliminate these troubles and to give a ventilation system furnished by gravity at times when outside conditions made such operation feasible, and at the same time to avoid the troubles usually experienced with the plain gravity system.

To accomplish this a fan F was installed which would force the air into the heating chambers, across the heaters and up the flues, thus assisting gravity enough to counteract adverse outside conditions.

It is not intended to hold up this school to the architect as an ideal installation, but rather to employ it as a means of showing what can be done to improve the existing unsatisfactory furnace systems. Owing to this being a remodeled system, some of the flues were installed by necessity in places where, architecturally speaking, they have no business being located; but this could, of course, readily be overcome in a new building properly designed to accommodate the ventilating system.

The exhaust flues are heated with vertical aspirating pipes, assisted by radiators located in the flues at the third floor, as shown in Fig. 1.

Some time after this school was remodeled another school building was erected a short distance away and connected to the old building by means of a pipe tunnel. The plans for the new building are shown in Figs. 5 to 8, inclusive, which are the attic floor, second floor, first floor and basement plans respectively. In this later school, as shown in Fig. 8, an air filter screen S was installed, together with a fan F, which forces the air over the heating coils H. The system is arranged so that either the gymnasium, the auditorium, or the class rooms may be used at different times, all supplied from the same fan F, the flues being opened and closed as desired through a system of switch dampers.

In the attic plan, Fig. 5, it will be seen that the exhaust flues are connected together and carried through the roof, circulation being assisted by the heaters H, which make aspirating flues out of these vents.

This arrangement is a step in advance of the arrangement in the older buildings, having a more positive air supply movement, a certain amount of temperature control, filtered fresh air, and a concentration of apparatus.

Of course a fan system on the vents is also most desirable, as this produces an almost constant pull on the rooms, rendering it possible to regulate the quantity of fresh air much more closely than when aspirating flues are in use. It is quite remarkable the amount of difference made in the amount of incoming air by the assistance given through the exhaust outlets.

Still further progress is indicated in Fig. 10, where the individual duct system is used and individual temperature regulation thus secured for the various rooms. For the purpose of this discussion the upper floors of this building may be assumed to be treated in a manner similar to the floor plans already shown. The small additional plan of the boilers shows the smoke connection and method of running the flue into the chimney.

The basement plan, shown in Fig. 10, is an especially good typical duct illustration showing as it does the use of the individual ducts for the class rooms located with varying exposures, combined with a large trunk line duct supplying the auditorium above. A system of switch dampers is installed, throwing either the class room (i.e., the small individual ducts) or the auditorium (i.e., the large trunk duct) into service as desired.

The chief weakness in this installation consists of the lack of facilities for cleaning and purifying the air, it being absolutely im-

possible to install either an air washer or a filter screen in the space allotted to the ventilating plant. This is, perhaps, not quite as serious a consideration in this particular case as it might be under other conditions, owing to the fact that this school is in a suburban location where the air is of unusually clear character.

The ideal layout of a ventilating system to which it is desired to call the reader's attention is shown in plan and elevation in Fig. 9, this being one of two sets of apparatus of identical nature now being installed in a new high school in process of construction. In this particular school the apparatus shown is purely a class room proposition, taking care of all rooms on the left side of the building. The other apparatus is situated across the corridor and furnishes air for all the class rooms on the other side of the building. The auditorium and gymnasium are supplied by a third apparatus situated in the rear, thus making it possible to operate all sections of the entire school at one and the same time, instead of in parts alone, as was necessary in the other layouts.

In Fig. 9 the air enters through the window screen and

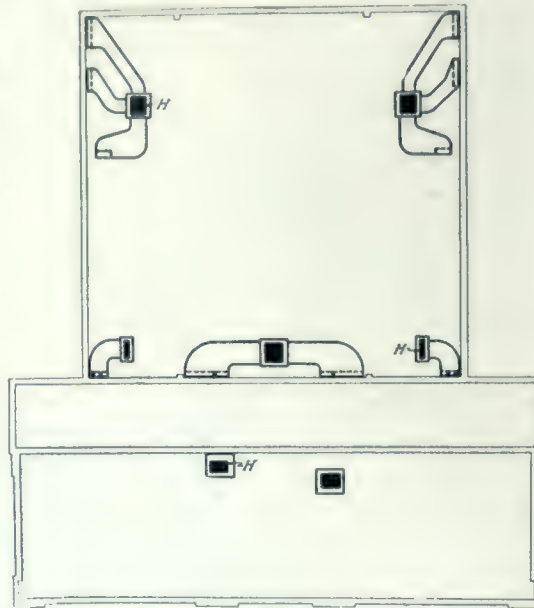


Fig. 5

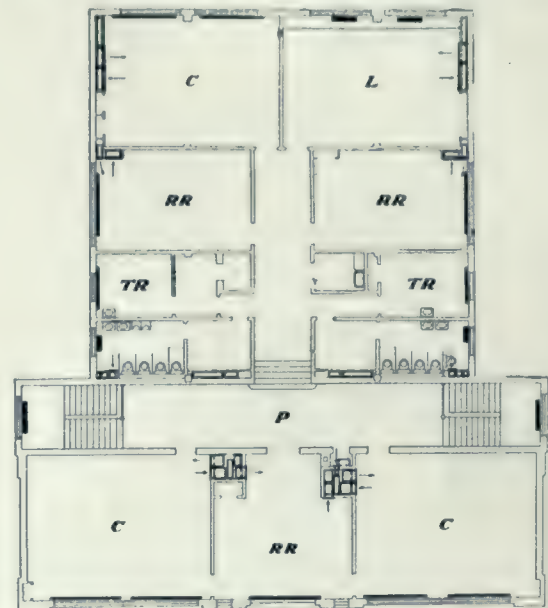


Fig. 6

passes in front of the tempering heater T, from which it is drawn through the air washer AW and heater H by the fan F. This fan is set in an enclosure which is made as air tight as possible, owing to the fact that the fan takes its suction directly from the room, thus making a plenum chamber out of it. The discharge from the fan is blown partially through the re-heater R, and partially through a by-pass beneath the re-heater, as indicated in elevation in Fig. 9. Here it is forced into the pipes P, which pick up the air and carry it to the various room outlets, the horizontal runs in this particular case being carried in a tunnel beneath the floor of the basement corridor. This is an ideal arrangement, which, however, requires all heat flues to be carried down to the basement floor instead of stopping off at the basement ceiling, as is customary.

The respective ducts obtain individual temperatures by the

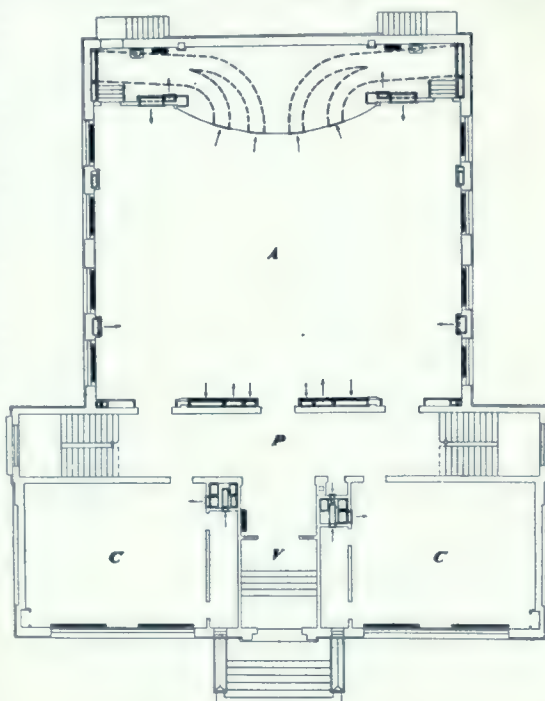


Fig. 7

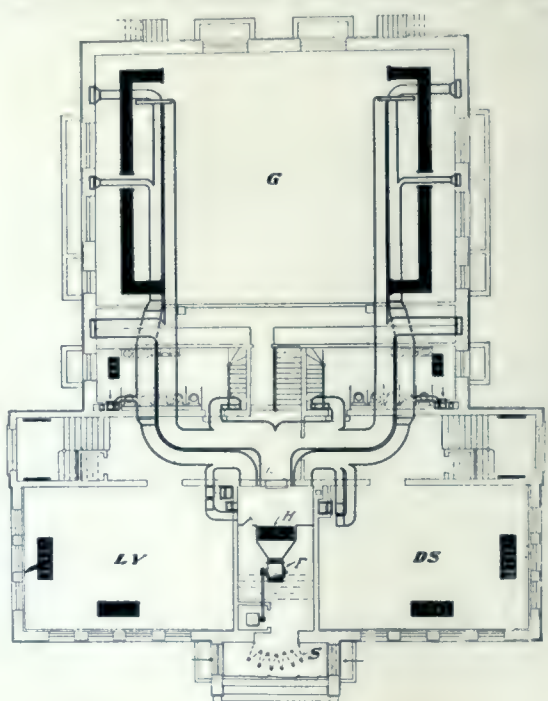


Fig. 8

amount of hot and tempered air admitted by the dampers D. These dampers are governed by a thermostat located in the room which the duct supplies, and thereby determining the temperature of the air entering the room.

The architect will undoubtedly at once question the cost factor on these more or less ideal systems of heating and ventilation. The most approved system—including air washers, heaters and fans of sufficient capacity to supply every pupil in every class room with 30 cubic feet of air per minute, and to give every seat in the auditorium 20 cubic feet per minute, besides supplying anywhere from four to ten changes of air per hour, as may be required in the various other rooms throughout the building—will cost from 2.1 cents to 2.8 cents per cubic foot, according to the amount of horizontal run and other variable factors, the average for a large number of schools approximating 2.4 cents per cubic foot.

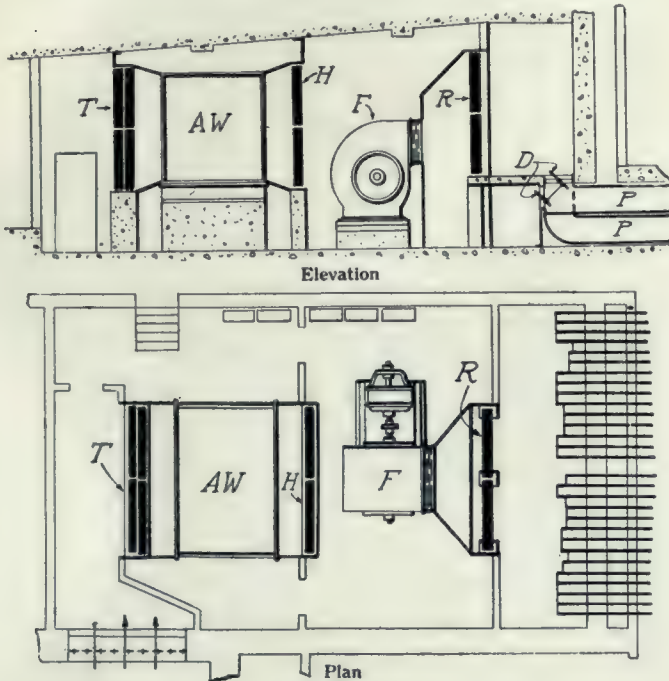


Fig. 9

It is often considered advantageous to install an auxiliary system of direct radiation, but many architects are opposed to the use of direct radiation in a building where air is supplied for ventilation, arguing that it is much cheaper to increase the temperature of the entering air by adding a few more sections on the heater than it is to carry steam pipes throughout the building and to install anywhere from two to six or eight radiators per room.

As far as first cost is concerned this is entirely correct, but the operating cost is excessive, owing to the large power bills which are incurred during the periods when the school is not in use, during which periods, however, heat is necessary to afford protection against the danger of freezing.

With direct radiation installed in the rooms no electric power need be expended from Friday afternoon until the following Monday morning, the temperature in the building in the meantime being maintained by the direct radiators without ventilation. When the hot blast system is used alone, either cold outside air must be heated and driven within the building in order to maintain the required temperature, or a by-pass must be arranged from the vent fan into the supply fan so as to revolve the air without the use of an outside connection during this period. This by-pass is sometimes not only difficult to obtain, but where the vent fans are located on the roof, or in the attic space, is absolutely impossible.

It is, moreover, very undesirable to use the hot blast system for heating such rooms as toilets, vestibules, kitchens, lunch rooms, and, in fact, any rooms from which there is a possibility of odors being spread throughout the building.

Since it is necessary, therefore, to install some direct radiation and to run steam supply and return mains for the heating of these particular rooms, it does not require an excessive amount of additional piping to locate the risers so that they may feed radiators in every room. It is certain that the interest on the additional expenditure involved by this installation would not be as great as the expense incurred in using power to run the hot blast system when it is being operated for the purpose of maintaining a satisfactory temperature during the period intervening between sessions.

In the plans accompanying this article the rooms have been indicated by letters as follows: A, Auditorium; AH, Assembly Hall; AR, Anteroom; BP, Boys' Playroom; BL, Boys' Locker; BR, Boiler Room; C, Class Room; CR, Coal Room; G, Gymnasium; GL, Girls' Locker; GP, Girls' Playroom; L, Lavatory; LY, Library; P, Passage; RR, Recitation Room; TR, Teachers' Room; V, Vestibule; VR, Voting Room; W, Wardrobe. The apparatus has been indicated as follows: AW, Air Washer; B, Boiler; D, Damper; F, Fan; H, Heater; R, Re-heater; S, Screen; T, Tempering Heater.—"The Brickbuilder."

CATALOGUES.

The Mouat Heating System.—The vapor system manufactured by Mouat-Squires Co., Cleveland, Ohio, is described in a catalogue issued by them. The advantages of this system claimed are that radiators can be adjusted to suit weather conditions, or shut off entirely if desired, and temperatures controlled for each room separately; possibility of pipes freezing and flooding the building is avoided, as no water remains in the pipes of this system; ease of operation of the radiator valves, which are gradu-

ated and conveniently located at the top of the radiator; minimum expense of upkeep, since there is never more than a few ounces of pressure on the system; therefore pipes, fittings, etc., are not subjected to strain; simplicity of construction, resulting in little likelihood of the system getting out of order. It is stated that the system is applicable to boilers already installed. A number of important buildings in which the system is said to have been in use for a period of years are shown by means of half-tone cuts.

"Corkboard Insulation." The Armstrong Cork and Insulation Co., Pittsburg, Pa., has issued a new edition of their catalogue. It shows at the beginning an illustration of the cork oak from the outer bark of which Nonpareil corkboard is made. It contains much information concerning insulating materials and their application to cold storage warehousing, ice plants, breweries, fur storage vaults, dairies, and under conditions in which heat insulating materials for temperatures under 210 degrees Fahrenheit is required.

"The Commercial Value of Washed Air" is a forty odd page booklet issued by the American Blower Company, describing the Sirocco Air Conditioning System manufactured by them, with which it is claimed that the working conditions existing in most buildings are improved, with the result that the efficiency of those affected is increased. This system will keep the humidity of the air at any desired point. This booklet is of undoubted interest to architects, and is designed to fit the American Blower Co.'s catalogue binder.

BOOK REVIEWS.

"INDICATION IN ARCHITECTURAL DESIGN": By D. Varon, architect, formerly Professor of Architectural Design at Syracuse University, and at the University of Illinois. New York: The William T. Comstock Company.

This book is a treatise on a natural method of studying architectural design with the help of indication as a means of analysis. Its object is to inspire the student, helping him to discover the unlying principles of architectural composition with a view to bringing out the best that the individual can produce. This book will prove useful to architectural students particularly. The plates illustrating the author's sketches comprise the large portion of the book. They are used as examples of the author's methods, and are an inspiration to the student architect.

"HAND LETTERING FOR ENGINEERS, ARCHITECTS, SURVEYORS AND STUDENTS OF MECHANICAL DRAWING": By Wilfrid J. Lineham, head of Engineering Department, University, London. New York: E. P. Dutton & Co.

The object of this book is to minister to the needs of students by means of direct practice in the kinds of lettering most required by engineers, architects and surveyors. As a text book of lettering it is very complete, and if followed by the student, gives him a course in lettering which is valuable, and which, if continued, should make him an expert in hand-lettering, such as is required by engineers, architects and surveyors.

"KIDDER'S ARCHITECTS' AND BUILDERS' POCKET BOOK": By the late Frank E. Kidder. Present edition revised and rewritten by Thomas Nolan, editor-in-chief, Professor of Architectural Construction, University of Pennsylvania, and a staff of specialists. Sixteenth edition. John Wiley & Sons, New York.

This is a new and rewritten edition of the "Architects' and Builders' Pocket Book." The work devoted to its revision requiring over three years on the part of the editor-in-chief and his associate editors. The original plan of the subject matter has been retained, but on account of the comprehensive nature of the contents the many recent changes and rapid developments in different fields of architectural construction, and the consequent effect of such changes on the subjects treated the entire work has been rewritten. Part one deals with a practical application of arithmetic, geometry, trigonometry. Part two deals with materials of construction and the strength and stability of structures, and part three with miscellaneous information for architects and builders. Part two contains a new chapter on reinforced concrete mill and factory construction. The interesting general information of part three on such subjects as heating and ventilation, hydraulics, plumbing and draining, acoustics, etc., has all been thoroughly revised.

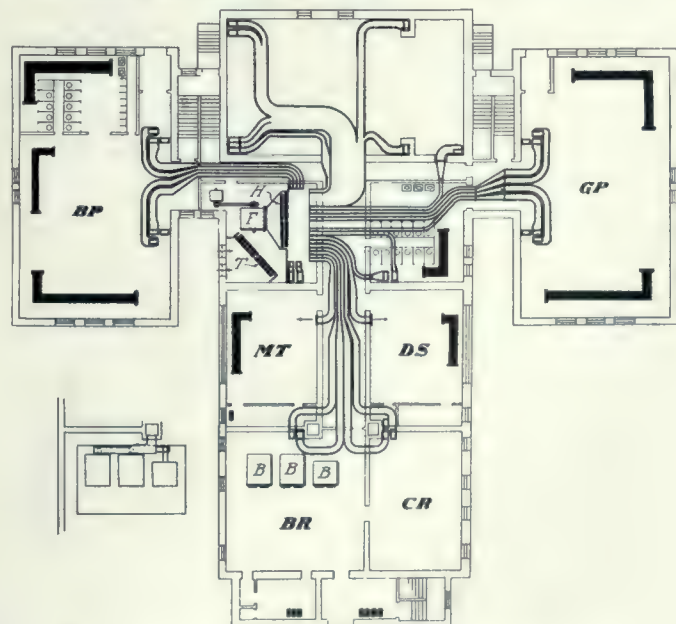


Fig. 10. Showing Arrangement in Basement of an Individual Duct System

Construction News

The following information is obtained from our correspondents, from architects, engineers and by our staff. These items are published in our Building Report Service, and are herein compiled for the use of subscribers to the monthly issue of "Construction." Should any of our readers desire this information daily we shall be pleased to submit prices upon request.

BUSINESS BUILDINGS.

DAVIDSON, SASK.—Contract let by the Bank of British North America for the building of a bank of brick construction at Davidson, Sask., to cost \$15,000.

NIAGARA FALLS, ONT.—Are preparing plans for office building to cost \$10,000.

OTTAWA, ONT.—Contract let for the electrical material for re-wiring the Parliament Buildings.

ST. MARY'S, ONT.—Plans are being prepared to erect a restaurant, to cost \$4,000.

STRATFORD, ONT.—The Public Utilities Commission contemplate erecting a modern office building, to cost \$15,000.

TORONTO, ONT.—G. V. Gray Construction Co. have received a contract to erect an additional building to the Harris Abattoir, on St. Clair avenue, to cost \$3,000.

WINDSOR, ONT.—Plans have been prepared for a new bank building of brick and stone construction, to cost \$30,000. The Universal Realty Co. contemplate an office building to be erected on Ouellette street, to cost \$300,000.

WINNIPEG, MAN.—Tenders are open for the completion of the new Parliament Buildings.

CIVIL ENGINEERING.

BIRD'S HILL, MAN.—Tenders are open for reinforced culverts. Tenders close August 15.

BALDUR, MAN.—Contracts let for the building of bridges over the Pembina River.

CHANDLER, QUE.—Tenders have been called for the extension of wharf 200 feet.

CHATHAM, ONT.—Bridges addition.

LINDSAY, ONT.—Tenders open for bridges over Nonquon River.

LONDON, ONT.—Contract let for sewers.

LONDON, ONT.—Tenders have been called for bridges on King street highway bridge and Adelaide street highway bridge. Tenders are being called for cement floors, Transportation building, Queen's Park, London.

MOOSE JAW, SASK.—Tenders are being called for several bridges, reinforced concrete. Tenders close August 7.

NIAGARA FALLS, ONT.—Contract awarded to Somerville & Dillworth for paving 20,000 feet walk. Contemplated that a dam should be built below falls to develop power.

OTTAWA, ONT.—Contract let for a 25-foot bridge at Huntley.

OKANK, MAN.—Tenders are being called for a 70-foot pile bridge. Tenders open for bridge north of section 24-12-5 east.

SARNIA, ONT.—Tenders are being called for bridge.

ST. LEONARD DE PORT MAURICE, QUE.—Tenders are being called for waterworks.

SUDBURY, ONT.—Tenders are being called for 1,500 lineal feet cement sidewalks.

TORONTO, ONT.—Contract let for concrete wall.

WINNIPEG, MAN.—Contract let for bridge 50 feet long. Tenders wanted for paving traffic bridge over Saskatchewan River.

WELLAND, ONT.—Contract let for concrete bridge over Twelve-mile Creek.

WOODSTOCK, ONT.—Tenders are being called for 5,000 feet tile drain.

WINDSOR, ONT.—Contract let for paving; cost \$40,000.

WALKERVILLE, ONT.—Contract let for concrete pavement of several streets.

CLUBS, HOSPITALS, THEATRES AND HOTELS.

CALGARY, ALTA.—Alex. Pantages contemplate theatre.

HAMILTON, ONT.—Contract awarded for nurses' home, to cost \$75,000.

INGERSOLL, ONT.—Plans are being prepared for hospital addition, Thames street.

MONTREAL, QUE.—Plans have been drawn for hospital building to cost \$20,000. Keith & Orpheum Circuits contemplate theatre. F. W. Stair, Toronto, contemplate theatre. Plans prepared and tenders will soon be open for picture theatre, to cost \$120,000.

MONCTON, N.B.—Contract awarded for opera house, to cost \$50,000.

NINETTE, MAN.—Tenders are open for addition to the infirmary.

QUEBEC, ONT.—Plans are drawn for hospital addition.

RENFREW, ONT.—Plans drawn for curling rink, to cost \$7,000.

SASKATOON, SASK.—Contract let for hospital building.

TORONTO, ONT.—Preparing plans for theatre to cost \$100,000. Preparing plans for Hydro to cost \$200,000. Plans drawn for theatre alterations to cost \$1,500. Tenders are being called for Hospital for Sick Children.

TIMMINS, ONT.—Tenders are being called for hospital, to cost \$30,000.

TRAIL, B.C.—Contemplate two theatres to cost \$100,000.

VANCOUVER, B.C.—Plans drawn for hotel alterations to cost \$10,000. Plans drawn for theatre, to cost \$250,000.

WINNIPEG, MAN.—Plans drawn for theatre alterations, to cost \$15,000.

PLANTS, FACTORIES AND WAREHOUSES.

ASSINIBOIA, SASK.—Tenders are being called for power house and heating plant.

BRACEBRIDGE, ONT.—Tenders are being called for plumbing, radiators, septic tanks, Central Public Schools.

BRANDON, MAN.—Contract let for plumbing and heating Telephone Exchange Building.

BERLIN, ONT.—Plans have been drawn for hardware store, to cost \$5,000.

BRANTFORD, ONT.—Contract let for machine shop and garage of brick construction. Tenders are being called for garage and sales room, to cost \$40,000, on Darling and Queen streets.

CLINTON, ONT.—Contract awarded for drying kiln of brick and frame construction, to cost \$5,000.

DUNNVILLE, ONT.—American Natural Gas and Gasoline Co., Ltd., contemplate a gasoline plant, to cost \$40,000.

EDMONTON, ALTA.—The C.N.R. contemplate a machine shop and storehouse, to cost \$60,000. They have also awarded contract to Nesbitt & Co. for the erection of stores and machine shop, to cost \$65,000.

FORT WILLIAM, ONT.—Tenders are being called for plumbing at civic buildings. Contract awarded for grain elevators, to cost \$700,000.

GALT, ONT.—Roelofson Machine and Tool Co. contemplate a factory. Tenders are being called for factory addition.

GRAND RAPIDS, SASK.—Plans have been drawn for pulp and paper mills, to cost \$2,000,000. Owner, Manitoba Power, Pulp and Paper Co.

HAMILTON, ONT.—Work to go on co-operation, to cost \$12,000. Wellington street north. Preparing plans for factory, King William and Victoria street, to cost \$40,000. Preparing plans for machine factory, Sherman avenue north, to cost \$125,000. Plans drawn for factory, Sturton street, of brick construction, to cost \$10,000. Contract let for plumbing and electric wiring the City Hospital. Contract let for plumbing work at the City Hall. International Nickel Co. contemplate factory, to cost \$100,000. Contract has been awarded to William Yates for the erection of walls of factory addition, to cost \$20,000.

LINDSAY, ONT.—Contract has been awarded to Westinghouse, Church & Kerr, New York, for munitions plant, to cost \$200,000.

LONDON, ONT.—Silk glove factory; owner, H. S. Hall, New Jersey; contract awarded to Hyatt Bros. for the erection of a warehouse, to cost \$18,000. The Canada Cereal Co. have had plans drawn for factory addition, to cost \$7,500. Contract has been let for heating and ventilating the county building.

MONTREAL, QUE.—The Montreal Light, Heat and Power Co. have had plans drawn for factory of brick construction, to cost \$20,000. Price Bros. are having plans prepared for pulp making plant, cost over \$100,000. J. J. Joubert, Ltd., have had plans drawn for factory, to cost \$8,000. Montreal Blanket Co. have had plans drawn for a factory, to cost \$5,000. Horace Chagou has had plans drawn for factory, to cost \$10,000. Canada Sugar Refining Co. have had plans drawn for factory, to cost \$4,000. Canada Tube and Iron Co. have had plans drawn for factory, to cost \$1,000. Henry Morgan & Co. have had plans drawn for warehouse, to cost \$40,000. S. Rutherford has had plans drawn for warehouse, to cost \$20,000. Natural Acme Mfg. Co. have had plans drawn for factory, to cost \$12,000. Peck Rolling Mills have had plans drawn for factory, to cost \$6,000.

NORMANDALE, ONT.—Dr. Burt has had plans drawn for fish hatcheries, to cost \$35,000.

NIAGARA FALLS—Contemplated power plant, to cost \$100,000,000.

POPLAR ISLAND—Westminster Marine Railway Co. have had plans drawn for shipbuilding yards, to cost \$70,000.

PETERBORO, ONT.—Tenders are being called for heating, ventilating, electric wiring and plumbing at the South Central School.

PORT ARTHUR—Contract let for roundhouse and machine shop, to cost \$30,000.

PERTH, ONT.—Henry K. Wampole & Co. have had plans drawn for factory addition, to cost \$25,000.

RED DEER, ALTA.—Campbell, Wilson & Horne contemplate warehouse, to cost \$40,000.

RENFREW, ONT.—Contract awarded by the South Renfrew Agricultural Society for the erection of a machinery hall, to cost \$5,000.

SYDNEY, N.S.—Plans to be prepared for nickel refining plant by the International Nickel Co., U.S.A.

STRATFORD, ONT.—Contract awarded for factory addition by the Stratford Brass Works, to cost \$5,000. Contract awarded for boiler and engine room by the Ballantyne Knitting Co., to cost \$10,000.

SHERBROOKE, QUE.—Contract has been awarded by the Canadian Connecticut Cotton Mills for cotton mills, to cost \$120,000.

SASKATOON, SASK.—Contract let for heating plant Collegiate Institute.

SARNIA, ONT.—H. J. Neal Baking Co. are preparing plans for factory, to cost \$20,000.

ST. THOMAS, ONT.—Monarch Knitting Mills, Dunnville, are preparing plans for knitting mills, to cost \$50,000. American Brakeshoe Foundry Co. have awarded contract for foundry.

TILLSONBURG, ONT.—Michigan Central Railway have had plans drawn for freight shed, to cost \$6,000.

TIMMINS, ONT.—Tenders are being called for plumbing and heating (T. and N. O. Railway).

TORONTO, ONT.—Dominion Government, Ottawa, Ont., are calling tenders for examining warehouse, Front street, to cost \$500,000. The Canada Cycle and Motor Co., Ltd., have awarded contract for factory, to cost \$100,000; tenders are still open for electric and power wiring, heating and high pressure piping. T. Eaton Co. have awarded contract for factory, to cost \$750,000; they have also awarded contracts for fancy embroidery factories; work started on alterations and additions to store, to cost \$3,500. Contracts awarded by the T. Eaton Co. for garage and factories, to cost \$250,000. G. V. Gray Construction Co. have received a contract for the erection of a bridge by the Harris Abattoir Co. on St. Clair avenue, near New street, to cost \$1,500. Tenders are being called for plumbing by Edwin Hatfield. Contracts have been awarded by the T. Eaton Co. for factories, to cost \$75,000. Brick work finished of Training College, on Davisville avenue, to cost \$90,000. Gray Mfg. and Machinery Co. have had plans drawn for garage, to cost \$300. Tenders are being called by Canada Cycle and Motor Co. for factories, to cost \$100,000. Goodyear Tire and Rubber Co. contemplate factory, to cost \$250,000. Work commenced on factory on Dufferin road, to cost \$10,000. H. Goldman has had plans drawn for addition to factory, to cost \$1,200. Russell Motor Car Co. are calling for tenders for factory, to cost \$100,000. Work commenced on warehouse addition (owners, Campbell Flour Mills Co.), to cost \$17,000. J. H. Cairncross has had plans drawn for carpenter shop, to cost \$1,200. Southam Press, Ltd., have had plans drawn for stock room addition, to cost \$4,000. Central Press Agency have had plans drawn for factory, beams of brick construction. The T. Eaton Co. have had plans drawn for double deck overhead bridge, Alice street, steel construction, to cost \$1,200. Gold Medal Furniture Co. have had plans drawn for addition to pump house, to cost \$500. S. Rabinovitch has had plans drawn for warehouse, to cost \$2,000. Tenders are being called by the Canada Cycle and Motor Co. for factory buildings, to cost \$100,000. Work to commence at once on machine shop addition; owners, Clark & Darch. Contracts have been awarded by the T. Eaton Co. for warehouse (now excavating), Terauley street. Automobile Supply Co. have had plans drawn for sprinkler tank, to cost \$1,000. Tenders are being called for planing mill for roofing. F. J. James & Co. have had plans drawn for sheet iron smokeless ovens. Gutta Percha Rubber Co. have awarded contracts for factories. Tenders are being called for plumbing, wiring, plastering (owner, Mr. McDonald), 55 Wolfrey avenue. Toronto Plaster Co. have had plans prepared for factory and storehouse, to cost \$3,000. The T. Eaton Co. have had plans and work commenced on factory. H. Greisman has had plans drawn for warehouse on Richmond street. Cluff Ammunition Co. have had plans prepared for two temporary frame galvanized factory additions, to cost \$3,000. Conduits Co., Ltd., preparing plans for factory, to cost \$3,000. Tenders are being called for ice plant, Front street. Contract let for examining warehouse, Front street. Tenders are being called for plumbing and wiring 55 Wolfrey avenue and 194 Ossington avenue. H. Carhartt & Co. have awarded contracts for factory addition, Queen street east. Work commenced on coal elevator, Dufferin street (owners, Conger Lehigh Coal Co.). Sir J. C. Eaton has had plans drawn for one-storey concrete and brick building, to cost \$5,000. Work commenced on warehouse, Cawthra avenue (owners, Campbell Flour Mills). Toronto Harbor Commission have had plans drawn for blacksmith and machine shop, to cost \$2,700. Work commenced on factory on Dufferin street (owners, Canada Cycle and Motor Co.). Tenders are being called for factory, Paton road (owners, Canadian Bag Co.). Tenders are being called for brick work, carpentering, roofing, wiring and drains for factory. Work commenced shipping house, Davenport works. Tenders are being called for plumbing by Alex. Park. Tenders are being called for factory, to cost \$50,000, by Northrop & Lyman Co.; they have also awarded contract for factory, to cost \$50,000. Tenders are being called by the T. Eaton Co. for factory on Bloor and Dufferin streets. Work started on boiler room, to cost \$2,500 (owners, City of Toronto). Work commenced on blacksmith and machine shop (owners, Toronto Harbor Commissioners). John Reid & Co. have had plans drawn for blacksmith shop to be erected, to cost \$2,000. Southam Press are calling for tenders for factory, to cost \$4,000. Tenders are being called by the Harry Webb Co. for factory, to cost \$40,000. Canadian Allis Chalmers, Ltd., have had plans drawn for factory addition. Willys-Overland Co., Ltd., have had plans drawn for factory addition, to cost \$1,000. The T. Eaton Co. are excavating for factory, to cost \$60,000, Bloor and Dufferin streets. Contract has been awarded by the Goodyear Tire and Rubber Co. for factory, to cost \$750,000.

VANCOUVER, B.C.—The New England Fish Co. are preparing plans for factory, to cost \$300,000. Work commenced on factory building (owners, Canadian Products, Ltd.), to cost \$15,000. Alberta Lumber Co. have had plans drawn for lumber mill, to cost \$100,000.

WAY'S MILL, QUE.—Barnston Woolen Mills have had plans drawn for factory, to cost \$20,000.

WINDSOR, ONT.—United States Steel Corporation contemplate steel plant, to cost \$25,000,000.

WINNIPEG, MAN.—Contract let by D. Balcovski for the erection of abattoir, to cost \$150,000. Union Stock Yards have had plans drawn for packing and abattoir plant.

PUBLIC BUILDINGS AND STATIONS.

BOISDALE, N.S.—The Dominion Government are calling for tenders for station building.

CHATEAUGUAY, QUE.—Contract let for iron bridge, Norton Creek.

CHARLOTTETOWN, P.E.I.—Contract let for city hall addition.

COPPER CLIFF, ONT.—Contract let for sewage pumping station.

CONCORD, ONT.—McLeod & Co. have commenced work on institution, to cost \$60,000.

CALGARY, ALTA.—The G.T.R. have had plans drawn for station, to cost \$15,000. Tenders are being called by the Department of Public Works, Alberta, for drill hall, to cost \$20,000.

DAUPHIN, MAN.—The Town Council contemplate steel bridge over river valley, to cost \$10,000. Contract awarded to commence work on law court.

GALT, ONT.—Tenders are being called for a pavilion in Jackson Park. Work to commence on telephone exchange, Ainslie street (owners, Bell Telephone Co.). Contracts awarded for band stand and pavilion by the city of Galt.

HALIFAX, N.S.—Tenders are being called by the Dominion Government for the erection of Ocean Terminal Station. Hunt Milling Co. are having plans prepared for grain elevator, to cost \$30,000.

MONTREAL, QUE.—Montreal Tramways Co. have had plans drawn for platform, to cost \$2,000.

NELSON, B.C.—Contract awarded for telephone exchange, Stanley street.

QUEBEC, QUE.—La Banque Nationale have awarded contract for bank. International Paper Co. propose pulp mill. St. Anne's College are preparing plans for library, to cost \$6,000.

RIDGETOWN, ONT.—The Town Council have had plans drawn for pumping station, to cost \$3,000.

RENFREW, ONT.—Contract let for office fittings for post office.

SASKATOON, SASK.—Continental Oil Co. have had plans drawn for oil filling station, also auto filling station.

SYDNEY, N.S.—St. Francis Xavier have had plans for library and gymnasium, to cost \$40,000.

TILBURG, ONT.—The town of Tilburg are having plans prepared for public library, to cost \$9,000.

TORONTO, ONT.—Contract awarded and work commenced on Beulah Hall, 23-35 Charles street east. Contract let by the Hydro-Electric for station addition. Work commenced on lavatories, Parks Department, City Hall, to cost \$3,000.

VANCOUVER, B.C.—Contract awarded by the G.N.R. for railway terminal, to cost \$1,000,000. Board of Governors have had plans drawn for university building, to cost \$35,000. McGill University College have had plans drawn for chemistry laboratory and association hall, to cost \$35,000. Canadian Northern Railway have awarded contracts for railway terminal, to cost \$100,000.

WINNIPEG, MAN.—Committee contemplate Odd Fellows' hall, to cost \$40,000. City of Winnipeg have awarded contract for sanatorium addition, to cost \$50,000.

WALLACEBURG, ONT.—Rev. R. J. Hanley proposed a new Y.M.C.A. building to cost \$17,500.

WELLAND, ONT.—Tenders are being called by the Louis Bang for bowling alley of brick construction, to cost \$7,000.

RESIDENCES, STORES AND FLATS.

ANDERTON TOWNSHIP—Wm. Cathlene is preparing plans for residence, to cost \$3,500.

AUBURN, ONT.—C. E. Asquith is preparing plans for residences, to cost \$4,000.

ERIN, ONT.—Contract awarded by J. Glasgow for residence, to cost \$3,000.

BRIGDEN, ONT.—Contract awarded by John Poland for residence, to cost \$4,000.

BROCKVILLE, ONT.—Contract awarded by Miss N. Dargavel for residence, to cost \$5,000.

BRANTFORD, ONT.—Mrs. H. Hamilton has had plans drawn for residence, to cost \$5,000. Chas. Coulson is erecting residence (walls going up), to cost \$1,400. Contract awarded by Mrs. Hamilton for residence, to cost \$4,500. Chatham Packing Co. have had plans for residence and warehouse. J. Stewart has awarded contract for residence, to cost \$6,000. The Norton Co., Ltd., are excavating for twenty-four houses, to cost \$50,000.

EDMONTON, ALTA.—Contract let for store and machine shop. Contract let for Leamington apartments, to cost \$60,000.

FENELON FALLS, ONT.—Tenders are being called for three stores and apartments, to cost \$16,000.

GESTO, ONT.—F. Mitchel has had plans drawn for residence, to cost \$3,000.

GALT, ONT.—Geo. Watson is preparing plans for store (haberdashery), to cost \$5,000. Aug. Vondraw has had plans drawn for store, to cost \$3,500. F. Daub contemplates apartment house, on Moore street, to cost \$15,000.

HALIFAX, N.S.—Eastern Investment Co. are preparing plans for residence, to cost \$5,000.

HAMILTON, ONT.—MacKay Bros. have had plans drawn for residence on Main street east, to cost \$3,000 each. Thomas McCleod has had plans drawn for residence, to cost \$3,000. R. B. Hill has had plans drawn for residence, to cost \$7,000. Mr. Moffat has had plans drawn for residences. Wm. Atkinson has had plans drawn for residence, to cost \$8,000. A. McIntyre has had plans drawn for store, to cost \$2,500. J. R. Marshal has had plans drawn for residence, to cost \$5,250. Contract awarded by H. Y. Hart for residence, to cost \$5,000. G. Fitzgerald has had plans for residence. Contracts awarded by Mr. Wilson for the erection of residence, to cost \$4,000. Contract awarded by W. Chiswell for residence, to cost \$5,000. Contracts awarded by Mr. McKim for residence, to cost \$5,000. Contracts awarded by M. E. McNevin for bungalow, to cost \$2,500. Excavating started on Dr. Truman's residence, to cost \$5,000. The Wilson Building Co. have had plans drawn for residence, to cost \$3,000. Plans drawn for residence of Mrs. Burchell, to cost \$3,500. S. Sanzone has had plans drawn for residence, to cost \$3,500. Tenders are being called for eight suite apartment, to cost \$20,000. Contract awarded for two houses, \$1,200 each. Contract awarded for residence, to cost \$2,200, by Mr. W. C. McLarity; he has also awarded contract for residences, to cost \$2,200 each.

KINGSTON, ONT.—Tenders are being called for residence, to cost \$5,000.

LONDON, ONT.—Contract awarded for residence, to cost \$3,000, by H. C. Colirick. W. Coonmall is having plans pre-

pared for residence, to cost \$3,000. Contract awarded by Ald. Burdick for residence, to cost \$3,000. Contract awarded for apartment house, to cost \$10,000, by R. H. McKnight. H. N. Abel has had plans drawn for residence, to cost \$3,500. M. Nornstein has had plans drawn for residence, to cost \$10,000. J. Hubbert has plans drawn for residence, to cost \$3,500. Copp Syndicate, excavating residences, to cost \$12,000. Contracts awarded for residences by Charles Hunter, to cost \$3,000; by J. Routledge, to cost \$3,200; by Geo. Poole, to cost \$3,500. F. Henderson is preparing plans for residence, to cost \$7,000. John Armstrong is preparing plans for residence, to cost \$3,000.

MILVERTON, ONT.—Martin Berger is having plans drawn for residence, to cost \$3,500.

METCALFE, TOWNSHIP.—Mr. J. Denning has had plans drawn for farm buildings, to cost \$3,000.

MELFORT, SASK.—Jas. Davidson has had plans drawn for residence, to cost \$5,000.

MONTREAL, QUE.—H. Dibarrat has had plans drawn for residences, to cost \$7,000. E. Sauvagean has had plans drawn for residences, to cost \$6,000. A. R. Forest has had plans drawn for residences, to cost \$4,000. Provincial Bank has had plans drawn for store, to cost \$4,000. J. E. Lavelle has had plans drawn for one store and three residences, to cost \$7,000. M. Gaffin has had plans drawn for residences and theatre, to cost \$10,000. H. Berlett has had plans drawn for residences, to cost \$5,000. S. A. Pitt has had plans drawn for residence, to cost \$3,600. A. Allain has had plans drawn for residences, to cost \$10,000. Jack Estate has had plans drawn for one store and two residences, to cost \$10,000. Ed. Blake has had plans drawn for five residences, to cost \$10,000. J. A. Gougeon has had plans drawn for two stores and two residences, to cost \$15,000. E. G. Place has had plans drawn for residence, to cost \$5,000. Mrs. John Mitchell has had plans drawn for residence, to cost \$3,000. C. K. Dufresne has had plans drawn for one store and two residences, to cost \$6,000. W. K. Gillespie has had plans drawn for residence, to cost \$8,000. S. Gilmore has had plans drawn for residence, to cost \$8,000. Peter Singerman has had plans drawn for store, to cost \$3,500. Dupuis Freres, Ltd., have had plans drawn for store, to cost \$2,500. Semine St. Sulpicem have had plans drawn for store, to cost \$3,577.

WEST NISSONOI—J. Murphy is preparing plans for residence, to cost \$4,000.

NORMANDALE BEACH, ONT.—Mrs. J. Spink has had the plans drawn of her summer residence, to cost \$3,000.

NIAGARA FALLS, ONT.—Dr. Harry Grant is preparing plans for residence and garage, to cost \$50,000. Dawson Bros. are preparing plans for residence.

OSHAWA, ONT.—Tenders are being called for residence by M. Finnegan, to cost \$8,000. Tenders are being called by W. J. Burns for residence, to cost \$8,000.

PORT ROWAN, ONT.—Geo. Lonks is preparing plans for residence, to cost \$3,500.

PARKHILL, ONT.—Tenders are being called by Quartley Building for residence, to cost \$3,000.

PORT STANLEY, ONT.—J. C. Duffield has had plans drawn for residence, to cost \$15,000.

PRESTON, ONT.—R. Osgood has drawn plans for store front, to cost \$3,000.

QUEBEC, QUE.—Plans drawn for four residences, costing \$8,000, \$6,000, \$7,000 and \$10,000.

ROMNEY TWP.—S. Baker awarded contract for residence, to cost \$4,000.

RUTHVEN, ONT.—Cameron Wile, preparing plans for residences, to cost \$6,000.

RENFREW, ONT.—Contract awarded by Thos. A. Low, for seven residences to cost \$8,000. Plans drawn for five residences, to cost \$15,000. J. K. Rochester has had plans drawn for two apartments and garage, to cost \$6,000. Donald Campbell has awarded contracts for the erection of four residences, walls going up. Joseph Legree is excavating for residence, Hall and Plaunt streets, to cost \$6,000. Work commenced on eight residences, Plaunt street, to cost \$5,000. Patrick Enright contemplates residence, Bar street, Hillcrest, to cost \$2,500.

ST. THOMAS, ONT.—Work commenced on residences, to cost \$2,000.

SYDNEY, N.S.—Tenders are being called by the Provost Marshal Noble for a residence, to cost \$8,000. Contract awarded by W. J. Power for residence, to cost \$6,000.

SARNIA, ONT.—R. McKnight has had plans drawn for apartment house, to cost \$5,000.

STRATHROY, ONT.—R. W. Nicholson has had plans drawn for residence, to cost \$3,000.

STRATFORD, ONT.—Geo. Kalbfleisch has given instructions for work to commence at once on residence, to cost \$3,000.

ST. CATHARINES, ONT.—Tenders are being called by the Victoria Lawn Cemetery for the erection of residence, to cost \$2,500. Tenders are being called by the City of St. Catharines for the erection of residence, to cost \$5,000.

ST. JOHN, N.B.—Work commenced on residence, to cost \$3,000. Work commenced on residence of Dr. G. Hannah, to cost \$5,000.

THEDFORD, ONT.—J. Bullen is preparing plans for residence, to cost \$4,000.

TORONTO, ONT.—M. H. Crock has had plans drawn for duplex residence, to cost \$1,500. H. Moore has had plans drawn for residence, to cost \$1,500. Dr. John C. Hall has had plans drawn for residence, to cost \$3,000. Contract awarded by J. Hill for one pair semi-detached residences, to cost \$4,000. Hydro-Electric has had plans drawn for Hydro addition, to cost \$90,000. Dr. J. W. Russell has had plans drawn for residence, to cost \$2,000. Work commenced on four pairs semi-detached residences, to cost \$16,000. Wm. Isbister has had plans drawn for residence, to cost \$4,000. Lewis Buttershill has had plans drawn for residence, to cost \$2,500. Tenders are being called by A. Jeffery for the erection of two pairs residences, to cost \$5,000. Joseph Hill has had plans drawn for two pairs semi-detached residences, to cost \$4,000. Wm. T. Sinclair contemplates one pair residences, to cost \$6,000. The Trust and Guarantee Co. have contemplated ten residences to be erected, to cost \$15,000. Wilkins & Co. have had plans drawn for the erection of store front, to cost \$1,000. Contracts have been awarded by

Charles C. Blackwell for residence, to cost \$40,000. Contract let for residence, to cost \$4,000. Tenders are being called by Robert Whiteway for the erection of one pair of residences, to cost \$5,000. E. C. Havelbut contemplates residence to be erected on Briar Hill avenue, to cost \$3,500. J. Woodworth contemplates residence in North Toronto, to cost \$5,000. Tenders are being called by L. W. Doncaster, Nightingale & Smith, and G. Riley for various trades. Tenders are being called by Greenspan for the erection of apartment house, to cost \$15,000. F. E. Gibson has had plans drawn for residence, to cost \$3,500. W. R. Smith has had plans drawn for one pair residences. Work to start at once on one pair of residences (owner, J. F. Schooley). G. H. Harper has had plans drawn for residences, to cost \$4,000. Work will not proceed with store and residence belonging to Linder Bros. A. P. McEarcheron has had plans drawn for residence, to cost \$3,500. Work to start on store front, to cost \$3,000. Work commenced on residence and garage, to cost \$6,000. R. Robtburkell has had plans drawn for residence, to cost \$3,000. Muir Lumb has had plans drawn for one private semi-detached residence, to cost \$8,000. H. Gordon M. McKenzie and W. W. Dundas have had plans drawn for one store front to be erected. John McMaster has had plans drawn for residence addition (front), to cost \$1,000. J. J. Downey has had plans drawn for one pair semi-detached residences, to cost \$6,000. C. Black has had plans drawn for residences, to cost \$5,000. Wells Bros. have received a contract from the Robert Simpson Co. to commence work (home), to cost \$200,000, work to start at once on residence. W. G. McWaters has had plans drawn for residence, to cost \$3,000. John McCullam has had plans drawn for residence, to cost \$3,000. F. A. Parker is having plans drawn for residence, to cost \$5,000. Contract has been awarded by Mrs. M. McLennan for residence, to cost \$4,000. Geo. Jackson has had plans drawn for residence, to cost \$1,000. Chas. S. Blackwell has had plans drawn for residence, to cost \$35,000. Hubbs & Hubbs is having plans prepared for residence, to cost \$5,000. Mr. Crawford and Mr. MacClintock have had plans drawn for residence, to cost \$2,500. A. Harvie has had plans drawn for residence, to cost \$1,000. John Kaake has had plans drawn for residence and garage, to cost \$3,200. F. Smith has awarded contracts for residence, to cost \$5,000. Hubbs & Hubbs are having plans prepared for residence, to cost \$5,000. J. R. Gillard is preparing plans for residence, to cost \$5,000. Ontario Wind Engine and Pump Co. have had plans drawn for storehouse, to cost \$3,500. J. T. Moore has had plans drawn for residence, to cost \$4,000. M. Edmonds has had plans drawn for residence, to cost \$3,500. W. B. Sharlton has had plans drawn for residence, to cost \$1,500. Tenders are being called by the Toronto Brick Co. for new store front (from fire). H. A. Johnston awarded contract for work to commence on residence and garage, to cost \$7,000. Work commenced on store and apartments, to cost \$12,000. C. Hough has had plans drawn for residence, work to commence July 10th, to cost \$3,500. Mrs. E. Greenspan has had plans drawn for stores and apartments, to cost \$10,000. H. McLean has had plans drawn for residence, to cost \$4,500. R. C. A. Cassels is having plans prepared for residence addition, to cost \$5,000. Kerr & Martin have had plans prepared and work to commence at once on residence, to cost \$4,000. John Firstbrook has let contract for residence, work to start at once, to cost \$6,000. B. J. Case has had plans drawn for residence, to cost \$3,500, work commenced on cottage. S. F. Lankin has had plans drawn for residence, to cost \$2,500. Tenders are being called by J. Slade for one private residence; work to commence at once on residence addition, to cost \$2,000. Tenders are being called by Mr. Johnston for one detached residence. G. N. Ferrier has had plans drawn for stores and apartments, work to commence at once. McKindley & Bingham have had plans drawn for apartment house, to cost \$25,000. Thos. Heron has had plans drawn for one private semi-detached residence, to cost \$3,800. R. Boys has had plans drawn for residence, to cost \$3,000. Tenders are being called by L. White & Sons for the erection of store, on Queen street. Residence, work to commence, to cost \$3,000. Work to commence on residence, to cost \$3,000. E. Scoffon has had plans drawn for residence, to cost \$2,500. J. Lucas is having plans prepared for one private residence. W. R. Smith has had plans drawn for one private semi-detached residence, to cost \$2,000. Harry Lucas has started excavating four private semi-detached residences, to cost \$14,000. H. J. Hall has had plans drawn for sun room, to cost \$1,200. L. H. Lankin has had plans drawn for one private semi-detached residence of roughcast, to cost \$2,450. J. M. Cairns has had plans drawn for residence, to cost \$1,000. John McMaster has had plans drawn for residence, to cost \$1,500. Mr. Spinks has had plans drawn for residence addition, to cost \$600. A. C. Palmer has had plans drawn for one detached residence, to cost \$1,000. Robert Burkell has had plans drawn for residence, to cost \$3,000. James Murray has had plans drawn for store alterations, to cost \$1,500. A. E. Warrington has had plans drawn for two detached residences, to cost \$4,000. Work to commence at Arlington avenue on one detached residence, to cost \$2,000. John Welsh has had plans drawn for one detached residence, to cost \$2,500. E. C. Hurlbut has had plans drawn for residence, to cost \$3,500. The foundation of the home of Robert Simpson has been completed, to cost \$100,000. R. H. Whiteway has had plans drawn for one detached residence, to cost \$2,500. J. Woodworth has had plans drawn for residence, to cost \$5,000. Contract has been awarded by H. A. Ryan for the erection of residence and garage, to cost \$4,000. Work to commence on duplex residence at 58 Sorauren avenue, to cost \$4,500. Contract awarded by W. H. Gibson for the erection of duplex residence, to cost \$4,000. A. A. Graham has had plans drawn for one private residence, to cost \$3,500. A. O. Scott has had plans drawn for residence, to cost \$4,000. Contract awarded by A. W. Clendenen for the erection of one private residence, to cost \$5,000. Work to commence on three private residences, to cost \$13,000. J. L. Corley has had plans drawn for two residences, to cost \$7,000. J. Haken is excavating residence, to cost \$2,500. Miss A. Parker has had plans drawn for residence, to cost \$1,000. Revised report on the residence of John Firstbrook, to cost \$30,000. A. H. Brittain has had plans drawn for residence, to cost \$8,000. H. H. Hill has had plans drawn for residence, to cost \$1,000. J. K. Heaman is excavating residence, to cost \$4,000. G. N. Heaman is preparing plans for two semi-detached residences, to cost \$2,000 each. Charles Thorpe has had plans drawn for residence, to cost \$1,000. F. C. Clarkson has had plans drawn for verandah and sun room, to cost \$600. S. B. Coon & Son have had plans drawn for duplex residence alterations, to cost \$600. S. G. Whaley has had plans drawn for residence, to cost \$3,500. Tenders are being called by J.

Barrett Specification Roofs

Guaranteed for 20 Years

MADE IN CANADA

This Twenty Year Guaranty Bond is a new and important addition to our service.

It will hereafter be given on all Barrett Specification Roofs of fifty squares or more in all towns in Canada and the United States of 25,000 population and over, and in smaller places where our inspection service is available.

All you have to do to secure the Guaranty Bond is to give the roofing contractor a copy of The Barrett Specification dated May 1, 1916, and tell him to figure on that basis. The specification of that date includes the 20 year Surety Bond provision.

Our only requirements are, that the roofing contractor shall be approved by us and the specification of the date mentioned shall be strictly followed. We know from the experience of over fifty years that such a roof will last 20 years *and more* without repairs of any kind.

The Surety Bond will be issued by the United States Fidelity & Guaranty Company and will be furnished by us *without charge*.

Our inspector will pass upon the quality and quantity of materials and workmanship and see that the roof is laid so as to give maximum



An Important Addition to Our Service

service. From the buyer's standpoint this arrangement is ideal. Under the plan he is assured of having an inspector on his roof whose only interest is to make it *as good as possible*.

The principal architects, engineers and roofing contractors throughout the Dominion are familiar with the plan and are cooperating with us.

If you wish any further information regarding the guaranty, write our nearest office and the matter will have prompt attention.

A copy of The Barrett Specification, with roofing diagrams, sent free on request.

THE PATERSON MANUFACTURING COMPANY, LIMITED

MONTREAL

TORONTO

WINNIPEG

VANCOUVER

THE CARRITTE-PATERSON MANUFACTURING CO., LIMITED

ST. JOHN, N.B.

HALIFAX, N.S.

SYDNEY, N.S.

Hickens for the erection of residence, to cost \$2,500. Work to commence on residence addition, to cost \$2,000. Tenders are being called by F. W. Hill for the erection of duplex residence, to cost \$5,000. Tenders will be called shortly for the altering of five stores, to cost \$5,000. Tenders are being called by S. M. Hamblly for the erection of two stores and apartments, to cost \$15,000. Tenders are being called by Dr. G. W. Clendenen for the erection of stores and apartments, to cost \$10,500. Contract awarded by H. R. Glass for residence alterations, to cost \$1,500. C. Mann has had plans drawn for residence, to cost \$2,000. A. Perlmutter has had plans drawn for altering store front, to cost \$500. Tenders are being called by the Rev. R. M. Hamilton for garage, to cost \$750. Plans have been drawn for five garages. R. A. Speer has had plans drawn for garage, to cost \$125. W. Ashall has had plans drawn for garage, to cost \$300. J. E. Diamond has had plans drawn for garage, to cost \$300. Chas. S. Blackwell has had plans drawn for garage, to cost \$3,000. Plans have been drawn for five private garages. Plans have been drawn for two private garages. Contracts awarded by the T. Eaton Co. for the erection of garage. Plans have been drawn for six private garages to be erected. A. P. Burritt has had plans drawn for private garage. The Toronto Electric Light Co. have had plans prepared for garage to be erected, to cost \$2,500. Tenders are being called by Suroff Hardware for garage. Plans drawn for private garage, to cost \$400. Plans have been drawn for two private garages to be erected, to cost \$650. G. T. Clarkson has had plans drawn for garage, to cost \$1,000. Contract has been awarded by A. G. Strathy for garage, to cost \$2,000.

VANCOUVER, B.C.—Mrs. Field has had plans drawn for residence, to cost \$2,500.

WINNIPEG, MAN.—The I.O.O.F., Manitoba, has had plans drawn for home, to cost \$40,000.

WALKERTON, ONT.—Mrs. Erdman has had plans drawn for store front, to cost \$3,000.

WELLAND, ONT.—Work commenced on residence, to cost \$4,000. Tenders are being called by O. H. Garner for residences.

ZURICK, ONT.—W. Ruby is preparing plans for residence, to cost \$4,000.

SCHOOLS, COLLEGES AND CHURCHES.

ALISA CRAIG, ONT.—Contract awarded to Sterling for school alterations, to cost \$4,000.

BRAMPTON, ONT.—Contract awarded for school, to cost \$25,000.

BRANDON, MAN.—Contemplated school addition of brick construction.

BLACKWOOD, SASK.—Tenders are being called by the High School Board for the Collegiate Institute alterations.

CARLTON PLACE, ONT.—Tenders are being called by the School Board for the erection of a school.

CAMROSE, B.C.—Tenders are being called for by J. L. Willson for school.

CREEMORE, ONT.—Tenders are being called by the School Board for the erection of a six-roomed school.

EGANVILLE, ONT.—Tenders are being called for a church by Rev. M. Voss.

ELMVALE, ONT.—The Public School Board are preparing plans for school, to cost \$14,000.

FORD, ONT.—Contract awarded by the School Board for a school, to cost \$40,000.

FREETOWN, P.E.I.—Tenders are being called by the School Board for school, to cost \$3,000.

GALT, ONT.—Work commenced on school alterations. Contract awarded by the School Board for school addition. Contract awarded for school alterations. Contract let for public school, to cost \$45,000. Contract awarded by the School Board for school, to cost \$45,000.

GRIFFIN, SASK.—Tenders are being called by the School Board for steamheating and ventilating the Griffin Public School.

HAMILTON, ONT.—The Board of Education are preparing plans for school, to cost \$40,000. Christ Church Cathedral have given instructions for work to commence on church addition, on James street north, to cost \$15,000. Tenders are being called for by the Union Church for church, to cost \$9,000. The Board of Education contemplate school, to cost \$40,000.

HAGERSVILLE, ONT.—Contract let for church alterations.

HALIFAX, N.S.—The School Board contemplate school, to cost \$50,000.

KINBURN, ONT.—The School Board contemplate school, to cost \$14,000.

KINGSTON, ONT.—Power & Son have awarded contract for riding school, to cost \$30,000.

LOREBURN, SASK.—The Oxford School Board are calling for tenders for school addition, to cost \$10,000. Union Church contemplate church, to cost \$20,000.

LANDONVILLE, ALTA.—Contract let for school.

LONDON, ONT.—The Board of Education have awarded contract for Technical School, to cost \$158,238.

MALDEN, ONT.—Contract let by the School Board for school, to cost \$3,500.

MINNEDOSA, MAN.—Contract let for school.

MONTREAL, QUE.—Fabriques have had plans drawn for church alterations, to cost \$4,000. The Russian Jewish Synagogue have had plans drawn for church alterations, to cost \$8,000. The trustees of Infant Jesus have had plans drawn for church alterations, to cost \$8,000. Jacques Cartier Normal School have had plans drawn for church, to cost \$65,000. The Church of Notre Dame have had plans drawn for church, cost \$50,000. St. Mary's Polish R.C. Church have had plans drawn for church, to cost \$18,000. The Church Board have had plans drawn for church, to cost \$4,000.

NELSON, B.C.—Contract let by the Board of School Trustees for the school addition.

PORTAGE LA PRAIRIE, MAN.—The Board of Education have awarded contracts for school, to cost \$50,000.

PORT CREDIT, ONT.—Contract let by the School Board for school, to cost \$40,000.

PEMBROKE, ONT.—Tenders are being called for the Pembroke Electric Light Co. for sub-station, to cost \$10,000. Contract let for school, to cost \$40,000. Contract let for school, to cost \$50,000. Tenders are being called for by the Board of Education for High School addition, to cost \$10,000.

RENFREW, ONT.—Contract let for convent (walls going up), to cost \$6,000.

SMITH'S FALLS, ONT.—Board of Education have awarded contract for school, to cost \$35,500.

STEEP CREEK, ALBERTA.—Contract let for school.

SARNIA, ONT.—The Board of Education have had plans drawn for school.

SELKIRK, ONT.—Contract let for school.

SARNIA, ONT.—Shultz Bros. have commenced work on school.

TORONTO, ONT.—Contract let for school alterations. Contracts awarded for dormitory by the city of Toronto; tenders are also open for smaller trades. Contracts have been awarded for church, to cost \$4,000. J. E. Close has had plans drawn for mission addition, to cost \$700. Tenders are being called for by the Beulah Hall for mission, to cost \$20,000. The Monastery of our Lady of Charity have had plans drawn for monastery addition, to cost \$2,200. Tenders are being called for by the Calvary Church for foundation only.

TWEED, ONT.—The High School Board are preparing plans for high school, to cost \$25,000.

TILBURY, ONT.—Tenders are being called for by the School Board for school addition, to cost \$10,000.

VERNER, ONT.—Tenders are being called for by the parish priest of O'Racette for church heating system.

VANCOUVER, B.C.—Tenders are being called for plastering interior of school.

WINNIPEG, MAN.—Contract awarded for church, to cost \$7,000. Tenders are being called for by the School Board for the school alterations.

WILCOX, SASK.—Tenders are being called for by Mr. H. P. Jones for school.

WIARTON, ONT.—Tenders are being called for by the secretary of the School Board for High School addition.

WELLAND, ONT.—Tenders are being called for by T. L. Nichols for school, one room.

WHEATLEY, ONT.—The Public School Board have contemplated school, to cost \$15,000.

MISCELLANEOUS.

CRINNAN, ONT.—J. Zoller has had plans drawn for barn (stock), to cost \$3,000.

HAMILTON, ONT.—R. B. Hice has awarded contract for bakery addition, to cost \$7,000.

LENNOXVILLE, QUE.—Contract let by the Dominion Government for the erection of a dairy cattle barn.

LONDON, ONT.—Empire Manufacturing Co. are excavating storage shed, to cost \$2,500.

MELBOURNE, ONT.—Erin Carruthers has had plans drawn for barn, to cost \$3,000.

MONTREAL, QUE.—The Consumers' Gasoline Co. have had plans drawn for stable, to cost \$2,500. Guarantee Pure Milk Co. have had plans drawn for stable, to cost \$30,000. A. A. Shamrock has had plans drawn for grand stand, to cost \$6,000.

STRATFORD, ONT.—Contract awarded by the municipality for water tower, to cost \$23,000.

SOUTHWOLD TOWNSHIP—Wm. Gunning is preparing plans for stock barn, to cost \$3,500.

TORONTO, ONT.—Tenders are being called by the chairman, T. L. Church, for five-ton traveling beam. Conger Coal Co. have had plans drawn for coal shed, to cost \$1,000. Sir J. C. Eaton has had plans drawn for swimming pool conservatory, to cost \$10,000. Hydro-Electric have had plans drawn for transformer, to cost \$1,000. Contract awarded by Bowles' Lunch, Ltd., for bakery, to cost \$25,000. Work commenced on bakery addition to the Ideal Bread Co., to cost \$4,000. Contract awarded by the Ideal Bread Co. for bakery, to cost \$3,000. The Canadian Express Co. have had plans drawn for stables, to cost \$1,000.

VICTORIA, B.C.—B.C. Mausoleum and Crematory Co. contemplate mausoleum.

VANCOUVER, B.C.—Contract awarded for lighthouse to Snider & Brethour.

GENERAL ANNUAL ASSEMBLY.

The General Annual Assembly of the Royal Architectural Institute of Canada will be held at Quebec, Que., on 8th and 9th September, 1916. A very interesting programme is being prepared which will include matters of interest to every Architect in the Dominion.

Every Canadian Architect is cordially invited and is welcome at all sessions, whether a member of the Royal Institute or not.

CATALOGUES.

Fireproofing.—The Dahlstrom Metallic Door Co. has issued a booklet entitled "Finishing Touch in Fireproofing Your Building." It reviews the subject of wooden doors, and metal-covered wooden doors vs. hollow steel doors. It further deals with mouldings and finish in metal designed to eliminate combustible trim.

CONTRACTORS and SUB-CONTRACTORS

As Supplied by The Architects of Buildings
Featured in This Issue

Building, The Provincial Normal School, Victoria, B.C.

Brick, Nanaimo Pressed Brick Co., Nanaimo, B.C.
Boilers, Colburn Plumbing and Heating Co., Victoria, B.C.
Blackboards slate (English black slate), W. N. O'Neill Co., Vancouver, B.C.
Casements and window construction, Henry Hope & Sons, Ltd.
Chimneys, concrete work, Luney Bros., Ltd., Victoria, B.C.
Doors and window trim, Lemon & Gonnason, Victoria, B.C.
Electric fixtures, Hawkins & Hayward, Victoria, B.C.
Electric time system, Trumbull Electric Mfg. Co.
Hoists (ash hoist), Gillis & Geoghegan.
Expanded metal, "Self-centering Mfg. General Fireproofing Co., Youngstown, Ohio; Canadian agent, Clarence W. Noble, Toronto.
Fire alarm system, Hawkins & Hayward, Victoria, B.C.
Fire doors, Kinner Mfg. Co.
Fire escapes, Westminster Iron Works, New Westminster, B.C.
Flooring, Luney Bros., Ltd., Victoria, B.C.
Fittings (steel lockers), Dennis Wire and Iron Works; (wood), Lemon & Gonnason, Victoria, B.C.
Glass, W. N. O'Neill Co., Vancouver.
Hardware (Yale & Towne), Prior & Co., Vancouver.
Heat regulating system, Powers Regulator Co.
Interphone system, Hawkins & Hayward, Victoria, B.C.
Laundry dryer, Canton Clothes Dryer Co., Canton, Ohio.
Marble, toilet division and shower baths, Alaskan Token (W. N. O'Neill Co., Vancouver).
Ornamental iron, Westminster Iron Works, New Westminster, B.C.
Paints, B. A. Paint Co.
Plumbing, Mott Co. of Canada.
Plaster work, Luney Bros., Ltd., Victoria, B.C.
Reinforcements, Twisted Steel.
Radiators, Colburn Plumbing and Heating Co., Victoria.
Roofing, Welsh Slate.
Stone, Denman Island Stone Co.
Structural iron and steel, Canadian Northwest Steel Co., Vancouver, B.C.
Tile work and fireplaces, W. N. O'Neill Co., Vancouver.
Vacuum cleaners, Barker & Cruise, Vancouver, B.C.
Contractors (general), Luney Bros., Ltd., Victoria, B.C.

Building, Ryerson School, London, Ont.

Brick, Interprovincial Brick Co.
Boilers, E. Leonard & Sons, London.
Casements and window construction, also doors and window trim, Dymont-Baker Lumber Co., London, Ont.
Concrete work, John Hayman & Sons, Ltd., general contractors
Electric fixtures, Benson & Wilcox.
Electric wiring and apparatus, Electric Construction Co.
Expanded metal, Trussed Concrete Steel Co.
Fire alarm system, Benson & Wilcox.
Fire doors, Dennis Wire and Iron Co.
Flooring, Seaman-Kent, Meaford.
Glass, Hobbs Mfg. Co., London; Crown Mfg. Co.
Hardware, Springer Mfg. Co., Belleville; Hobbs Hardware Co., London.
Heat regulating system, Powers Regulator Co., Toronto.
Interior fittings, cabinet, woodwork and decoration, Dymont-Baker Lumber Co., London, Ont.
Interphone system, Northern Electric, Montreal.
Ornamental iron, Dennis Wire and Iron Works, London.
Paints, International Varnish Co.
Plumbing, Standard Ideal, Standard Sanitary, Eggett & Co., plumbing contractors.
Plaster work, McWaine & Glade, London.
Power machinery, Canadian Sirocco, Walkerville.
Radiators, Warden King, Montreal.
Stone, A. E. Nobbs Co., London.
Structural iron and steel, Canadian Bridge Co., Walkerville.
Tile, Italian Mosaic and Marble Co.
Varnish, International Varnish Co.
Ventilating system, Canadian Sirocco, Walkerville.
Contractors, John Hayman & Sons, London.

Building, Bishop Strachan School, Toronto, Ont.

Boilers, Jenckes Machine Co., St. Catharines.
Carpets, rugs and furniture, Murray-Kay, Ltd., Toronto.
Casements, Henry Hope & Sons, Limited, Toronto.
Electric fixtures, R. A. L. Gray & Co., Toronto.
Electric wiring and fire alarm system, Bennett & Wright, Toronto.
Electric clocks, Self-Winding Clock Co., New York.
Fuel Economizers, Burk Smokeless Furnace Co., Chicago.
Flooring and fittings, Weller & Co., Toronto.
Hardware, Alkenhead Hardware, Ltd., Toronto.
Laundry machinery, American Laundry Machinery Co., Ltd., Toronto.
Paints, Faircloth Co., Limited, Toronto.
Plumbing and heating, W. J. McGuire, Ltd., Toronto.
Plaster work, R. C. Dancy, Toronto.
Refrigeration equipment, John Hillock & Co., Limited, Toronto.
Refrigeration machinery, Linde Canadian Refrigeration Co., Limited, Toronto.
Radiators, Steel and Radiation Co., Limited, Toronto.
Roofing, G. Duthie & Sons, Limited, Toronto.
Stone, Page & Co., Toronto.
Vaults, J. J. Taylor, Ltd., Toronto.
Ventilating system, Sheldons Limited, Toronto.

Building, De La Salle Training College, Oak Ridges, Ont

Brick (plain), John Price.
Boilers, The John Inglis Co., Ltd.
Carpets and rugs, Robert Simpson Co., Ltd.

Casements and window construction, Trussed Concrete Steel Co., Ltd.
Chimneys, The Custodis Co., Ltd.
Concrete work, Thomson Bros.
Electric fixtures, Robert Simpson Co., Ltd.
Electric wiring and apparatus, A. Rice & Co.
Fire doors, The Byrnes Co.
Interior fittings, Berlin Interior Hardwood Finish Co.
Hardware, Canada Hardware Co.
Cabinet, woodwork, Geo. L. Robinson.
Interphone system, Northern Electric Co., Ltd.
Laundry machinery, Toronto Laundry Machinery Co.
Marble, Mississquoi Marble Co., Ltd.
Paints, Chisholm & Hume.
Plumbing (bath fittings, sanitary fixtures, faucets), W. J. McGuire.
Plaster work (ceiling), Grant & Co.
Refrigeration equipment, John Hillock & Co., Ltd.
Refrigeration machinery, Canada Ice Machine Co., Ltd.
Power machinery (motors), General Fire Extinguisher Co., Ltd.; (pumps), National Equipment Co., Ltd.
Reinforcements, Bains & Peckover, Ltd.
Radiators (manufacturers), American Radiator Co., Ltd.
Roofing, A. Mathews, Ltd.
Stone (artificial), Peerless Art Stone; (natural), John Vokes.
Tile, Mississquoi Marble Co.
Water tank, National Equipment Co., Ltd.
Contractors (general), Thompson Bros.
Desks, seats, Canada Office and School Furniture Co., Preston.
Blackboards, Geo. M. Hendry Co., Ltd.
Ice plant, Canada Ice Machine Co.
Bronze work, Patterson & Heward.
Linoleum, Robert Simpson Co., Ltd.

TECHNICAL SOCIETIES.

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September, 1916

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GRAPHIC ARTS BLDG., TORONTO, CANADA

MONTREAL

BRANCH OFFICES

NEW YORK



ARTISTIC DOORWAY
BUILT ABOUT 1750
OF WHITE PINE.

Bronze in Architecture

Interest in Bronze Work Stimulated by the Establishment of Bronze Statuary Casting.

FOR the first time in the history of this country the art of bronze casting, which reached its zenith under the Florentine Masters, is being cultivated. The part played by bronze in the development of civilization is indicated by the fact that a whole period or era of the human race is known as the Bronze Age. It was the cycle immediately following the crude stone age and preceding the age of iron, which brings us down to the present, a heterogeneous period of many phases, but still the iron age.

The bronze of classical antiquity consisted

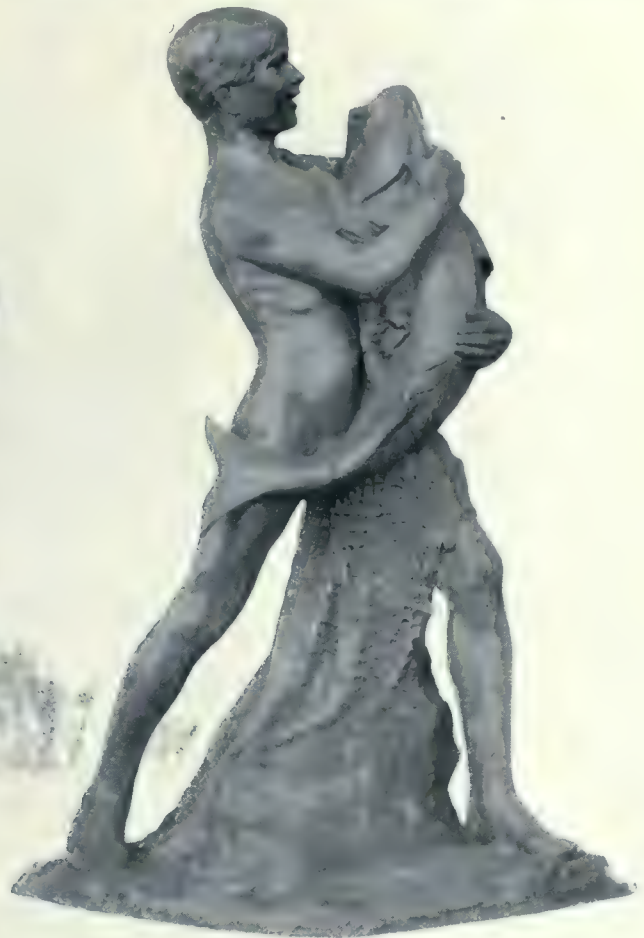
made, as is proven from discovered relics.

The Assyrians are recognized as the first to introduce the casting of bronze into the making of statuary. Remains of Assyrian statuary have been found containing a core of iron, which, owing to the difference in the coefficient of expansion and contraction of the iron and bronze, was not satisfactory.

The Greek artists were pioneers in the art of casting bronze hollow, the introduction of this method being a great gain to sculpture. It enabled models of clay, which could be made quickly, to be accurately reproduced, although



BRONZE FIGURE, SIX FEET HIGH, BOY WITH TURKEY,
FOUNTAIN MAISONNEUVE MARKET.



BRONZE FIGURE, SIX FEET HIGH, BOY WITH NET AND FISH,
FOUNTAIN MAISONNEUVE MARKET.

chiefly of copper, with an alloy of one or more of the metals, tin, zinc, lead and silver, the character of the alloy changing as times changed or as was required for different purposes. The Greeks used bronze for coins consisting of an alloy of copper and tin up to 400 B.C., after which lead also was introduced. The Romans also used lead for a time as part of their bronze alloy for coins. The earliest employment of bronze for artistic purposes was to hammer it out into thin plates, which were fastened together with nails. The first statues were so

the difficulty and expense of this process placed it at a disadvantage as compared with marble. It was, however, frequently employed, and in the case of large statues it had no rival.

The Colossus of Rhodes, a figure of the sun god Helios, and one of the seven ancient wonders of the world, said to be one hundred and five feet high, was an example of the utmost that art could do with bronze. It was thrown down by an earthquake after standing fifty-six years. A bronze statue of Zeus at Tarentum was sixty feet high.

The earliest establishment for bronze founding of any extent was carried on on the Greek Island of Delos, and next to that, the Island of Aegina. At the time of the sculptors Myron and Polyclethus a rivalry existed between these two places, each sculptor preferring the bronze from a different source. The bronze of Corinth was more celebrated than either. It was supposed to have been obtained by the melting together of statues of bronze, gold and silver at the burning of the town. Pliny, referring to the bronze of Corinth, said it was more precious than silver, its value approaching that of gold. With the exception of statuettes, candelabra, mirrors and bronze vessels, only a few fragments remain of the vast number of bronze statues by ancient sculptors. One of the most notable of these is the colossal bronze head of Venus in the British Museum.

The art of bronze casting, which had sunk with the Byzantine Empire, was revived in the eleventh century. In the twelfth century it was taken up in Italy. Although interesting works of this kind exist from the thirteenth and fourteenth centuries, it was not until the fifteenth that the art obtained its complete mastery under the Florentine artists. Since then the order of sculpture in bronze has reverted to the production of statues and groups in the round.

Because of the ancient associations connected with the history of bronze casting and its relation to the development of art, particular interest attaches to the initiation of bronze casting in Canada. Statuary founding promises to open up a new field to Canadian craftsmen. Naturally the cost of statuary founding in Canada is higher, but sculptors have shown their willingness to patronize the Canadian industry, even at the necessary higher cost, thus putting it on a secure footing, and showing that the European conflict may have some immediate economic

compensation for us in stimulating industry.

PROCESS OF MANUFACTURE.

The old method of bronze casting, known as *cire perdue*, was to use wax for the thickness of the statue between the core and the mould, which was of baked clay. The wax was melted and poured off before the metal was run in, the core and mould being held apart by stays of iron wire. In modern practice large works are never cast in one piece.

The present practice is to make the model in plaster and to build around it piece moulds of

Caen sand from one and one-half to two inches thick, the size of the pieces being determined by the shape and character of the positions they occupy. These pieces are backed by plaster of paris to about one foot in thickness, with indentations cut in their horizontal thickness into which the succeeding portion of the mould fits. The mould is then taken to pieces, dried and rebuilt in the casting pit. It is then filled with core composition in a liquid state, and when this is sufficiently hardened, again taken to pieces. The core thus obtained is thoroughly dried and reduced in size by scraping away as much of the material as would represent the thickness of the metal to be cast.

This done, the mould is again built up over the core.

The ordinary method of melting bronze is by means of a reverberating furnace. Copper is first melted with small charcoal or coke, after which tin is rapidly thrust down to the bottom of the molten mass. The mould as described above is now ready for the metal which is poured in in the ordinary manner. When the casting is removed from the mould it is turned over to artists who eliminate all roughness, adding sharpness and detail where necessary.

Illustrations shown in this article represent



BRONZE GROUP, MAISONNEUVE BATH HOUSE.

largely the work of Mr. Alfred Laliberte, sculptor of Montreal, being figures for the large central retail market at Maisonneuve, suburb of Montreal. The group finished weighs about seven thousand, five hundred and nineteen pounds.

THE WORK ITSELF.

The principal figure, a Canadian peasant woman, carrying on her arm a large and well filled basket of fruit and vegetables, stands nine feet two inches high, and weighs about 2,000 pounds. The figure was cast in four sections and was entirely successful.

To execute this large figure was an extraordinary piece of work. It would have been considered so, even in a Belgian foundry. But it was done in the most workman-like manner, with a great degree of facility. A jocular workman gave it the name of "Lizzie," and by that name it was known in the factory from start to finish of the job.

This figure is supported on a large marble base. On each of the points of this is the figure of a boy, weighing about 1,200 pounds. One, nearly six feet



"LIZZIE," THE PRINCIPAL FIGURE AT THE MAISONNEUVE MARKET PLACE FOUNTAIN, NINE FEET HIGH.

tall, has a net over his shoulder and a large fish in his arms. The second boy is leading a calf and the third is struggling with a turkey. At the base of the figure are three large frogs, the mouths of which form water spouts.

At intervals around the base are six large and three smaller turtles, the larger ones weighing about 200 pounds and the smaller ones 100 pounds each. Each of the large turtles was cast in seven pieces, making forty-two moulds. The smaller turtles needed only two moulds each.

The special work had to be done outside the regular work and caused no small amount of work and planning, handling six-ton moulds and melting enormous quantities of bronze so as not

to interfere with other pieces. Every detail had to be figured closely and every minute operation run to exact schedule. The largest single casting weighed 1,400 pounds with gates and sprues.

Building Restrictions in England

The new defence of the realm regulation, by which, on and after July 20th, 1916, all the building and construction work is, with certain exceptions, prohibited, is considered by those engaged in the building trades as designed for the regulation of the steel so largely used in building construction, to enable the best use to be made of the materials available.

The *Yorkshire Observer* states that inquiries among representatives of the building and allied trades in Bradford show that the staple trade of the city may be affected by the new order, unless concessions by the Ministry of Munitions are made. The building trades for twelve months, except for munition purposes, have practically been stagnant, but there are in Bradford several warehouses and works in course of construction which



LORD DORCHESTER, FOR QUEBEC PARLIAMENT BUILDINGS, EIGHT FEET HIGH.

may have to stand unfinished unless permission for progress with the work can be obtained.

As to the future of the building trades the same publication says that the Yorkshire Federation of Building Trades has advised its members where possible and desirable to endeavor to contract for work on the basis of fixed profit on actual cost of time and material, adding the cost of insurance and establishment charges on which to take the percentage of profit, and this plan is being followed by numerous builders in the city.

Advance in Cost Due to War to be Adjusted.

Builders are also inserting a clause in their contracts, stating that they are based upon the

prices of materials and the rates of wages prevailing at the time of tendering, and providing that any proved advance in cost, unavoidably and exclusively due to war conditions, shall be adjusted on the completion of the work, besides allowing an extension of time where delay in the delivery of material or goods is due to war conditions.

The builder does not anticipate a speedy return to normal conditions, locally, after the war is over. The restoration and rebuilding of the war-devastated countries, which will benefit those who take a hand in it, will swallow up no mean proportion of the available supplies of materials, and this fact, in conjunction with the restricted shipping facilities there will be for some time after the conclusion of hostilities, will tend to keep up the prices of builders' materials.

Settlers' Permits For Fires

During the last session of the Legislature of Quebec several amendments were made to the Fire Act, which are calculated to add materially to its strength and efficiency.

One of these provisions requires that settlers engaged in clearing operations must, between April 1 and November 15 of each year, secure a burning permit from an authorized forest officer before setting out clearing fires. Wherever this provision is properly enforced, it will undoubtedly effect a very material reduction in the forest fire loss. One of the most serious features of the fire situation throughout Canada is the tendency of settlers to burn debris during dry periods, when fire is likely to spread and cause serious damage. A similar provision is urgently needed in Northern Ontario, where there is practically no control of settlers' clearing operations.

Another amendment to the Quebec Act provides that the debris from settlers' clearing operations must, before burning, be piled in heaps or rows at a distance of at least fifty feet from the forest. On this basis, it is much more practicable to control the fire than where the old method of broadcast burning is employed.

Holders of timber licenses on Crown lands are required to clear away the debris on a depth of one hundred feet from railway rights of way. This is an excellent provision, but should be made applicable to privately owned lands as well. In many cases, the efforts of railway companies in the direction of fire protection are largely neutralized through the presence of large quantities of the most inflammable debris on lands immediately adjacent to railway rights of way.

Another excellent provision of the new Quebec Act is that any fire ranger or other forest officer may summon any male citizen between 18 and 55 years of age to assist in extinguishing any forest fire, the rate of pay being specified, and penalty provided for failure to obey summons.

The fire laws of the Province of Quebec are

among the most progressive of any part of Canada, but much larger appropriations are needed to make them fully effective. In particular, provision should be made for a much larger staff of inspectors. The present staff is not sufficient to exercise proper supervision over the fire rangers on licensed lands, nor is there any adequate provision made for the proper protection of Crown lands not under license.



BRONZE LION ON BALUSTRADE.



CANADIAN BRONZE CASTING STUDIO.

New Customs Examining Warehouse, Montreal

A Lasting Monument Has Been Erected in this Building by the Dominion Government, upon McGill Street, Not Far From the River Front.

THIS building was structurally finished some time ago, and is now nearly fully furnished, equipped and occupied, and, encased in grey granite from the Laurentians with Wallace sandstone to the upper stories, backed with plastic brick, with walls in places some nine feet thick, forms a massive and imposing structure.

The present building constitutes rather less than half of a block, which, with the proposed

new Customs House, already planned, will occupy the whole of a city site bounded on all four sides and with frontages to four streets, with an overall length exceeding four hundred and sixty feet.

Extensive and difficult operations were needed in overcoming obstacles encountered during the foundations work. Hard and soft clay, some gravel, strata saturated with water, evidences of an old underground stream not yet



CUSTOMS EXAMINING WAREHOUSE, MONTREAL, Q'É.

E. L. HORWOOD, ARCHITECT; A. H. LAPIERRE ASSOCIATED.

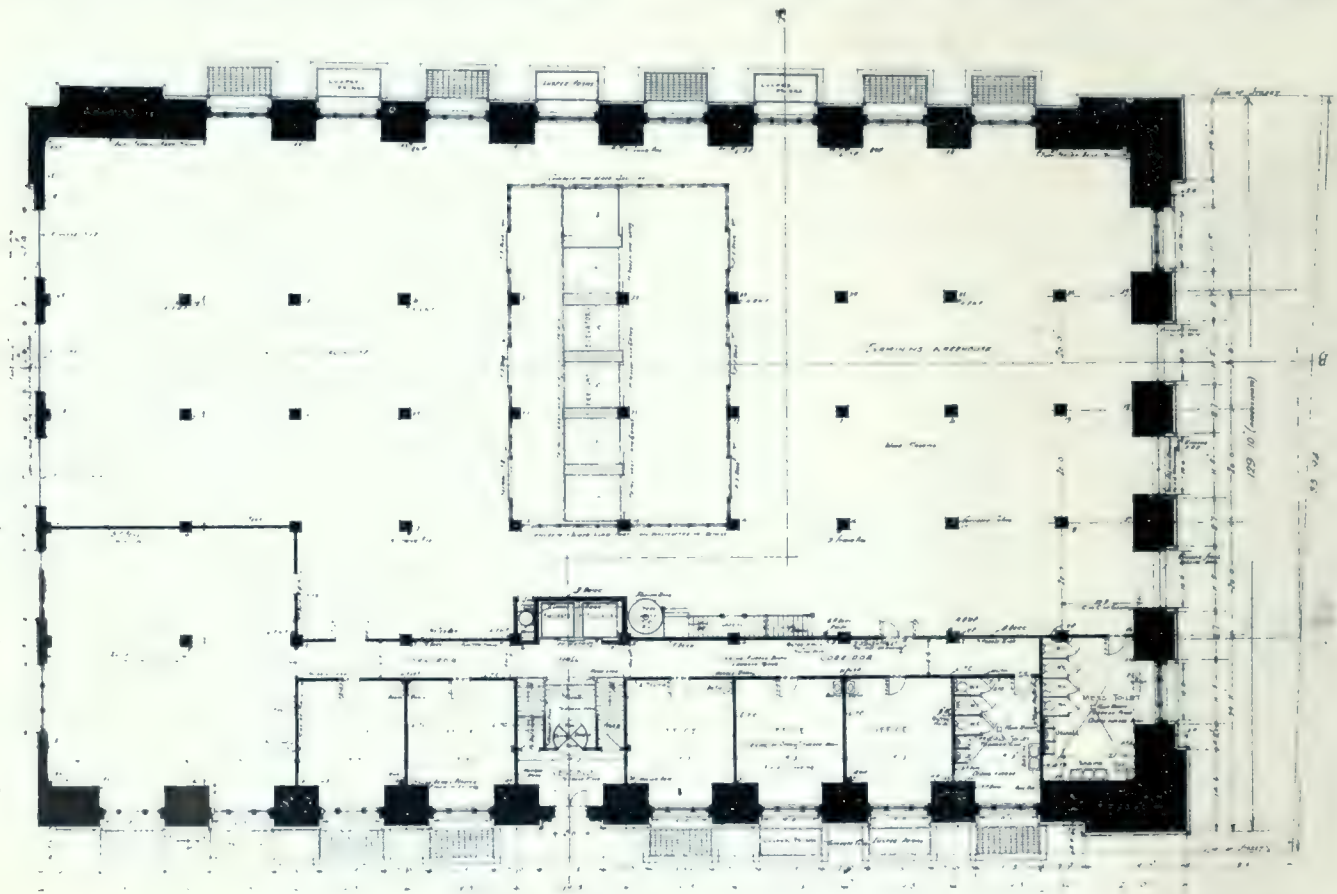


TYPICAL FLOOR, CUSTOMS EXAMINING WAREHOUSE, MONTREAL, QUE.

extinct, and immense boulders between them rendered quite useless the usual methods of carrying down the concrete piers upon which the building was to stand. Bottoms of excavations bulged and bubbled upwards, and continued pumping threatened to bring in the neighboring streets and affect the surrounding buildings.

Sheet piling was replaced by patent interlocking steel, which in turn was crippled as soon as it met the harder layers and in no case could be effectively used among the boulders encountered underground.

To overcome the difficulty it was necessary to sink pneumatic caissons, blast boulders where



GROUND FLOOR PLAN, CUSTOMS EXAMINING WAREHOUSE, MONTREAL, QUE.

E. L. HORWOOD, ARCHITECT; A. H. LAPIERRE, ASSOCIATED.

they were met with, and eventually bring the piers to rest upon the solid rock, in places over eighty feet below the sidewalks. In one instance a boulder, passed by a descending caisson, became influenced by the movement and slowly turned over, crushing into and penetrating the caisson through the side, and necessitating blasting and repairs under exceptionally difficult circumstances.

The steel construction rapidly followed as soon as the piers were levelled off and the grillages set.

This and the floors, roof, walls and structure generally are of particularly strong and sound construction, and, including the partitions, are fireproof throughout. Doors are kalameined and fire resisting; borrowed lights are equipped with wired glass. The structural steel is brick covered in the walls and concrete covered in the floors; the floors are in reinforced concrete, that of the basement being twelve inches thick and reinforced in two directions with half-inch bars on six-inch centres in order to resist an upward thrust from the sometimes water-logged soil. This floor and the basement walls are water-



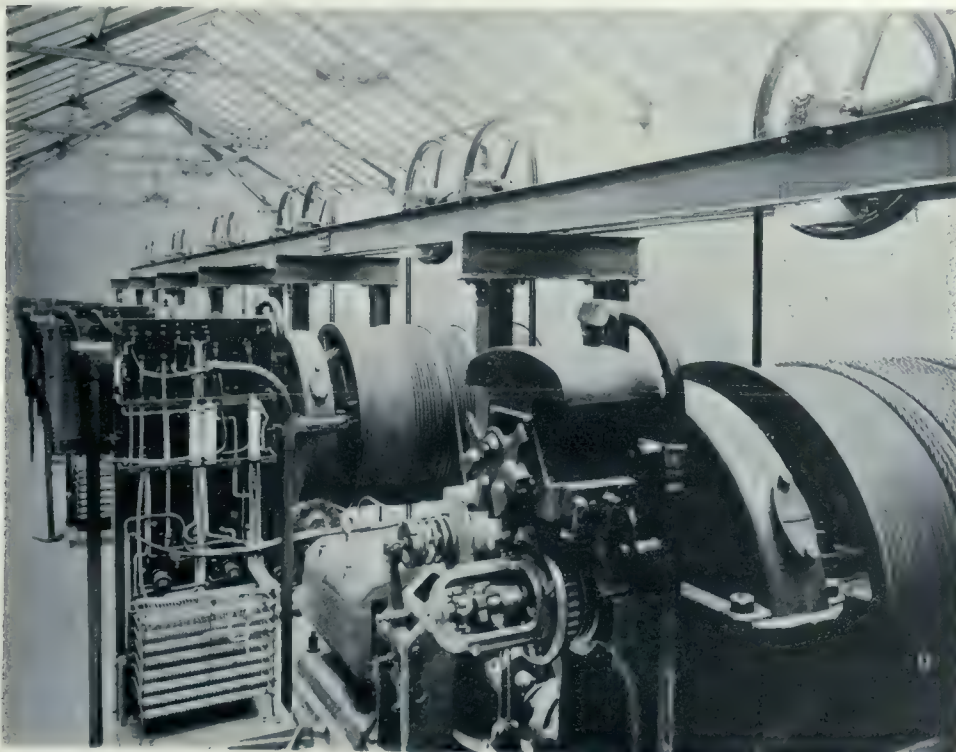
EXPRESS OFFICE, CUSTOMS EXAMINING WAREHOUSE, MONTREAL, QUE.

proofed internally. Upper floors have a heavy hardwood finish to meet the severe wear and tear, trucking over, etc., to which they will be subjected, and in the basement the waterproofed finish has been graded to drain off liquids from leaky storage. Land drains lead the water in the sub-soil, from all parts of the basement to a sump in the boiler room, from which it is ejected into the drain to the sewer by an automatic cellar drainer.

Internally the warehouse and toilet room

walls are lined in pressed brick, and the offices, halls, staircase and corridors plastered. A suspended plaster ceiling on metal lathing protects the top floor from heat from the roof, and suspended ceilings in the corridors and toilet rooms provide space for much unsightly plumber's work and piping, at the same time retaining easy means of access.

Marble from Canadian quarries has been extensively used in stair treads, dados, wall linings and plinths in the main staircase, halls and corridors, lavatories and toilet rooms, and with terrazzo flooring in these positions, is not only effective, sanitary and easily cleaned,



ELEVATOR CONTROL, CUSTOMS EXAMINING WAREHOUSE, MONTREAL, QUE.

but it also forms a most permanent finish, needing no periodical attention, as do so many other materials.

Exterior doors to warehouse are steel rolling shutters, counterbalanced by spring and operated by gearing necessitated by their size.

Exterior doors to warehouse are Kinnear steel rolling shutters, counterbalanced by spring and operated by gearing necessitated by their size.

Considerable exterior and interior glazing has been done in steel sashes.

The sanitary system, with a thousand-gallon flushometer on the top floor, leaves little at the mercy of careless or destructive people, sometimes found to misuse conveniences of a public building.

Hot water to the basins and sinks is supplied by a separate hot water heater and three-hundred gallon storage cylinder.

Water supplies are taken from the city mains.

The heating has been specially considered and five boilers provided, some five feet in diameter and fourteen feet long, forming an installation calculated to meet the requirement of the whole block when finished. Part of these deal with the existing building, with steam at low pressure circulated to the various radiators.

High tension wires have been brought into the building underground, to three thirty K.W. transformers, from which they proceed to the general distributing switch board to supply the lighting current, and from which panel is also controlled the power wires for the various elevators.



MAIN STAIRWAY, CUSTOMS EXAMINING WAREHOUSE, MONTREAL, QUE.

The elevators are grouped, with two for passengers opposite the entrance, and half a dozen larger ones for freight across the body of the building, each eight feet wide and ten feet across, generally arranged to be used from either side, and to carry loads of three tons at a time. The passenger machines are in a commodious room in the basement, and the freight machines form an imposing installation in their long pent house over the roof.



ELEVATOR SHAFT, CUSTOMS EXAMINING WAREHOUSE, MONTREAL, QUE.

Art at The National Exhibition

Work of Famous Artists and Sculptors Represented.

THE collection of paintings and sculpture adorning the Art Gallery this year surpasses in interest and significance any previous display that has been seen in this country. It embraces the entire collection of the work of contemporary French artists sent by the Ministry of Fine Arts at Paris to the Panama-Pacific Exposition. Taken as a whole, it is an epitome of what has been accomplished in a country where art is honored above all things, in the twentieth century; though it embraces the achievements of veterans whose names were established decades ago. One hundred and forty painters, nine etchers and engravers, and twenty-two sculptors are represented, some of them by numerous examples.

Everybody with a cursory knowledge of the history of art has heard the names of Claude Monet and Auguste Renoir, the leaders of the impressionistic movement of the seventies, and who did so much by their new processes in the analysis of light and the division of tones to revolutionize conceptions of painting. Both of these veterans are represented by works executed within the present century. Monet's contribution is a painting of his beloved Vitheuil, which shows his methods in brush work and in treatment of atmospheric tones in their finest development. Renoir's canvass, "Garden in the Rue Corot," shows the remarkable individuality of his style and his brilliant color sense. Both these pictures are of immense value; but impressionism is only one of a score of schools of thought that are represented.

It must be remembered that this collection was arranged previous to the outbreak of the war, which broke out four months before the opening of the San Francisco Fair. Consequently the great conflict is not reflected in the beautiful canvasses that will adorn the walls of the Art Gallery. Here are, however, a considerable number of pictures that take on a new value and significance because of the war. This is especially so of Paul Hellen's architectural piece, "Rheims Cathedral, Before the Bombardment," which is an exquisitely painted interior showing the great windows of mediæval painted glass, wantonly destroyed by German vandals. Hellen's work as a dry paint etcher is well known on this side of the Atlantic, and his amazing mastery of detail is shown in this work. The River Marne, where the defeat of German hopes began, figures in several beautiful canvasses. Notable among these is Andre Chapuy's "The Banks of the Marne," which is the property of the French Government. It is

painted with a smoothness of brush work that is masterly and shows in a delightful way the life of the river side. Another picture in the same field is Charles Milcendeau's "Washer-woman of the Marne." The poetic appeal of the river and its environs is shown in Georges Griveau's "Silver Thread of the Marne." Another picture with a geographical significance for all of us is Louis Braquaval's landscape, "The mouth of the Somme." There are other fine landscapes and figure pieces showing the life of Flanders and most of the other places that have been stained by blood in the great conflict.

Among other notable pictures is Felix Vallot's portrait group, "Painters," which, with its hard outlines and meticulous study of faces, recalls the early Flemish school.

One of the most attractive of nudes is "The Swan," by J. Francis Aubertin. It shows a nude woman caressing a graceful bird, and is notable for its harmony of line and poetry of feeling. One of the most interesting of the numerous portraits is "The Lady with the Hydrangea," by Henri Caro Delvaille, in which the painting of the face and all the delicate accessories of silks and flowers is exquisite in quality. Two other notable examples of portraiture are Jaques Emile Blanche's studies of the famous novelist, Henry James, and of the beautiful actress and dancer, Ida Rubenstein. The work of Boutet de Monvel is always delightful in its harmony of line and delicacy of coloring. He sends two fine architectural pieces of a decorative character, "The Village" and "The Country Town." A decorative painter of a more mystical divergent type is Maurice Denis, whose ornamentation recalls the Renaissance methods of Botticelli. He sends no less than fourteen pieces. A piquant study is Jen Gabriel's "The Frog, or the Interrupted Toilet," which shows a lady interrupted by the little intruder just as she is about to don her garments.

Canadians have been so starved in the matter of fine sculpture that such a collection as that being installed at the Exhibition is a boon. Its most notable piece from the standpoint of public knowledge is a bust by Auguste Rodin, the most discussed sculptor of the day, and there are other beautiful pieces in various styles by such men as Henri Bouchard, Joseph Bernard, Emile Bourdelle and other men of genius. Small as is this collection, it should give the visitor enlarged ideas of the rich possibilities of sculpture.



NOBBS & HYDE, ARCHITECTS.

RE-MODELLED BIRKS BUILDING, WINNIPEG, MAN.



DETAILS OF FRIEZE AND MEDALLIONS, RE-MODELLED BIRKS' BUILDING, WINNIPEG, MAN.

The Re-modelled Birks Building, Winnipeg

The Accompanying Illustrations Show What Might Be Termed "Before and After Taking" Results Due to Judicious Partaking of the Architects' Prescription.

THE old yellow building has been remodelled above the lower storey in terra cotta and stucco, the wall surfaces being in the latter material, while the angle piers and trimmings generally are in the former. It should be noted that there has been no change in the wall openings except at the centre, where the tower has been replaced by regular window units. The wall is surmounted by a projecting cornice in oak. Below the cornice there is a frieze in terra cotta inlay and medallions in the same material occur on the wall below. The colors used in the terra cotta inlays are red, white, buff and black, and the heavy dark joint between the pieces is used as far as may be to help out the drawing, as is the lead in stained glass.

The designs for the frieze were made to half full size by Mr. Nobbs, with advice on the subject matter from Prof. Ramsay Traquair of McGill University.

The company carrying out the terra cotta work invented a most interesting method of enlarging by photography the architects' designs to the full size terra cotta scale.

The frieze on Portage avenue tells the story of the meeting of King Solomon and the Queen of

Sheba. The central group represents the monarchs with their attendants, the Queen kneeling in salutation, while King Solomon presents her with a necklace of pearls. At the left hand end of the frieze a ship lies in the harbor of Tyre, while on the right are seen the gates of Jerusalem. Reading from left to right, the first incident shown is the passing of the gifts by the custom authorities at Tyre, Hiram, King of Tyre, being represented as taking toll; next is shown the camel on which the Queen may be supposed to have ridden, preceded by a negro carrying a parrot and an Indian with a peacock. A horse, on the back of which an ape has seated himself, is next in order, and before his groom a gigantic negro carries a tusk of ivory. The master of the apes in trouble with one of his charges is the next figure, and in front of him is the Queen and her attendants, already described.

From the other end we see issuing from the gates of Jerusalem part of the guard. Before them are some of the ladies of the court celebrating the occasion with dance and song, while the Rose of Sharon precedes them, borne by two negroes with plumed head-



BIRKS BUILDING, WINNIPEG, MAN. AS IT APPEARED BEFORE RE-MODELLING

dresses and led by a body of kilted warriors.

The three wise men (the first an historian with his scroll, the second an astrologer with a divining rod and a crystal sphere, the third a speculative philosopher requiring no instrumental aid in his profession) follow the chariot from which the King has just descended to make his gift, while immediately behind the King two of his guard stand at attention. The owl as a symbol of knowledge is shown in a circle immediately behind the monarch, while the "lily of the field" blooms hard by.

On the six medallions between the arched windows on the Portage avenue front are shown the sources of the precious and semi-precious materials used in the jeweler's art. The turquoise

(Turkish stone), as typical of the semi-precious stones, occupies the first medallion on the left; the second contains an elephant for ivory, and in the third a merman is shown diving for pearls. In the fourth medallion a Kimberley negro seeks the diamond. In the fifth the semi-precious materials, tortoise-shell, coral and mother-of-pearl are represented by a wave delivering its riches on a tropical beach. In the sixth medallion a gnome occupies himself smelting the precious metals.

On Smith street the decorations generally are of a less significant character. The seventh circular medallion of the series, however, shows a silversmith surrounded by the tools of his craft.

Historic Re-laying of Corner Stone

Duke of Connaught Performs Historic Ceremony. Architects Supervise the Operation. Copy of "Construction" Amongst Documents Deposited, Containing Article on Parliament Buildings, by W. A. Langton, O.A.A.

AN event of interest to all Canadians, and particularly to the architectural and contracting interests, took place at Ottawa on September 1, when the corner-stone for the new Parliament Building was laid by the Duke of Connaught before a distinguished gathering. Fifty-six years before, also on September 1, the corner-stone was originally laid by the late King Edward, then Prince of Wales.

The actual operation of laying the corner-stone was accomplished under the direction of the Dominion consulting architect, David Dewar; John A. Pearson and J. O. Marchand, architects for the new structure, and Wm. Lyall, president of P. Lyall & Sons, contractors for the building. Those present at the ceremony included the Duchess of Connaught, Princess Patricia, Sir Robert Borden, Honorable Robert



RE-LAYING THE CORNERSTONE FOR CANADA'S NEW HOUSE OF PARLIAMENT AT OTTAWA.

This photograph shows the ceremony in progress. The corner-stone is conspicuous. The flags are on the front of the Royal tent. His Royal Highness is in the centre; Hon. Robert Rogers to his right, and Premier Borden behind the Duke of Connaught.

Rogers, and other members of the Government; Lieutenant-Governor of Ontario Sir John Hendrie; Sir Pierre LeBlanc, Lieutenant-Governor of Quebec; Lieutenant-Governor McKeen of Nova Scotia, Lieutenant-Governor McDonald of Prince Edward Island, the Judges of the Supreme Court, officers of the Headquarters Staff, and other Government officials.

This unique ceremony, fraught with such interest to all Canadians, and for which elaborate arrangements had been made, was carried out in a successful manner. The ceremony took place sharp at 12 o'clock, when His Royal Highness, accompanied by the Princess Louise Dragoon Guard, arrived on Parliament Hill, where they were received by a Guard of Honor from the Governor-General's Foot Guards. The 207th and 230th Battalions gave a further military aspect to the scene.

At the point at which the stone, which had served on a similar occasion in the former buildings, was to be laid, a tripod derrick was installed to facilitate lifting the heavy cube. The corner-stone of the old building was on the north side, under the Senate, and just where the library joined the main building. The new location of the corner-stone is on the extreme northeast corner of the new building, some 100 feet farther east. The old stone bore the inscription: "This corner-stone of the building, intended to receive the Legislature of Canada, was laid by Albert Edward, Prince of Wales, on the first day of September, 1860." Underneath the old inscription on the stone has been added these words: "Relaid by his brother, the Duke of Connaught, on the first day of September, 1916."

The old phial was again placed under the stone, and alongside it the new records were placed in a heavy copper receptacle.

The corner-stone having been raised by derrick, and mortar having been placed upon the base, Hon. Robert Rogers presented His Royal Highness with a handsome silver trowel, a mallet and a plumb triangle. "As this stone was originally laid by the men of fifty-six years ago," said Hon. Mr. Rogers, "in an abiding faith in the future greatness and development of this country, so we, in asking Your Royal Highness to honor us and the country by officiating upon this occasion, are inspired with a determination that the national progress which has been made since the commencement of the original building shall, under the blessing of Divine Providence, be continued in increasing proportions.

"The work accomplished within the walls of the old building by the representatives of the people of Canada during the years of its occupation, will ever remain engraved upon the pages of the nation's history. Just what pages will be contributed to history by the legislators who will serve the country within the walls of

the building now being erected no one can tell, but we all devoutly hope that they will be pages replete with the same themes of progress, of courage, of devotion, of true liberty, and of loyalty to country, flag and king

His Royal Highness levelled the surface of the mortar, and the stone was lowered into position amidst loud applause and the playing by the band of "O Canada."

In part, His Royal Highness said: "Your Honors, the Right Honorable the Prime Minister, ladies and gentlemen: We are assembled here to-day on the occasion of a great ceremony connected with the life-blood, if I may so use that expression, of the Dominion of Canada. I have, at your request, just laid the old corner-stone of the Parliament Buildings of, in those days, the Province of Canada, in its new resting-place. To-day is the anniversary of the laying of this stone, fifty-six years ago, by my beloved and lamented brother, the then Prince of Wales, afterwards King Edward VII. It is probably a unique occasion for a brother, after an interval of more than half a century, to lay the same foundation stone that was laid at that time. When we look at that stone, and think of all it represents, and of the changes that have taken place since it was first laid, we recognize how little those who assisted at the ceremony of those days could look forward to the great progress and advancement that has been made by the great Dominion of Canada. This stone, on which rested the old Parliament Buildings, which I personally have known since the year 1869, will, I hope, continue for centuries to mark the corner-stone of the great legislative buildings of the Dominion of Canada."

Documents deposited in the corner-stone included the names and titles of Lieutenant-Governors and members of the Dominion Cabinet, the names of the Speakers and members of the House of Commons and Senate, a short statement relating to the war, the names of the rulers of the countries which are the allies of Great Britain, the names of the architects and contractors, a set of standard coins, gold, silver and copper, Canadian postage stamps of the current year, copies of the programme and cards of invitation for the ceremony, copy of the 1916 edition "The Canadian Parliamentary Guide," a copy of CONSTRUCTION, Vol. 2, No. 1, of November, 1908, containing an article by W. A. Langton, O.A.A., on Canada's national buildings, with a number of plates showing the main architectural features of the old Parliament Buildings, copies of the current issues of the Ottawa daily newspapers, annual report, 1916, of "The Historic Landmarks Association of Canada," report of the Royal Commission appointed to investigate the origin of the disastrous fire of February 3, 1916.

The New Quebec Bridge

Disaster Overtakes the Final Operation of Completing the Most Important Structure in Bridge-Making History.

CRIM tragedy has set a heavy hand on the expert efforts to span the St. Lawrence River near Quebec. Following the disaster of 1907, when the original bridge collapsed with heavy loss of life, the foremost engineering skill of the country was applied to secure the successful completion of the present structure. On

ing over one of the end girders upon which the wrecked span rested.

The principal dimensions of the bridge are: Length from shore to shore, 3,890 feet; width between buttresses, 1,800 feet; length of central span, 640 feet; height of central span above river, 150 feet. There were two railway tracks,



APPEARANCE OF BRIDGE, NOVEMBER, 1915.

the morning of September 11th, in the midst of rejoicing by hundreds of distinguished spectators, when the success of the final operation, that of securing the centre span in place, seemed assured, it fell without warning, causing the death of twelve men. The direct cause is not yet clear.

It is believed to be due to the failure of a cast-

two street car tracks, and two roadways. The bridge has a channel span of 90 feet longer than the Forth Bridge, Scotland, which has previously held the world's record in that respect. The weight of steel in the bridge was 180,000,000 pounds, and the cost, \$17,000,000. The span, which seems to be a complete wreck, cost more than \$1,000,000.



NORTH AND SOUTH ENDS OF NEW QUEBEC BRIDGE.

After the disastrous attempt to erect the first bridge the Dominion Government decided to reconstruct it. The Federal Railways Department appointed a commission to examine the fallen structure and to make a report thereon. The gentlemen comprising this body were Henry Holgate, Montreal; Prof. J. G. G. Kerry, of McGill, Montreal, and Dr. John Galbraith, of Toronto University. Their report was so instructive that a copy of it was asked for by practically every prominent seat of learning on the continent.

Another commission was appointed, in whose hands was placed the mammoth undertaking. The commission named was composed of H. E. Vautelet, chairman, of Montreal; Ralph Modjeski, Chicago, and Maurice Fitzmaurice, chief engineer of the County Council of London, England.

Mr. Fitzmaurice resigned and Charles McDonald, formerly of Gananoque, Ont., but many years one of the leading bridge engineers of the United States, was induced to go on the board until such time as a contract had been signed.

Tenders were received from one company in Germany, one in England, two in the United States, and from the St. Lawrence Bridge Company, the last named being a union of two strong Canadian companies. The contract was finally let to the St. Lawrence Bridge Company for the superstructure on April 4, 1911; that for the substructure having been let to

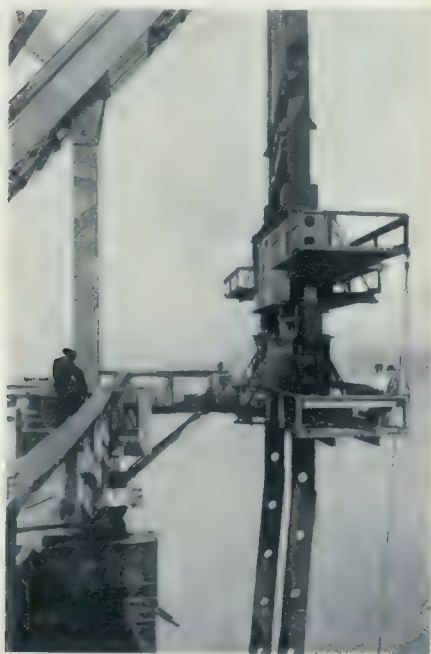


OUTER END OF CENTRE SPAN, SHOWING PONTOONS BEING PLACED IN POSITION.

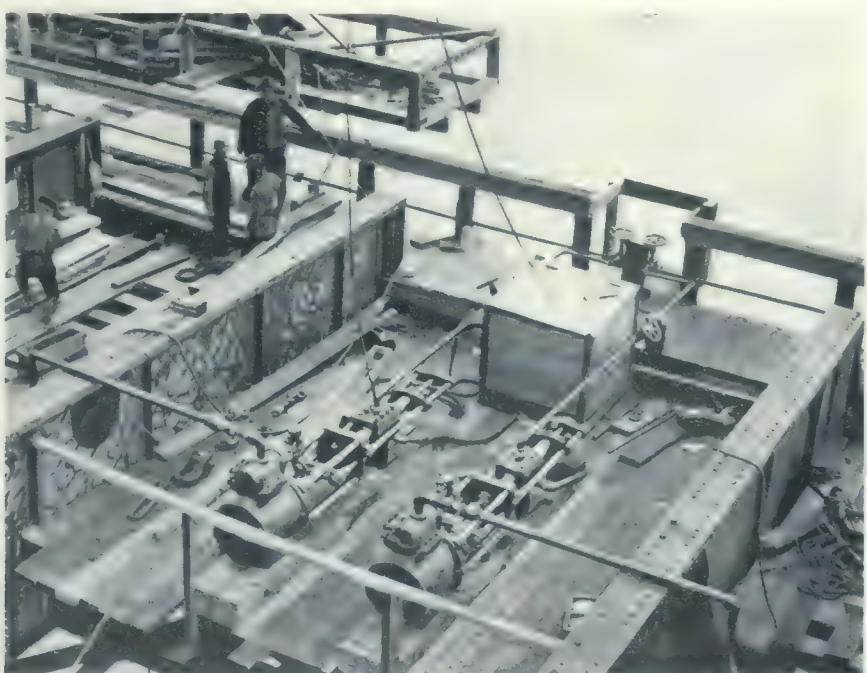
M. P. Davis on January 10, 1910. C. N. Monserrat became chairman and chief engineer of the bridge commission, and Mr. McDonald was succeeded by C. C. Schneider, of New York. The engineering staff heads were Phelps Johnston and George H. Duggan, of Montreal.

The bridge was built primarily to carry the National Transcontinental Railway between the Atlantic and the Pacific, but the following railways will also use it: The C.P.R., the Grand Trunk, the Quebec Central, the Intercolonial, the Quebec and Lake St. John, the Quebec and Saguenay, the Canadian Northern, and the Delaware and Hudson.

In 1915 the north shore truss was completed. When the cantilever arm on the north shore was being erected the south shore anchor arm was being put together, and by the 1st of August



JACKING GIRDERS, HANGER CHAINS AND LIFTING JACKS.



HYDRAULIC PUMPS AND PIPE LINE TO LIFTING JACKS.



SOUTH SHORE CANTILEVER, AUGUST 6, 1916.

of this year the operations on the south shore section were practically completed. Meanwhile the centre span was being fabricated, and the date arranged for floating the span to the point where it was to be raised into its final position between the two cantilever trusses.

In a circular issued to engineers, who were anticipating this remarkable engineering feat with great interest, Mr. Duggan pointed out that the centre span was supported by six scows, each one hundred and sixty-five feet long and thirty-two feet wide, built with heavy steel frames. Six tugs towed the scows from Sillery Cove to the bridge position. At this point eight tugs were employed to hold the span during the operation.

After the span was securely moored in this position, the hoisting chains, made of a series of bar links, by which it was to be raised, were dropped into position and attached to the span. After the links were secured to the span they were pulled up by hydraulic power and the span thus lifted to its position. The eye-bars from which the span was finally suspended,

were to have been joined about the middle of their length by pins. There were two hydraulic jacks to a corner, or eight in all. The load to be lifted was estimated at five thousand five hundred and forty tons. The rams of the jacks were twenty-two inches in diameter, and the working pressure four thousand pounds. The jacks had been tested in position to a pressure of five thousand pounds, or twenty-five per cent. overload. The hydraulic pumps operating the

jacks, two at each end of the span, were operated by compressed air piped from power houses on shore. There was a separated control valve for each jack at each corner and control valves for each pair of jacks at each end. Multiplying tell-tales were arranged so



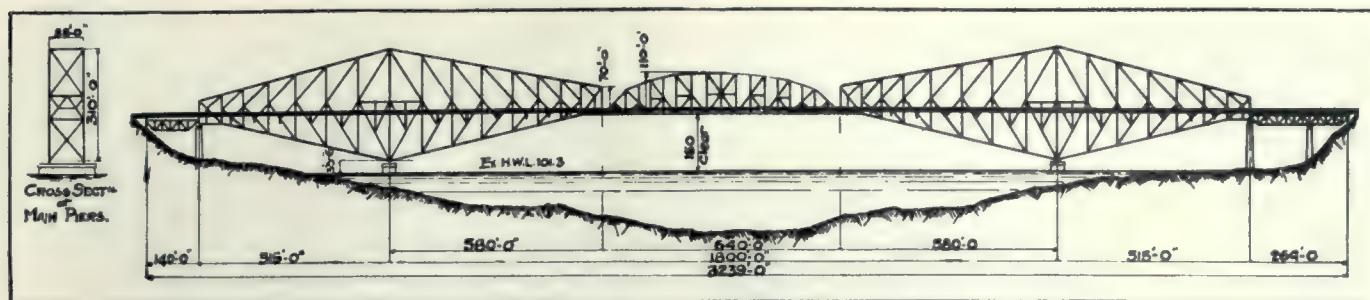
NORTH SHORE CANTILEVER WITH CENTRE SPAN LIFTING APPARATUS AT OUTER END.

that the valve operators at the corners could keep the moving girder exactly horizontal, and the valve operator at the centre of the span could keep the span itself horizontal. A telephone system was arranged by which each lift at the ends of the span were reported to the officer in general charge, and the two ends thus kept at the same vertical height.

There was a system of counter-weighted screw-jacks, hand-operated, to follow up the hydraulic jacks so that in the event of a packing blowing out or any accident happening to a hydraulic jack, it could be removed and repaired while the bridge was resting on the follow-up screw-jacks. The hoisting chains, two to a corner, were each composed of two bars, thirty inches by two and one-fourth inches, thirty feet long, connected by twelve-inch



CENTRE SPAN OF NEW QUEBEC BRIDGE.



SKELETON VIEW OF QUEBEC BRIDGE, SHOWING PRINCIPAL DIMENSIONS.

diameter pins. The pins for connecting these links to the girders were also twelve-inch diameter.

The mooring frames were calculated at erection unit stresses for a force of three hundred thousand pounds applied at the lower end. The mooring lines, four in number at each end, were one and one-fourth inch plough steel rope, with nine part three-fourth inch wire rope falls leading to engines on the deck. The hoisting tackle, or back-guy for the mooring frame, was a nine part seven-eighths inch wire rope tackle leading to one of the main hoisting engines formerly used on the erection traveler.

Dealing with one corner only, all four cor-

ners being alike, there was placed across the end of the cantilever arm vertically over the point of intersection a heavy cross girder from the ends of which was suspended another cross girder, known as the fixed girder, and placed at about the floor level of the cantilever arm. On top of this girder were placed hydraulic jacks with a working stroke of about two feet, and resting on these jacks and operated by them was the third or movable girder.

It is highly improbable that the wrecked span now lying in two hundred feet of water can be salvaged. To erect a new span will require about nine months, so that possibly a year's delay will be occasioned by the accident.

Royal Architectural Institute of Canada

Annual Assembly at Quebec, September 8th and 9th. Inspiring Address by Retiring President Russell. Report of Council Includes Many Important Architectural Matters.

WITH one hundred members of the profession with the colors and taking into consideration present conditions in the building trade, a small attendance at the annual assembly of the Royal Architectural Institute of Canada, held at Quebec on September 8th and 9th, was not unanticipated. On account of the postponement of the assembly booked for September, 1914, this year's convention included the seventh, eighth and ninth annual assemblies and rendered necessary the clearing away of a large accumulation of routine business. Through the courtesy of the Mayor and Council of Quebec, the business sessions were held in the City Hall, the headquarters of the Institute being at the Chateau Frontenac.

The inaugural session was held on Saturday morning, September 9th, with the president, Mr. J. H. G. Russell, of Winnipeg, in the chair. A formal welcome to the city was extended by Mayor Lavigne in the following words:

Mr. Chairman, Officers and Members of the Royal Institute of Architects, in convention assembled in Quebec:

Gentlemen.—It affords me great pleasure to tender you, as Mayor of Quebec, the hearty welcome of this city, on the occasion of your present convention.

The citizens of Quebec always greet with satisfaction the gathering of such important organizations as your Institute, and are most happy to offer you the freedom of our good old city.

Although we cannot boast of such marvelous modern architecture as other sister cities can offer to the study of the architect, still, we take pride in the venerable edifices and monu-

ments of past ages in which sufficient artistic taste is displayed to interest members of your distinguished profession.

And moreover, without renouncing the glorious privilege of preserving real treasures in the way of historical associations and venerable old landmarks, we are proud to show a new Quebec rising in full modern progress with edifices and public works in no way inferior to those to be found in cities of much greater importance than our city.

Your conventions are the means of making known to the public the latest developments in the art of architecture, and out of your learned deliberations we are fully assured that important results will be achieved.

You have our best wishes for the success of your meeting, and we sincerely hope that you will carry with you such a pleasant remembrance of your sojourn in Quebec that you will be induced to return here for the holding of some future congress of your Institute.

This was followed by the President's address as follows:

Three years ago we had our last annual assembly at Calgary, and parted with the prospect of a bright and prosperous year of work outlined ahead. In less than a year our Empire was plunged into war, one which is proving to be the most terrible in history. I need not enter into the causes leading up to this struggle. Sufficient to say it is one of right against might, one for freedom and righteousness, which the great Empire (of which we are a part), and our French, Russian, and other allies will surely carry through to a successful issue, as not long will the world be content to work out its disagreements by might of destruction.

Owing to the war, our annual assemblies for 1914 and 1915 were postponed, and although conditions are still much the same, it was thought to be in the best interests of the Institute to hold a business session this year, as, since the war began, other questions, important in their place, have been occupying their minds to the exclusion of the objects of the Institute, and your present officers have held office too long, owing to these unforeseen circumstances.

Canada has taken a rightful part in this war; she has raised large armies, to which our Institute has given about 100 of its members to help a great cause. As a nation we have not risen to our responsibilities nor assumed our rightful share of the burden our mother country is carrying; the time has arrived when we should put forth every effort of which we are capable. There are thousands of young men in every Province of our fair Dominion who would look far better wearing khaki than mufti, and should be with our brothers in France, Flanders, and elsewhere, fighting their country's battles.

Owing to the depression along all lines of construction, partly on account of the war, many of our members have closed their offices and sought other employment, and they are having a sea-

son of trial and hardship, such as calls for our sympathy and moral support, and the earnest prayer of all is that this conflict will soon be over.

We should take some action at this gathering to honor the names of our members who have given up so much to help their country in this time of need.

While this war has its dark side, it also has a bright side. Great moral and social reforms are spreading throughout all nations, and I think the world will be a better one for the great sacrifices now being made, and there will be a closer relationship between nations, a striving after higher ideals of Government, and all things pertaining to the betterment of mankind.

A question that is interesting the profession is: what effect will the war have on architecture? We have read with feelings of grief and sorrow of the apparent wanton destruction of a great many fine architectural structures in Belgium and France, and ask, how are such things possible in this enlightened age? At the conclusion of peace, there will be a great period of reconstruction. Our members who are spared to return to us and resume the practice of their profession will no doubt be filled with new ideas, and their point of view may be entirely changed; this may apply more specially to those who are held prisoners of war in Germany, where they will have more time for observation and reflection. Whether this will be a help towards the striving after a national style of architecture for Canada or not, remains to be seen, but some lessons will surely be given by which all will profit.

Sir Gilbert Parker, in his address to the Calgary assembly, said: "Architecture is the first expression of the human race; then comes painting, sculpture and music. Your position is not less to-day, for your profession appears to me to be one that is getting nearer to the people themselves than any other profession in your country." I think Sir Gilbert was not far amiss in this statement. The organization of our Institute and its different affiliated bodies has brought the profession closer to the public; the Architects' Acts passed by a number of our Provinces have been a great help toward establishing the profession on a more stable basis. The advice and counsel of these different associations is sought after by both Provincial and civic governments, as well as private corporations, to assist in solving the many complex questions of building, city beautifying, housing conditions, etc., and the disinterested service rendered by our associations in these matters is appreciated by those who seek it, and places us where we are a far more important part of the community than we could possibly be if we had to act as individuals. One of the things we need is a better understanding on the part of the public.

The weekly luncheon is a great help in bringing the different members of Provincial associations together where they can discuss the problems that are continually coming up in the daily round of work, and where one may receive the advice and sympathy of his fellows. The discussions should lead the thoughts of those present to higher ideals in professional life and business morality, and increase each member's efficiency, by encouraging the exchange of ideas and endeavoring to elevate the standard of our profession and co-operate with each member for the benefit of each and all.

There has been a great deal said for and against the various Acts for the registration of architects, some claiming that it does not tend to elevate the profession, and that the better plan is through education. While the latter is no doubt true to a certain degree, I am of the opinion that the Registration Act is accomplishing the object sought.

The argument that a number of incompetent men have to be registered when an Act is passed is true, as no one can or should be legislated out of business, but this evil ends at the passing of the Act. From that time on the process of the elimination of this class is slow, but sure, and each year sees an improvement. It will only be a matter of a few years when the standard of the profession in these Provinces will be of a higher order than it could possibly be without the Act. Candidates for registration have to pass an examination, and while there may be objections to this method, it will not be long before those contemplating the study of architecture will see the great advantage of taking a university course, which all will agree is the proper procedure. In the meantime, as long as examinations are to be held, it would be better if they were standardized throughout the Dominion, but this cannot be accomplished until each Province has an Act of Registration. If this were consummated, the Royal Architectural Institute would have far more weight in carrying through any reform it might advocate than it has to-day. I think we should strive to that end and render all the assistance possible to the Provinces that are seeking legislation along these lines.

The objects of our Institute are to a large extent professional and ethical. The better standards of practice and service, as laid down by the Institute, are elevating the profession throughout our Dominion, and credit may be taken for assistance given towards architectural education; each architect practising is profiting thereby and should consider it a privilege to be counted one of its members. Where he is not a member through his connection with one of the affiliated bodies, he should make a point of becoming one through co-operation with his fellow-practitioners as it is only through united effort that the best results for all may be obtained.

A ministerial friend of mine often uses the following apt illustration of Kipling's: "The strength of the pack is the wolf, and the strength of the wolf is the pack."

While the government of the Institute rests in the assembly and not the council, which is merely the instrument of the assembly to carry out its will, it must necessarily follow, owing to our country being one of great distances, that we cannot hold more than one general meeting during the year, and the questions that are continually coming up have to be decided by the council. As the majority opinion of the entire membership should be the objective of the council, it should be the aim of each of the federated bodies to discuss with and advise their members of council from time to time regarding the affairs of the Institute, so that the best interests of the profession may be served.

On account of the great expense and time that would be involved, as well as the difficulty of selecting a central place of meeting, it has been found next to impossible to get the members of council together between the times of the annual meetings, and at the Calgary assembly it was decided to try to carry on the business of council by mail. This method has its disadvantages, and while it proved interesting to a certain degree, it was not taken full advantage of by the members. I

think one reason is that the length of time given to send in replies to the question under discussion is too long, and matters that do not require immediate attention are often laid aside for a more convenient season, and consequently overlooked. Our Honorary Secretary will give you a resume of the doings of council in his report.

Some of the Provincial bodies are remitting the fees of their members who are serving their King and country in this war. It might be well for this assembly to consider the question as to whether this plan should not be followed by the Institute. There is also the question as to whether the different bodies should be called on to pay fees to the Institute for members who belong to more than one of the federated bodies, as, in a great many cases, the Institute is receiving double, and in some cases treble fees for one member, on account of some being registered to practice in different Provinces. This is a hardship on the Provincial bodies.

The competition for the Departmental Buildings at Ottawa is in a very unsatisfactory state. The unfortunate fire which destroyed the central building of the group on Parliament Hill in Ottawa may have had some bearing on the deliberations of the Government regarding future extension work, as I understand they have definitely decided not to go ahead with the Departmental and Courts Building, but the authors of the six premeditated designs should have better consideration than they are receiving, and the Institute should give them all the assistance possible in their efforts to obtain relief.

At the Calgary meeting our by-laws were amended. This was necessary, as it was the first general annual meeting of the R. A. I. C. as a federated body of the different societies. At that meeting, among other things, a lengthy discussion took place over the different classes of members, and it was finally agreed that all members would start on the same footing, and the honorary title of Fellow should be conferred only on a member who shall have notably contributed to the advancement of the profession in design, construction, literature or education.

A strong argument, put forward in favor of adhering to the by-law as it now stands, appeals to the higher thoughts regarding the objects and best wishes for success of the Institute. This argument was that to allow the slightest suspicion of individual gain or personal advancement, and especially one that would result in creating a distinctive class of members, would have the effect of casting a permanent shadow over every deliberation, and cloud each action with the doubting question: Is this also contingent upon personal gain? One is prompted to exclaim: Can anything ever be looked at with the unprejudiced eyes of one who seeks only the good of the community, and who buries for the time all thought of personal advancement or profit?

If an organization is to succeed in inspiring its members to work for a common good, surely the constitution and by-laws of the organization should be the symbol of ideal aspirations which may forever act as a guide in the future deliberations of its assemblies.

Our one hope of success in this, as in any similar institution, is in making an appeal to the individual on the broad lines of co-operation in the work for the sake of, in our case, the profession. Our hopes in this Institute work can only be realized by such an appeal.

It must be remembered that the new Institute was formed, not by augmenting the old by admitting members of the Provincial associations or of the old Institute, but as an organization composed of units of Provincial bodies. Each member of an associate Provincial body was admitted to the Institute only by virtue of his membership in the Provincial body. No other qualification would entitle him to membership in the newly-formed Institute wherever the Provincial body had affiliated.

The annual dues paid by each Provincial association are the dues that each Province owes as its share of an expenditure incurred by the Institute of amalgamated Provinces. The share of the annual expenditure that each province shall pay is determined by the relative number of members in the Province as compared to the whole. Any separation of the individual members by grouping into distinct classes is antagonistic to the spirit that prompted and which succeeded in constructing the organization as it now stands, and which has as its broad aim the advancement and protection of the architectural profession throughout Canada.

In conclusion, let each of us use our best endeavors to elevate the standards of the profession in which we are engaged, and so conduct our affairs that our fellow-architects may find it wise, profitable and conducive to happiness to emulate our example.

The report of the Council was then presented by the honorary secretary, Mr. Alcide Chausse, as follows:

Gentlemen,—The 1913-14 Council of the Royal Architectural Institute of Canada, while elected for one term, have through the circumstances created by the European war, administered the affairs of the Institute during three years. The charter of the Institute does not mention that there must be annual meetings of its members, but the by-laws have special provisions to the effect that the Institute should have general annual assemblies.

At the Calgary General Annual Assembly, held on the 15th and 16th September, 1913, it was decided that the seventh General Annual Assembly be held at Quebec at a date to be fixed by the Council. Later the Council fixed the 21st and 22nd September, 1914, as the time for the annual gathering of the members of the Institute; that decision was made before the beginning of the war. All the arrangements were made for the holding of the seventh General Annual Assembly at the dates fixed by the Council, but about six weeks before the date of the meeting war was declared, and nearly all national associations, societies or bodies decided to postpone their conventions. After consultation with the members of the Council, the President, on the 10th September, directed the Hon. Secretary to send the following notice to all members of the Royal Architectural Institute of Canada: "Owing to the unsettled conditions, due to European war, it has been regretfully decided to postpone for an indefinite period the seventh General Annual Assembly of the Royal Architectural Institute of Canada, which was to have been held at Quebec, Que., on the 21st and 22nd September, 1914."

Since the Calgary convention, all the business of the Institute was transacted by correspondence. There was one meeting of the Council, called to meet at Toronto, on the 22nd April, 1916; there were six members of the Council present, while the by-laws of the Institute require a quorum of seven members. As the matters to be considered were urgent, it was decided to hold the meeting, its decisions and resolutions subject to the approbation of this Assembly. They form part of this report, and if it is adopted, it will be understood that what has been done at Toronto, on the 22nd April, 1916, by six members of your Council, has been done in the best interest of the Institute, and has your sanction.

During these two days, 8th and 9th September, 1916, there will be held three Assemblies of the Institute, so as to bring all its affairs to date; these Assemblies are the seventh, eighth and ninth, and next year will be the tenth anniversary of the foundation of the Royal Architectural Institute of Canada. Founded as the "Institute of Architects of Canada," on the 19th August, 1907, at Montreal, as an independent body from the then existing provincial associations, a Dominion charter was obtained on the 16th June, 1908. It was found later that there should be some kind of parentage between all the Canadian architectural associations, and, after several conferences, it was decided to revise the charter with a view of federating the various associations of architects having provincial charters. On the 1st April, 1912, the Dominion charter was amended, and the name of the Institute was changed to that of "The Royal Architectural Institute of Canada," special permission to use and adopt the prefix "Royal" having been granted by His Majesty King Edward VII., on the 2nd June, 1909.

MINUTES OF THE COUNCIL OF THE ROYAL ARCHITECTURAL INSTITUTE OF CANADA DURING YEAR COMMENCING 16TH SEPTEMBER, 1913.

Note.—At the last General Annual Assembly of the Royal Architectural Institute of Canada, held at Calgary, the by-laws were amended so as to have consultations or discussions of matters requiring urgency to be submitted to the members of the Council by mail. As an experiment, all the matters which occurred were submitted to the Council in accordance with article 27 of the by-laws of the Royal Institute.

The only meeting of the Council was held at Calgary on the 16th September, 1913, at 4 o'clock, p.m., in the Public Library. At the meeting the officers were elected; a Finance Committee composed of Messrs. Edmund Burke, E. L. Horwood and J. W. H. Watts was appointed; it was decided to retain the rooms for the office of the Royal Institute at Montreal at \$150 per annum; to engage an Assistant Secretary at a salary of \$200 a year; fixing the "pro rata" rate at \$2.00; authorizing the Hon. Treasurer to pay the travelling expenses to the Quebec Assembly of the President, Hon. Secretary and Hon. Treasurer; and to have the revised charter and by-laws printed and copies to be sent to all the members of the Royal Institute and to the federated associations of architects.

Twelve subjects were discussed during the year by correspondence, as follows:

1. Examination of Licentiates R.I.B.A. by the R.A.I.C.—Proposition: The Royal Institute of British Architects, on the 12th November, 1913, sent a copy of the following resolution with regard to the examination qualifying licentiates for the Fellowship of the R.I.B.A., together with a request to conduct these examinations in the future:

"Resolved: That it be recommended to the Council to sanction the holding of the examinations in the colonies of licentiates who are desirous of becoming Fellows, provided that arrangements can be made for the proper supervision of the examination by some responsible member or members of the Institute in the colonies."

The question was submitted to the Council on the 26th December, 1913, and the opinions of the members were received up to the 26th January, 1914. Those who took part in the discussion were Messrs. Percy E. Nobbs, John S. Archibald, J. P. Hynes, J. O. Marchand, Alcide Chausse, J. W. H. Watts, F. S. Baker, F. Chapman Clemasha, W. G. Van Egmond, J. H. G. Russell, W. P. Over, Wm. Fingland, Colborne P. Meredith, A. Frank Wickson and James Henderson. No replies were received from Messrs. Jos. P. Ouellet, A. G. Creighton, G. M. Lang and Roland W. Lines.

On the 26th January, 1914, above opinions were sent to all the members of the Council for further discussion. Opinions were received from Messrs. Wm. Fingland, W. Percy Over, A. L. Favell, F. S. Baker, J. W. H. Watts, Colborne P. Meredith, John S. Archibald, Percy E. Nobbs, A. G. Creighton, J. H. G. Russell and Alcide Chausse. Messrs. Roland W. Lines, Jos. P. Ouellet, F. Chapman Clemasha, J. P. Hynes, James Henderson, G. M. Lang, W. G. Van Egmond and Frank Wickson did not express any opinion.

The decision of the President was as follows: After going carefully over the different opinions of our Council, I decide that the Council of the R.A.I.C. undertake the supervision of the R.I.B.A. examinations qualifying licentiates for Fellowship in the R.I.B.A., through the examining boards of the different Provincial Associations, all such examinations to be held on the same date throughout the Dominion, and the expense in connection therewith to be borne by the Royal Institute of British Architects.

This decision was sent to the members of the Council on the 18th February, 1914.

2. The Saskatoon Chapter of the R.A.I.C.—Proposition: A chapter of the R.A.I.C. had been formed at Saskatoon, Sask., called "The Saskatoon Chapter of the Royal Architectural Institute of Canada," and its Hon. Sec.-Treasurer, Mr. F. Lorain Turnbull, wrote on the 21st November, 1913: "There is some doubt among our members as to whether under the new incorporation of the R.A.I.C. this local chapter ceases to be a chapter of the R.A.I.C., and becomes a chapter of the Saskatoon Association of Architects. I would be glad to get your ruling on this point."

This question was submitted to the Council on the 28th November, 1913, and the opinions were received up to the 28th December, 1913, and were from Messrs. J. W. H. Watts, F. S. Baker, John S. Archibald, Colborne P. Meredith, J. H. G. Russell, W. Percy Over, Wm. Fingland, A. Frank Wickson, P. E. Nobbs, W. G. Van Egmond, James Henderson, A. L. Favell and Alcide Chausse. Messrs. Roland W. Lines, Jos. P. Ouellet, F. C.

Clemasha, A. G. Creighton, J. P. Hynes, G. M. Lang and J. O. Marchand did not send their opinions.

The decision of the President was as follows: The Saskatoon Chapter of the R.A.I.C. never existed officially, as it was not established under the authority of the Council, as it was provided by Article 51 of the By-laws of the R.A.I.C., then in force when the Saskatoon Chapter was formed.

3. Convener for the Provincial Delegations.—Proposition: According to Article 27 of the By-laws of the R.A.I.C., "In case of urgency the Hon. Secretary shall communicate the question under consideration and discussion to the convener of the delegation of each Province, who shall consult their respective delegates and report their decision immediately to the Hon. Secretary of the Institute." The system used for Discussions 1 and 2 was that there was no convener, and that the members of the Council, individually, gave their opinion on subjects submitted. While not strictly in conformity with the By-laws, it was quicker, and each member of the Council could send their personal opinion.

Messrs. F. S. Baker, J. W. H. Watts, Percy E. Nobbs, A. G. Creighton, Alcide Chausse, J. H. G. Russell and Colborne P. Meredith sent their opinions. Messrs. Roland W. Lines, Jos. P. Ouellet, John S. Archibald, F. C. Clemasha, A. L. Favell, Wm. Fingland, J. P. Hynes, G. M. Lang, J. O. Marchand, W. P. Over, W. G. Van Egmond, A. Frank Wickson and James Henderson did not send their opinions.

The decision of the President was: The privilege of taking part in this discussion was not accepted by a number of our Council. After reading the opinions of those who took part, I am in hearty accord with the majority, that our present system is a very interesting one, and as it accomplishes the object, we will continue it until our next annual meeting.

4. Builders' Exchange Proposition.—Proposition: The adoption by the R.A.I.C. of the weekly publication of the Montreal Builders' Exchange, "The Builders' Bulletin," as the official organ of the Royal Architectural Institute of Canada. This was sent to the Council on the 26th January, 1914.

Opinions were received before the 26th February, 1914, from Messrs. Percy E. Nobbs, J. H. G. Russell, J. O. Marchand, A. Frank Wickson, W. G. Van Egmond, J. P. Hynes, J. W. H. Watts, W. Percy Over, F. C. Clemasha, John S. Archibald, Colborne P. Meredith and Alcide Chausse. Messrs. Roland W. Lines, Jos. P. Ouellet, F. S. Baker, A. G. Creighton, A. L. Favell, Wm. Fingland, G. M. Lang and James Henderson did not express any opinion.

The decision of the President was: The Montreal Builders' Exchange made a proposal to the Royal Architectural Institute of Canada of using their Bulletin as the official paper of the Institute. A majority of our Council took part in this discussion, and decided almost unanimously that it would be detrimental to the best interests of the profession to enter into such agreement.

The time may arrive when we will be able to have our own official publication, or to be represented by a strictly architectural journal, and until that time arrives we are better without any publication, official or otherwise.

5. Date of the Quebec Assembly, 1914.—Proposition: It was suggested that the seventh General Annual Assembly of Quebec be held on the 21st and 22nd September, 1914. This proposition was made by Mr. Jos. P. Ouellet.

Took part in the discussion: Messrs. A. Frank Wickson, Jos. P. Ouellet, J. W. H. Watts, W. G. Van Egmond, John S. Archibald, C. P. Meredith, Alcide Chausse and F. S. Baker. Messrs. Roland W. Lines, F. C. Clemasha, A. G. Creighton, A. L. Favell, Wm. Fingland, J. P. Hynes, G. M. Lang, J. O. Marchand, P. E. Nobbs, W. P. Over and James Henderson did not discuss this matter.

The decision of the President was: The suggestion of our Vice-President, Mr. Jos. P. Ouellet, that we hold our next General Annual Assembly of the Royal Architectural Institute on Monday and Tuesday, 21st and 22nd of September, has been approved by all the members of Council who took part in the discussion, and our Hon. Secretary will advise Mr. Ouellet that the dates are satisfactory, and proceed with all necessary arrangements to prepare for the meeting.

I am sure it is the wish of each member of the Institute that the meeting to be held in Quebec next September should be the largest and most enthusiastic one we have held; to accomplish this, every one who is able should attend, and then some more. Kindly work to this end and success will be sure.

6. Duty on Imported Stone from the United States.—Proposition: Mr. F. S. Baker wrote to the President that the Federal Government were thinking about putting on import duty on building stone imported from the United States. It was thought that if this were put into effect it would have a very harmful effect on the cost of certain classes of buildings. On the 21st January, 1914, the President decided to obtain the views of the Council on this subject, and on the 28th January the proposition was sent to the members of the Council; they were given to the 15th February, 1914, to send in their opinions.

Opinions on this matter were expressed by Messrs. J. W. H. Watts, John S. Archibald, C. P. Meredith, Alcide Chausse, F. S. Baker, J. P. Hynes, W. G. Van Egmond, J. O. Marchand, A. Frank Wickson, W. Percy Over, J. H. G. Russell, A. G. Creighton, Percy E. Nobbs and F. C. Clemasha.

No opinions were received from Messrs. Roland W. Lines, Jos. P. Ouellet, A. L. Favell, G. M. Lang and James Henderson.

The decision of the President was: This was something I was going to take up with the Hon. Minister of Public Works, the Hon. Robert Rogers, but on account of the work we were engaged on in assessing the competitive plans for the new Government Buildings, we assessors thought it better not to meet the Minister until after the final decision, and am at a loss to know which will be the most effective method to pursue.

If Mr. Meredith, who is in Ottawa, will consent, he might deliver the papers.

My idea was that the letters from the members of the Council regarding this question be sent by you to the Minister along with a letter from yourself telling him that the attention of the Institute had been called to the question of the Government increasing the duty on building stone from outside of Canada, and that in our opinion it would be detrimental to the interests of the large majority of the people, and ask them to kindly give the question their serious consideration before adding anything further to the present import duty on stone.

Mr. Meredith might keep the matter in mind if it comes up, and let us know what is being done, but could be written to later, after you get this in shape.

A copy of above decision was sent to Mr. Meredith on the 21st April, 1914, and on the 27th he replied: "I should be most happy to see the Minister in regard to tariff, but I do not consider that anything can be done, as since this question was first taken up by the Institute the new tariff has come into effect, and it would seem most unlikely that they would again change the import duty, at least without giving the new tariff a trial."

7. Re-election of Fellows R.A.I.C.—Proposition: At the last General Annual Assembly, held at Calgary, the following resolution was adopted:

Moved by Mr. A. R. Greig, seconded by Mr. R. W. Lines: That the Council at an early date consider individually the ex-Fellows of the Institute, and that those considered by them sufficiently eminent in the profession be elected as Fellows.

This discussion was sent to the members of the Council on the 12th February, 1914, and the following members of the Council sent their views on this subject: Messrs. F. S. Baker, J. P. Hynes, John S. Archibald, A. Frank Wickson, Wm. Fingland, Percy E. Nobbs, C. P. Meredith, W. Percy Over, W. G. Van Egmond, J. W. H. Watts and Alcide Chausse.

Those who did not reply are Messrs. Roland W. Lines, Jos. P. Ouellet, F. Chapman Clemasha, A. G. Creighton, A. L. Favell, G. M. Lang, J. O. Marchand and James Henderson.

The decision of the President was: The by-laws of the Architectural Institute of Canada bearing on the question was as follows: "Fellows must have been engaged in the practice of the profession of Architecture for at least ten (10) years. Fellows shall be elected from the class of Associates."

At the Annual Assembly held in Calgary last year this by-law was changed to the following: "There are no Associates. The classes of membership are Fellows, Members, Honorary Members and Honorary Corresponding Members. Fellowship in the Institute is conferred upon a member who in the opinion of the Council shall have notably contributed to the advancement of the Profession in design, construction, literature or education."

The Calgary Assembly came to the conclusion that the new organization should start out with one class, namely members, and that Fellowship in the R.A.I.C. should stand for something.

I agree with Mr. J. S. Archibald and Prof. Nobbs, that the list of Fellows in the R.A.I.C. is far from representative.

The old qualifications for the honor, and it should be an honor, were ten years in practice and an additional ten dollars fee, the new organization in the revised by-law is trying to make the degree worth while.

The legality of the power of the Calgary Assembly to take away the degree of Fellow after it has been conferred has been brought out in the discussion. On taking this question up with a solicitor, he questioned the right under the charter of the A.I.C., or the R.A.I.C. having power to confer titles at all. The charter states in section 4 that certain parties may be admitted as members only and thinks the clause is not broad enough to allow of by-laws being drafted to confer special honor on certain members. I think the question may stand till our next Assembly meeting, when Council can discuss it to better advantage together, than by correspondence, in the meantime let each member consider the question fully in all its bearings.

8. Rome Scholarships. Proposition:—It is proposed by Mr. F. S. Baker, seconded by Mr. J. P. Hynes: "That the proposal of Rome Scholarships is for the Institute to arrange a competition among students who would be eligible for these scholarships in Canada, the winner to be given the nomination by the Royal Architectural Institute of Canada. This would relieve him of the preliminary competition. We would move, therefore, with the above explanation:

That the President be requested to name a committee of members in Montreal, Toronto and Winnipeg, to arrange a competition among architectural students in Canada eligible for the scholarship attached to the British schools at Rome, selecting a suitable subject, and all other particulars including a second and a third prize, and report to the Council of the R.A.I.C. by letter prior to June 1st, 1914."

This proposition was sent to the members of the Council on the 14th April, 1914, and the opinions were received to the 1st May, 1914.

The members of the Council who took part in the discussion were Messrs. F. S. Baker, Roland W. Lines, F. Chapman Clemasha, John S. Archibald, Colborne P. Meredith, A. Frank Wickson, J. O. Marchand, J. W. H. Watts and Alcide Chausse.

Messrs. Jos. P. Ouellet, A. G. Creighton, A. L. Favell, Wm. Fingland, J. P. Hynes, G. M. Lang, P. E. Nobbs, W. Percy Over, W. G. Van Egmond and James Henderson did not send their opinion on this proposition.

The decision of the President was: Owing to an oversight of the President a decision on this very important question has been delayed to such an extent that it would be better to leave it over for the Quebec meeting to deal with, and in doing so he offers his humble apologies to the mover and seconder of the discussion for his failure in not carrying out his duties to them and the Council at the proper time.

9. The R. A. I. C. Medal.—Proposition: It is moved by Mr. F. S. Baker, seconded by Mr. J. P. Hynes: "That the President be requested to appoint a committee to arrange for the making of a design and a die for the Institute medal, and that the presentation of the first medal struck from this die to the winner of the Halifax Tower Competition as then arranged and agreed, or in lieu thereof to provide a separate medal or some other prize for the winner of this competition, so that the obligation of the Institute in that particular may be carried out."

The discussion was between Messrs. Roland W. Lines, F. Chapman Clemasha, John S. Archibald, Colborne P. Meredith, A. Frank Wickson, J. O. Marchand, F. S. Baker, J. W. H. Watts and Alcide Chausse.

No replies were received from Messrs. J. P. Ouellet, A. G. Creighton, A. L. Favell, Wm. Fingland, J. P. Hynes, G. M. Lang, P. E. Nobbs, W. Percy Over, W. G. Van Egmond and James Henderson.

The decision of the President was: The members who took part in this discussion are all unanimous that something be done and the majority are in favor of the motion.

The Institute should always carry out anything it undertakes to do and the question of ways and means should be taken up first before agreeing to undertake something there are apparently

no funds for. In this case I am sure the money required for the medal or prize can be easily secured.

I have great pleasure in asking Mr. F. S. Baker and J. P. Hynes to be a committee to carry out the objects of the motion, with power to add to their numbers.

10. Souvenir Programme for the Quebec Assembly.—Proposition: Mr. Maurice J. Connolly, a publisher from Edmonton, Alta., submitted a proposal to publish for the coming Quebec Assembly a Souvenir Programme, in the form of a book containing the programme of the Assembly, the Officers and Council of the Institute, a list of all the members of the Institute, and other valuable information and illustrations. He was to pay all expenses in connection with the publication and distribution of the Souvenir, but he wanted the authorization to publish advertisements of building supplies firms, to cover his expenses. This was sent to the Council on 14th April, 1914.

Messrs. John S. Archibald, A. Frank Wickson, Alcide Chausse, F. S. Baker, J. W. H. Watts, J. O. Marchand and Jos. P. Ouellet sent their opinions before the 10th of May, 1914.

No opinions were received from Messrs. Roland W. Lines, F. Chapman Clemasha, A. G. Creighton, A. L. Favell, Wm. Fingland, J. P. Hynes, G. M. Lang, Colborne P. Meredith, P. E. Nobbs, W. P. Over, W. G. Van Egmond and James Henderson.

The decision of the President was: The Souvenir Programme, published by Mr. Connolly, in connection with the Calgary Assembly, caused a good deal of trouble at the start and could very well have been omitted.

It is almost impossible to have an outside party get up a programme without certain of the advertisers getting the idea that the R.A.I.C. would have an interest in the publication and that is one thing I feel sure each member of the Council would deplore.

If this could be accomplished without the medium of advertisers, and something artistic produced that our delegates would appreciate, then it would be worth while taking the matter up, but this is not possible for financial reasons, if no other. In this discussion, three members favor the proposal, one member has no objections under certain conditions, three are not favorable, and twelve have not sent in any opinion.

I do not favor the idea, being firmly of the belief that if a programme were to be published it should be undertaken by the Institute.

With due regard to the opinions of all, and after taking everything into consideration, I think we had better not accept Mr. Connolly's proposal.

11. Ontario Museum of Archaeology.—Proposition: It is suggested by Mr. Frank Wickson: "That in the interest of education in this country it is most desirable that there should be specimens of perfect period rooms and furniture. In the new Royal Ontario Museum of Archaeology they have one such room and we are endeavoring to get the Ontario Government to supply others of different periods and similar character."

"I believe that samples of furniture would be valuable for both architects and manufacturers, particularly those who manufacture furniture. I should like to know if the Institute would consider it helping along general lines of education if we were to ask the Dominion Government to make an allowance for buying such furniture."

12. Federation with the Architectural Institute of British Columbia.—Proposition: The Architectural Institute of British Columbia, incorporated by provincial charter, and having its office at Vancouver, B. C., having a membership of twenty-four, is applying for federation with the Royal Architectural Institute of Canada. The British Columbia Society of Architects, having its office at Victoria, B. C., has also applied for affiliation, they claim that they represent the majority of British Columbia architects, but they are not chartered. Article 8 of the charter of the R.A.I.C. gives us power to affiliate with any society or association having similar objects to those of the Institute.

After discussion by the members of the Council the matter was brought before the President, who decided as follows:

"After giving this question further consideration, I am of the opinion that the Council of the Royal Architectural Institute of Canada cannot take any action regarding the Architects of British Columbia until the members of the Architectural Institute of British Columbia and the British Columbia Society of Architects, get together and adjust their differences, both societies cannot federate with the Royal Architectural Institute of Canada, and should we recognize either one, a certain injustice would be done to the members of the other organization."

"I feel sure a united society would be a stronger organization in every respect than two separate societies. It would mean so much more to the profession at large, to say nothing of the good fellowship and harmony it would engender among the individual members."

"As far as our Council is concerned I think that it is not possible to discuss this question through correspondence and arrive at a satisfactory solution, with conditions as they are in British Columbia."

"It might be well to apprise the two British Columbia societies of the feeling of our Council, it may help to get them together."

A letter is being sent to both British Columbia societies as suggested by the President.

13. Annual Assembly and Council Meetings by Correspondence.—Proposition: It was proposed, owing to war conditions, to carry on the business of two Assemblies and several Council Meetings by correspondence.

It was decided not to have any General Assemblies by correspondence, as for the meetings of the Council, the by-laws of the Institute provide for such meetings by correspondence.

Minutes of the Meeting of the Council of the Royal Architectural Institute of Canada, held on the 22nd April, 1916, in the rooms of the Ontario Association of Architects, at Toronto, Ont., at 9:30 o'clock a.m.

Present: Messrs. J. W. H. Watts, J. S. Archibald, F. S. Baker, J. P. Hynes, A. F. Wickson, Alcide Chausse and Hugh Vallance (member of the 1915-16 Council) representing the absent members from the P.Q.A.A.

Messrs. J. H. G. Russell, J. P. Ouellet and James Henderson wrote that they could not come. Messrs. R. W. Lines, F. C. Clemasha, C. P. Meredith and P. E. Nobbs, were prevented from coming they being on military duty.

Chairman: Mr. J. S. Archibald was requested to preside at the meeting, on a motion proposed by Mr. A. F. Wickson, seconded by Mr. J. P. Hynes, and unanimously adopted.

The question was raised as to the legality of this meeting of the 1913-14 Council, there being only six members present, while article 17 of the by-laws of the Institute require a quorum of seven members.

It was decided that the meeting be held subject to the ratification of its decision by the coming General Annual Assembly.

The minutes of the meetings of the Council held at Calgary, Alta., on the 15th and 16th September, 1913, were read and approved.

It was proposed by Mr. F. S. Baker, seconded by Mr. J. W. H. Watts, and resolved that: The minutes accumulated by correspondence during the war be referred to the General Annual Assembly for approval with the suggestion that in future each Provincial delegation appoint a convenor who will call a meeting of the local delegation to prepare and dispatch an answer thereto.

The Hon. Treasurer reported as follows:

Receipts	\$ 878.28
Expenses	396.38

Balance in Bank

ASSETS:

Ontario Association 2 years in arrears, about.....	\$ 304.00
Alberta Association 2 years in arrears, about.....	250.00
Saskatchewan Association 1 year in arrears, about.....	125.00

Total

Moved by Mr. J. W. H. Watts, seconded by Mr. Alcide Chausse, and resolved: that the Seventh General Annual Assembly, which was postponed from the 21st and 22nd September, 1914, be held at Quebec, as decided by the Calgary Assembly, on the 8th and 9th September, 1916, and that the Eighth and Ninth General Annual Assemblies, which were deferred on account of the conditions created by the European war, be held at the same place and the same time, so as to bring the affairs of the Institute to date.

Moved by Mr. F. S. Baker, seconded by Mr. J. P. Hynes, and resolved: that the postponed General Annual Assemblies be held with the least expenses, and that none be authorized in connection with these assemblies, except the sending of the notices and any small expense essential to obtaining room for the meetings, etc.

The Hon. Secretary reported as follows:

There are on the books of the Royal Architectural Institute of Canada 573 members, classed as follows:

Alberta Association of Architects	70
Manitoba Association of Architects	47
Ontario Association of Architects	170
Province of Quebec Association of Architects	151
Saskatchewan Association of Architects	67
Not belonging to federated Associations	31
Honorary members	21
Corresponding members	16

573

It was decided that the following matters be left for consideration by the Council at its next meeting:

- Arrears due by federated associations.
- Federation of British Columbia Societies of Architects.
- Re-election of Fellows R. A. I. C.
- R. A. I. C. Medal.
- Celebration of the Tenth Anniversary in 1917.
- Ottawa Architectural Competition.

The Hon. Secretary submitted a list of the members of the Royal Architectural Institute of Canada, who have enlisted. This Roll of Honor comprises 19 members from the Province of Saskatchewan; 12 from the Province of Manitoba; 10 from the Province of Quebec; no information has been received on this subject from the Provinces of Alberta and Ontario. As we have no federation with the architectural organizations in the Provinces of British Columbia, New Brunswick, Prince Edward Island and Nova Scotia, we have no information from these parts of the Dominion, but it is estimated that there are presently serving the King and the Empire over 100 Canadian architects.

It was unanimously resolved that thanks be voted to the Ontario Association of Architects for the use of their rooms for this meeting.

There being no other business before the Chair the meeting was adjourned.

Among the items of general business was an application for federation from the Architectural Institute of British Columbia (Incorporated). It was decided, however, to take no action as it was felt that the two bodies in the province should get together as no progress could be made without unanimity.

The matter of the election of Fellows was also discussed, and it was decided to adhere to the position taken at the Calgary assembly. It will be left to the provincial bodies to nominate men whom they consider worthy of such honor and the nomination will then be passed upon by the Council.

With regard to the next place of meeting, Mr. J. W. H. Watts introduced a resolution that the next Assembly be held at Hamilton, upon a date to be fixed by Council, but it was decided to leave the whole matter in the hands of the Council.

Following upon the suggestion in the Presidential address, it was decided to suspend all fees from members who have enlisted for active service. Along similar lines, it was decided that fees should be payable by firms only in the province where they are registered, thus relieving members registered in more than one province of being compelled to pay fees two or three times over.

Upon taking up the question of the election of officers and Council for 1916-1917, Mr. J. H. G. Russell was nominated for re-election but declined the honor for a further term, although strongly urged to accept. The following list was therefore adopted:

President.—Mr. J. P. Ouellet, Quebec.

Vice Presidents.—Mr. A. Frank Wickson, Toronto; Mr. W. B. Van Egmond, Regina.

Hon. Secretary.—Mr. Alcide Chausse, Montreal.

Hon. Treas.—Mr. J. W. H. Watts, Ottawa.

Council.—Messrs. James Henderson, R. P. Blackey, W. D. Cromarty, J. H. G. Russell, H. E. Matthews, W. P. Over, C. W. Acton Bond, J. P. Hynes, C. P. Meredith, J. W. H. Watts, D. R. Brown, A. B. Champagne, Joseph Perreault, R. G. Bunyard, A. G. Creighton, H. Cooper.

Canada's Heavy Fire Loss

In war time, and while many interests are urging thrift and economy, the Canadian people are burning up their created resources at a much greater rate this year than last.

During the first five months of 1916, the fire loss in Canada has exceeded that of January to May, 1915, by approximately \$3,000,000, or \$600,000 per month.

Canada has need of all her financial resources. She is borrowing money to carry on the war, and is paying 5 per cent. interest thereon. The additional fire loss of 1916 would therefore pay the interest charge on the recent war loan of \$100,000,000, and would pay \$2,200,000 of the principal. Canada's average annual fire loss, of over \$23,000,000, would pay 5 per cent. interest on approximately half a billion dollars. Our fire loss is, however, something for which we are receiving no value, either financial or patriotic; it is simply a tax, due in great part to carelessness, which Canadians appear willing to pay, and which they, as a whole, are doing little to avert.

Articles required in the building trade.—A correspondent in New Zealand is anxious to get in touch with Canadian manufacturers of the following articles required in the building trade: Roofing materials, iron, asphalt, asbestos, tiles, or cement, timber, heating apparatus, coolers, sanitation, ventilation, waterproofing materials, cements, paints, etc.—No. 1089, *Trade Enquiries*.

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CONTRIBUTIONS.—The Editor will be glad to consider contributions dealing with matters of general interest to the readers of this Journal. When payment is desired, this fact should be stated. We are always glad to receive the loan of photographs and plans of interesting Canadian work. The originals will be carefully preserved and duly returned.

Entered as Second Class Matter in the Post Office at Toronto, Canada.

FRASER S. KEITH - - - EDITOR AND MANAGER

Vol. IX Toronto, September, 1916 No. 9

Government's Lack of Patriotism.

When the Government of Canada sees fit, as it has done, to offer a gratuitous insult to the engineering, architectural and contracting interests in this country, it is surely time for a vigorous protest. In giving the designing and erecting of the new Dominion arsenal at Lindsay to a New York firm, it has been guilty of a crime against the public welfare, which should not be tolerated by the people of the Dominion.

The weak-kneed attempt on the part of the Hon. A. E. Kemp to justify the action of the Government in giving this work to a foreign company, by inferring that Canadian architects, engineers and contractors were not competent to undertake this important work, is adding further insult to injury, and like hitting a man below the belt after he has been struck on the face. Failing to find an excuse for getting outsiders to do work for which the people of Canada are paying, and which could be as well done by men who are going to be called upon to pay their share of the up-keep of this Government

institution, the would-be defender of the Government's action takes it upon himself to belittle the ability of the men already injured.

From the method pursued in placing the arsenal contract, the Canadian Government proves itself guilty of stupendous ignorance and a lack of loyalty and patriotism, intolerable at any time, but under existing conditions and circumstances little short of criminal. Its ignorance of the fact that there is hardly a building in the United States, either public or private, that could not have been as well designed by Canadian architects, or erected by Canadian contractors, might be excused, but its treasonable disloyalty to the men who have been affected by the war more adversely than any other group, is unpardonable.

The history of shell-making in this country offers an object lesson to all who yet fail to possess a due sense of the resourcefulness of Canadians in an emergency. When the war broke out the metal-working industry was at a low ebb. Shell-making meant its salvation. No experts in this line were available. Turning out shells presented problems and difficulties beyond anything ever attempted by mechanical engineers and expert mechanics in this country. The problems presented were met with and solved by a display of inventive adaptability that was little short of marvelous. So well was the work done that experts came from the United States to study our methods and get ideas. Editors of mechanical papers from across the line came for information, with which they enlightened their readers as to how mechanical difficulties in shell-making were overcome. British papers freely copied Canadian literature describing Canadian methods. The Government of Australia issued an official booklet on shell-making to aid the manufacturers of that country. The information in that booklet was obtained in Canada. Yet, according to our own Government, the breed of men who accomplished this could not be entrusted with the comparatively simple problem of designing and erecting a munition manufacturing plant.

The day the corner-stone of the Dominion arsenal was being laid with great pomp and ceremony in Lindsay by Sir Sam Hughes, members of the Canadian Manufacturers' Association were in New York putting in tenders for material for this building. Toronto manufacturers found it necessary to go to the United States in order to get a chance to bid for a share in supplying their material to a building for which the people of Canada are paying. Could absurdity be extended further?

In striking contrast to this free and easy method on the part of the Government and private corporations of ignoring Canadian worth and ability at the expense of the general welfare

of the country, is the wall imposed against us by the federal Government of the United States. As an actual illustration of this might be mentioned the case of a Hamilton architect who competed for, and won, a competition on a building which was to be erected in a city not far from the Canadian border. This successful architect, whose work was judged on its merit, was not allowed to enter the United States to superintend the erection of the building. The federal law of

the United States includes under their Alien Labor Act, which controls the entry of foreign labor into their borders, and places in the same class as mechanics, the architect, the engineer, and the contractor.

It is up to us as architects, as engineers, as contractors, as manufacturers, to see that our own laws are made at least as far-reaching as those of our neighbor, where it is in the public interest to do so.

An Anomalous Situation Requires Action

Conditions Existent in the Affairs of Architects, Engineers and Contractors in Canada Necessitate Joint Action on the Part of the Royal Architectural Institute of Canada, the Canadian Society of Civil Engineers, the Builders' Exchanges and Canadian Manufacturers Association.

The Canadian Society of Civil Engineers, realizing the injustice being done to the engineering profession culminating in the appointment of an American engineer as advisor to the Canadian Government Commission on railway affairs, has issued a circular under date of September 7th, calling for the co-operation of every member of Society. The circular says in part:

"The above Commission immediately appointed an American engineer as its advisor, and instructed him to organize a corps of engineers for valuation and advisory work. We wish to record our strong condemnation of the policy of placing in the hand of aliens the engineering work of a commission appointed by the Canadian Government to investigate Canadian railways for which the Canadian community has paid.

The inferences to be drawn from the employment of aliens in the above connection are that the Federal Government considers:

1st. That the Canadian engineers who built the railways are not competent to report upon them.

2nd. That the Canadian universities, in many cases enjoying Government subsidies, are not producing competent engineers; and

3rd. That the Canadian Society of Civil Engineers, although embracing a membership of about three thousand, is not considered worthy of consultation on an important engineering question.

The above mentioned appointment of alien engineers is not by any means the first of its kind, as many similar but possibly less flagrant cases have preceded it, and it is not improbable that the recurrence of such appointments may be due to the fact that Canadian engineers neither assert themselves nor demand recognition.

In order to impress upon the Federal Government the fact that one of its first duties is to encourage and develop the engineering profession in Canada in every possible way, the Council has selected this gross violation of a vital principle to initiate a campaign and impress the fact that Canadian engineers must receive due consideration. The Canadian railways, canals, public works and other engineering attainments are a proof that Canadian engineers stand in the front rank, and it should be quite unnecessary for them to have to appeal to their own Government for recognition.

It may be argued in support of the present alien appointment that Canadian engineers are not acceptable because many have been in the employ of the railway companies. To this we would reply that, as the Commission itself is to advise the Government, basing itself upon the engineering data given to it, any experienced engineers are competent to collect and submit the necessary information to the Commission.

It may also be argued that the Government gave the Commission a free hand in the appointment of an engineering staff, and, since this freedom of appointment is essential, our protest should be to the Commission itself. To this we reply:

1st. That when a particularly flagrant case arises such as this where competent constructing and operating engineers are passed over in favor of alien engineers, the question of the suitability of the Commission appointed by the Government for the work in hand comes into question.

2nd. A protest to the Commission itself would probably prove futile, and, even if successful, would not in any way impress the Government, the creator of Commissions, in regard to future procedure in matters of this kind.

The Council of the Canadian Society of Civil Engineers, therefore asks you to use your influence in every way to diffuse a knowledge of this matter throughout your community, and to place before those with whom you may come in contact the facts of the case and the position of engineers in relation thereto. Specifically, the following is recommended:

1st. That you write to your representative in the Dominion Parliament, whether Government or Opposition, setting forth the facts of the case in a strong way, and pointing out that this is merely an incident in a long course of similar procedures.

2nd. That you write in a similar vein to those having influence with the Government in your own community or elsewhere.

3rd. That wherever similar incidents are brought to your attention you voice a protest, giving the facts to your local branch of the Canadian Society of Civil Engineers or to the Secretary at Montreal in such a manner that the Council may deal therewith.

4th. That you do not delay acting in this matter as above outlined, but proceed to-day to do what you can to bring every pressure to bear in every direction for the good of the engineering community in Canada."

Instead of acting independently, a stronger case could be presented with a more reasonable hope of accomplishment if the Canadian Society of Civil Engineers joined with the Royal Architectural Institute of Canada, and the various Provincial Builders' Exchanges, and then in turn secured the support of the Canadian Manufacturers' Association. The influence of these organizations acting together would be powerful enough to obtain the object we desire.

CORRESPONDENCE

The opinions published herewith, of men occupying important positions, confirm the stand taken by "Construction" that we are face to face with a situation calling for action.

* * *

Toronto, September 6, 1916.

Editor, CONSTRUCTION, Toronto:

The Toronto Chapter of the Ontario Association of Architects has, for the past year, been interested in the extraordinary conditions of architectural practice with which we find ourselves confronted.

It appears that buildings costing over six million dollars have been designed by American architects since the beginning of the War, and apparently the end is not yet.

CONSTRUCTION published in the issue of August of this year, the reply of the U. S. Immigration Commissioner quoting the laws of the United States as applied to Canadian archi-

tects, engineers and contractors desiring to do business in that country.

While Canadian architects are absolutely barred from following their profession in the United States, should such an opportunity be offered to any of us, our country freely admits architects from the United States to practice here. The present laws of Canada governing the control of drawings from other countries, while imposing a duty on the value of the work involved, do not prevent the alien architects from coming here to practice temporarily. They would be welcome if they came here to stay. It would seem only the most elementary act of self-defense to have our laws agree with the laws of the United States, and definitely prohibit such alien employment.

When one stops to consider that the American architect, being more familiar with his native building materials, specifies these in preference to similar Canadian building materials, the great injustice done to our business and manufacturing industries is realized. Again, in the awarding of contracts the same preference is seen, and foreign contractors secure the greater share of such work.

The experience of those of us who have been considering conditions during the past year shows that a campaign of education of the public is just as vital to our interests as the alien labor law. It is quite evident that our commercial concerns and financial men need to realize that there is not the necessity to go out of the country for what the country needs in professional services and also in the bulk of building materials.

It is difficult to say definitely what has caused this tendency towards the employment of alien architects for business and manufacturing concerns, there may be several contributing causes; but it would seem that the desire for specialists was the first. Specialization is not to be decried, we can use all there now is, and need more, in the engineering sciences connected with building, but not in architecture. All the modern education and training required of architects would go for naught, if they were compelled to become specialists in particular kinds of commercial buildings. The principles controlling construction are not confined to any one class or group of buildings, and an architect can complete successful buildings for different kinds of manufacturing or business concerns when he is given the proper information and the owners know what they require. Some of the most successful buildings in the United States to-day are the first of that particular class of building which the architects thereof were commissioned to do. Those buildings were successes because the owners knew what they wanted for their

particular needs, and the architects were able to harmonize all the various needs through having been given such information.

Imagine the case of a business concern about to erect a new building of which there is no similar building in this country. There may be several buildings of this type across the border, and instead of the Canadian concern going across and bringing back the alien architect for the Canadian building, let the owners take the Canadian architect across with them; and, if necessary, send him to different cities to gather the particular information needed. This is not a new principle but has been used by other owners in other countries for years.

In our campaign of education it is desirable that the various architectural associations should all work together. The London Chapter of the Ontario Association of Architects has already signified its desire to help in securing the legislation we seek; and there was recently an informal meeting between the Provincial Builders Exchange and some of the Council of the O. A. A. All this is in the right direction. We have been offered help in such a campaign from several sources and are hopeful of great results. It would seem to be conforming to the spirit of the convention, called for this fall by the Department of Trade and Commerce, if the Architectural Associations could have some comprehensive scheme prepared, to be presented before that Convention.

Yours very truly,

R. K. SHEPARD,

Chairman, Toronto Chapter,
Ontario Association of Architects.

* * *

Department of City Architect and Superintendent of Building.

Toronto, Sept. 1st, 1916.

Editor, CONSTRUCTION, Toronto:

I beg to acknowledge the receipt of your letter of July 17th, 1916, in which you request my opinion on the subject of "bettering conditions for architects."

In reply would say that I think your paper is taking a much-needed stand in this matter and is to be congratulated therefor.

The Commission of Conservation have notified me that they have undertaken the important task of investigating the extent of fire losses and efficiency of fire protection in Canada, with a view to suggesting some means whereby the present deplorable waste of fire may be curtailed. They also stated that they favored a uniform building code for all Provinces, setting out a standard of minimum building requirements, graded according to the population of the towns to which applicable.

By referring to the above extracts from the Commission, I think they have given one of the best arguments possible why architects should have the proper training, and, having acquired the necessary experience, then be adequately protected, as it is self-evident that unless the architect can interpret the building code, using the fibre stresses given as well as the other requirements, the building code would be null and void. This is particularly so in towns where there is no properly equipped building department, as it would be a very slow and laborious thing if all plans had to be submitted to some central bureau miles away, and then have it necessary for the owner or architect to travel miles to change plans and specifications that did not agree with some part of the code.

When you consider the great confidence that the public have to place in the work of the architects in entering large buildings, and in ninety-nine out of one hundred cases they do not even know who the architect was, it is surprising that the public has not insisted on the architects being properly trained, not only from the artistic side, but also from the constructional point of view, because, after all, it makes very little difference to a person as to the beauty of the building if it should fall down on top of them.

When you consider the fact that the University of Toronto gives at present a splendid course in architecture, it seems to me that legislation similar to what is enacted to protect doctors, lawyers, etc., could be enacted and put on a first-class basis at once without any extra cost to the government.

Upon talking with numerous architects in Toronto on the subject, I am of the opinion that the first step in securing legislation of the nature given above would be to have all the architects at present practising practically unanimous on the subject, and I find that the most of them would be pleased to have such an Act passed.

As Canada has a great future ahead of it, it seems reasonable to have the change made as soon as possible.

Yours truly,

W. W. PEARSE,

City Architect and Supt. of Building.

* * *

The Provincial Builders' and Supply Association of Ontario.

Office of Secretary.

Toronto, Aug. 31st, 1916.

Editor, CONSTRUCTION, Toronto:

I have read with interest the articles you have written in your issues of July and August upon the injustice being done to both Canadian architects and Canadian contractors by the employment, by Canadian owners and manufacturers,

of American architects and contractors to do their work, as evidenced by the figures mentioned in the said articles.

That there is serious need of action being taken is evidenced by the fact that the Wm. Davies Company have just awarded the contract for their large new building to a Chicago firm of contractors, under Chicago architects, and the same course was, as you know, followed by another Toronto company in the awarding of the works on their new mail order building and the employees' home.

In such cases as these I think that the Canadian Manufacturers' Association should take action, and so emphasize their much advertised slogan, printed broadcast some months ago, entitled—"Canada for the Canadians."

It seems to me that the first steps to combat this foreign invasion should be taken by the architects, primarily in seeking legislation for their protection, such as you mention in your articles, for it is generally the influence of the foreign architect that induces the client to employ the foreign contractor, and, therefore, if such legislation were obtained, the contractor would also obtain protection. There is also the matter of customs duty on plans prepared outside Canada, amounting at the present time to 30 per cent. of 1 per cent. of the value of the building, and, although the claim has been put forward that foreign architects could and do evade the duty by bringing in just rough sketches, and sending draughtsmen here to perfect and complete the same, I feel that the law can be construed to cover such, and, if not, then legislation should be sought to have the Act amended to do so, as I think that if it was pointed out to an owner contemplating erecting, say, a five hundred thousand dollar building, that in the event of his employing a foreign architect he would have an additional cost over the said architect's fees of fifteen hundred dollars for duty, he would be inclined to enquire into the abilities of the Canadian architect and the Canadian contractor.

The Canadian contractor is largely dependent upon his architect for work, although it is true that these so-called general contractors, who come from the States, generally sub-let the majority of the works to the local men, but it is the manner in which they do so that is the greatest disgrace and hardship to us. They come, say, to Toronto to figure a job, and call upon all the local men to give them figures, and, when they themselves have been awarded the contract, instead of awarding the sub-contracts to the contractors whose figures secured them the work, they immediately proceed to peddle for new figures. In other words, instead of contractors,

the majority are nothing more or less than *brokers*.

As I said before, the Canadian Manufacturers' Association should take this matter up with their members and try to induce them to strengthen the other industries and professions of their country by employing them, as it is only by the strength and solidity of all the constituent trades and industries that Canada can become the great and powerful country that she is entitled to be, and surely all true and loyal citizens can have no other wish than to see her in that position.

Yours truly,

A. E. FLOWER,

Secretary.

* * *

The Architectural Institute of British Columbia,
Office of the Hon. Sec'y.

Vancouver, B. C.

Editor, CONSTRUCTION, Toronto:

In recent times a well-known Vancouver building owner proclaimed from a public platform that it was the duty of all residents of British Columbia to deal with business men and firms established within the Province, and this at a time when a very large building named after him was nearing completion, under the supervision of architects whose residence was in the United States, although they had a temporary branch office in Vancouver; a building contractor brought from the same place, and in the construction of which a very large amount of American manufactured material had been used.

Complaints have been continuously made by architects, engineers, contractors and manufacturers of building materials in the Province of British Columbia that an injustice is being done to them in the way that a very large amount of construction work in this Province has been for the last six or seven years, and still continues to be, designed and erected by Americans, and of American material, and that these American architects, engineers and contractors may or may not have branch or temporary offices here, but are in any case non-residents of Canada, and that it is reasonable to assume that the profits they make will be entirely lost to the country.

Such non-residents have no community interests in this country, and, unlike the Americans who permanently reside here, merely invade it as exploiters prepared to close down their branch or temporary offices during periods of depression; pursuing, at a distance, a policy of "watchful waiting" until business revives.

The opening paragraph of this letter cites only one of many instances of the particular kind of glaring inconsistency practised by certain building owners in this Province.

Moreover, it is remarkable that this absence

of patriotic and public spirit has been more particularly exhibited by many of those individuals, firms and corporations whose chief purpose and interest in promoting the erection of structures is that, either as owners of office buildings, bankers, public service corporations or privileged manufacturers, they may seek the support of and make profit out of the Canadian public, and, while objecting to foreign competition themselves, entirely disregard all moral and business obligations to patronize and support such as may be possible of the various branches of Canadian business endeavor carried on in their midst, and by sections of the public to whom they appeal for patronage and support. For it should be borne in mind, even in the case where American capital is introduced into Canada, that it is done solely with the object that it will from the resources of the country return profits to its owners, and surely it is no more than reasonable to require the capitalists exploiting the country for their own benefit, that in so doing they should patronize and employ the residents of it.

The Pantages Theatre Co. is the latest instance where the public of British Columbia is to be asked to support and give profit to a company whose first move in building their new theatre is to ignore the resident and employ an American architect residing in the United States.

That there is no excuse for this condition of affairs in this instance, or any other, needs no demonstration, since Canadians in all these branches of work are not one whit less competent than their brethren over the line.

That the American architect or engineer is largely responsible for the introduction of the American builder and material has often been conclusively proved, not only in the West, but in the East.

Figures issued by the Builders' Exchange of Ontario show that during the year 1915 plans and specifications were prepared by American architects for work amounting to \$2,769,000, and that as the result of this favoring of American architects, only \$90,000 worth of this work was executed by Canadian builders.

Moreover, during this period plans had been prepared by American architects for buildings to be erected in Canada aggregating \$4,545,000 in value.

At the present time the Architectural Institute of British Columbia, Inc., is unable to give complete figures on the lines of the Builders' Exchange of Ontario, but from close observation and knowledge of building conditions for several years past, the Architectural Institute is of opinion that figures would make even a worse showing for British Columbia than Ontario.

In Canada, protests of this kind are unfortun-

ately only at the complaint stage, whereas in the United States they have for a long time been in the stage of action, and not only do architects', engineers' and manufacturers' societies very strongly intervene, but the American public will not countenance the exploitation of their country by non-residents.

The absurdity of the situation is obvious, and as the plea of patriotism carries no weight, otherwise the situation would not exist, a remedy ought surely to be found that will prevent such injustice being suffered by residents having community interests and responsibilities in Canada, and which will also foster and extend the knowledge that it is not necessary to look to and depend upon the United States for men of ability and for workmanship of quality, but that Canada has among her own residents men as fully qualified and capable of undertaking and carrying on all the various forms of professional and commercial endeavor as can be found outside her borders.

Signed on behalf of the Council of the Architectural Institute of British Columbia, Inc.,

R. MACKAY FRIPP, *President.*

Stimulating Trade

Five hundred cars of lumber are being shipped daily from the mills of British Columbia to various Canadian points. This represents the greatest amount of business in the history of the lumber industry for the Coast Province. It is the direct and satisfactory result of the aggressive publicity campaign commenced a few months ago by the Government of British Columbia. In adopting this policy an example has been set to the older Provinces of the Dominion—the stimulating of a demand for a natural asset.

During the few months since an office was opened in Toronto and a campaign of publicity commenced the demand for B.C. lumber in Eastern Canada has increased at a wonderful rate. Architects and builders are now able to see for themselves the splendid samples of the various B.C. woods, and to judge their quality and appearance from the numerous samples in the B.C. Lumber Commissioner's office in Toronto. The B.C. Government was particularly fortunate in the appointment of a commissioner as representative for Eastern Canada. Mr. L. B. Beale, who is in charge as B.C. lumber commissioner, is not only an authority on the woods and timber resources of B.C., but an enthusiastic and affable advocate of their uses. Much of the success of the B.C. campaign is due to his energy and enthusiasm. Canada needs just such men, and should have them to-day representing her in foreign countries, stimulating an interest in her natural products and creating a demand for them and for the output of her factories.

CONSTRUCTION NEWS

Information of Special Interest to Architects Contractors, and Manufacturers.
Construction Building Reports will Give You Up-to-date Information Every
Day on all New Buildings About to be Erected or in Course of Erection.

The outlook for the building trade is particularly bright. The past month has marked an unusual amount of building in Ontario and Quebec. Over five million dollars' worth of work is now under way in Toronto alone, and all indications point to increased activity.

BUSINESS BUILDINGS.

BARRIE. Pounder Bros. have received a contract to erect a telephone building at Barrie, to cost \$15,000.

CALGARY, ALTA.—Architect W. S. Bates, Alberta Block, has prepared plans for the Lancaster Building.

DELHI, ONT.—Architect W. Forth, Waterford, has prepared plans for the new telephone exchange, to cost \$10,000.

FORT WILLIAM, ONT.—Seaman & Penniman have been awarded the contract to erect an office building and eight stores, to cost \$80,000.

HAGERSVILLE, ONT.—The Bank of Hamilton has prepared plans for a new bank building, to cost \$10,000.

OSHAWA, ONT.—Pounder Bros., 21 Downie street, Stratford, have been awarded the contract to erect a telephone building on Victoria street.

PEMBROKE, ONT.—J. Thackray, Pembroke, has prepared plans for an office block, to cost \$40,000.

PETERBORO, ONT.—Architects Bond & Smith, 15 Wilton avenue, Toronto, have prepared plans for W. H. Hill's office and apartments, to cost \$10,000.

PORT ARTHUR, ONT.—Architect John Warrington has prepared plans for the General Realty Co., Port Arthur, for a business block, to cost \$80,000.

SARNIA, ONT.—Gutteridge & Grace, builders, 278 Front street north, have been awarded the contract to erect an office building on River street.

SHERBROOKE, QUE.—Plans are being prepared for a new branch for the Canadian Bank of Commerce. Mr. G. G. Valles, 67 Belvidere street, has commenced work on a new three-storey business block, to cost \$4,500.

TORONTO, ONT.—Architect G. C. Biggs, 34 Victoria street, has prepared plans for repairs to the Canadian Northern Railway office buildings at 39 Wellington street east and 46 Front street east.

WINDSOR, ONT.—Architects Watt & Blackwell, Bank of Toronto Building, London, Ont., are preparing plans for an office building, to cost \$65,000.

WINNIPEG, MAN.—Architect J. D. Atchison & Co., 914 Boyd Building, Winnipeg, has prepared plans for a bank on Main and McDermott streets, to cost \$400,000.

CIVIL ENGINEERING.

CLANDEBOYE, MAN.—Tenders have been called for two pile bridges; secretary, J. B. Forster.

MISSION CITY.—Tenders have been called for the erection of a general traffic bridge.

MONTREAL, QUE.—Tenders have been called for a steel bridge to be erected over the Chateauguay River.

MOOSE JAW, SASK.—Tenders have been called for several reinforced concrete bridges; H. S. Carpenter, chairman. Tenders have been called for bridge abutments for several reinforced bridges, H. S. Carpenter, chairman.

SARNIA, ONT.—Tenders have been called for four steel and cement bridges; W. A. Scott, clerk.

STE. JULIENNE, QUE.—Tenders have been called for a bridge; G. A. Archambault, secretary-treasurer.

SUDBURY, ONT.—Tenders have been called for 1,446 lineal feet of cement sidewalks; W. J. Ross, town clerk.

CLUBS, HOSPITALS, THEATRES AND HOTELS.

BRANTFORD, ONT.—Debentures have been issued by the city of Brantford for the erection of a hospital, to cost \$58,000.

BROCKVILLE, ONT.—Chas. R. Rud is erecting a hotel at the corner of James and William streets, to cost \$12,000.

DOVER, ONT.—The Canadian Pacific Railway Company has prepared plans for a contemplated hotel.

INGERSOLL, ONT.—Architect W. G. Murray, Dominion Bank Building, London, has drawn plans for an hospital addition, to cost \$8,000.

OTTAWA, ONT.—Architects Millson & Burgess, Union Bank Building, have prepared plans for an hospital sun room, to cost \$8,300. Architect Chas. Brodeur, 63 Hotel-de-Ville, Ottawa, has prepared plans for an hospital alteration, to cost \$10,000.

NEW GLASGOW, N.S.—Work has commenced on two new theatres, to cost \$100,000.

SASKATOON, SASK.—Architect W. H. Evans has called for tenders for the erection of a frame hospital building.

TORONTO, ONT.—Architect Geo. B. Post, New York City, is preparing plans for a contemplated hotel to cost \$2,000,000. Architect Geo. D. Redmond, 33 Fairview Boulevard, has prepared plans for a theatre, to cost \$25,000. Architect I. W. Lamb, Ruddy Building, Wellington street east, has prepared plans for a theatre, to cost \$100,000.

FIRE LOSSES.

AYLMER, ONT.—J. H. Glover store and stock destroyed by fire; loss \$10,000. T. H. Willoughby bakery destroyed by fire; loss \$2,000.

BLIND RIVER, ONT.—The following buildings were destroyed by fire, loss \$150,000: The Post Office, Methodist Church, Royal Bank Building, Trelaw & Menard's Block, ten stores and two offices.

COLLINGWOOD, ONT.—The Collingwood Packing Co. was totally destroyed by fire; loss \$100,000.

DRUMMONDVILLE, QUE.—The Aetna Chemical Company's powder factory was destroyed by fire; loss \$20,000.

DUNDAS, ONT.—The building of the Hydro Commissioners was destroyed by fire; loss \$125,000.

FREDERICTON, N.B.—Bridges and railways destroyed; loss \$100,000. The Fernald blacksmith shop was destroyed; loss \$1,100.

OWEN SOUND, BEN ALLEN, ONT.—James Bumstead, barn destroyed by fire; loss \$3,000.

PEMBROKE, ONT.—The Pembroke Woollen Mills Co., Ltd., destroyed by fire; loss \$10,000.

STE. ANNE DE LA PACE, QUE.—Fire destroyed the convent of the Sisters of Ste. Famille; loss \$30,000.

SAULT STE. MARIE, Ont.—Fire destroyed all the business section of Blind River District. Total loss \$125,000.

ST. CATHARINES, ONT.—H. Searly, livery barn destroyed by fire; loss \$5,000.

TORONTO, ONT.—J. E. Snyder, Mfg. Agent, premises destroyed by fire; loss \$8,000.

WINNIPEG, MAN.—The factory of The Paint and Glass Co. was destroyed by fire; loss \$100,000. The building occupied by The Leslie Furnishing Co. was damaged by fire to the extent of \$20,000.

PLANTS, FACTORIES AND WAREHOUSES.

BELLEVILLE, ONT.—The Maple Leaf Tire Co., Ltd., Belleville, have commenced work on a new factory, to cost \$40,000.

BRANTFORD, ONT.—The Dominion Steel Products are erecting a steel factory, to cost \$60,000.

BRANTFORD, ONT.—Architect C. W. W. Hall, 321 Colborne street, has prepared plans for the Hygienic Dairy Co.'s new factory and office buildings, to cost \$25,000.

BRANTFORD, ONT.—Austin Co., Cleveland, Ohio, have been awarded the contract for erecting a steel factory for the Dominion Steel Products Co., to cost \$65,000.

BROCKVILLE, ONT.—The Canadian Briscoe Motor Car Co. have commenced work on an addition to their factory.

CHATHAM, ONT.—Architects Adams & Adams, King street, have prepared plans for the American Pad and Textile Co. factory on Queen street, to cost \$45,000. Wells & Gray, Confederation Life Building, Toronto, have been awarded the contract.

DUNDAS, ONT.—John Bertram & Sons Co., Ltd., have prepared plans for a factory on Hall street, to cost \$50,000.

EDMONTON, ALTA.—R. G. Dawe has called for tenders for the erection of a wholesale grocery warehouse at Red Deer, brick and concrete construction.

FALLS VIEW, ONT.—Brown Pollard Co., Niagara Falls, N.Y., have been awarded the contract for erecting a factory, to cost \$75,000.

FERGUS, ONT.—Beattie Bros., Fergus, Ont., have plans prepared for a factory addition, to cost \$40,000.

FREDERICTON, N.B.—Mr. J. Fred Ryan has been awarded the contract for erecting a smelting plant for the Bathurst Lumber Co.

HAMILTON, ONT.—G. E. Mills, 614 King street east, has been awarded the contract for a factory addition, to cost \$6,000.

HAMILTON, ONT.—Architect C. T. Maine, 201 Devonshire street, Boston, Mass., has prepared plans for a factory on Cumberland avenue, to cost \$125,000; W. H. Cooper, Clyde Building, Hamilton, has been awarded the contract. The Bank of Hamilton are preparing plans for alterations to their factory on Victoria avenue north. Architects McPhie, Kelly & Darling, Bank of Hamilton Building, have prepared plans for a factory for W. T. Rawleigh Co., Freeport, Ill., on Rosslyn avenue, to cost \$60,000. F. F. Dalley Co., Hughson street west, are having plans prepared for factory alterations. Architect H. G. Christman, 32 Federal Life Building, is preparing plans for factory alterations, to cost \$15,000. The Acme Stamping Co. are preparing plans for a factory addition, to cost \$15,000. Frid Bros., Bank of Hamilton Building, have been awarded the contract for building an addition to Union Drawn Steel, Ltd., factory, to cost \$6,000.

LONDON, ONT.—J. R. Shuttleworth & Son Hat Co., 377 Dundas street, is having plans prepared for a factory addition, to cost \$20,000.

LONDON, ONT.—L. Keenteyside, 487 King street, is having plans prepared for factory alterations, to cost \$5,000.

LONDON, ONT.—Architect F. C. White is preparing plans for a factory addition for the London Rolling Mills, to cost \$12,000.

LONDON, ONT.—J. Shuttleworth, 322 Princess avenue, is having plans prepared for an addition to his factory on Dundas street, to cost \$15,000.

MONTREAL, QUE.—Plans have been drawn for a factory to cost \$20,000 belonging to the Montreal Tramways Co; it is of cement fireproof construction. The Dominion Textile Co., 112 St. James street, is erecting a factory on St. Ambrose street, to cost \$15,000. The Wm. Davies, Mill street, is erecting a warehouse on Mill street, to cost \$6,800. Architect James Adamson, Amesbury avenue, has drawn plans for Sultana, Ltd., and a warehouse will be erected on Amherst street, to cost \$7,000. The Atlas Construction Co., 37 Belmont street, have prepared plans for the Thomson-Norris Co., 335 Notre Dame street west, and a new factory will be erected on Masson street at a cost of \$84,000.

MONTREAL, QUE.—The Northern Customs Concentrator, Ltd., propose to add a 100-ton flotation plant to their mill.

NANPETCH VILLAGE, ONT.—The British-American Nickel Co., Murray Mine, Ont., is having plans prepared for a hydro power plant, to cost \$1,250,000.

NEW WESTMINSTER, B.C.—Work has started on a new shingle mill belonging to the Acorn Lumber and Shingle Co.

NIAGARA FALLS, ONT.—Pollard Mfg. Co. has had plans prepared for a foundry, to cost \$100,000.

NIAGARA FALLS.—The Perfection Tire and Motor Co., Madison, Iowa, is contemplating a factory, to cost \$65,000.

NIAGARA FALLS, ONT.—The Canadian Axolite Plant, Ltd., is erecting a carborundum plant, to cost \$100,000. The Oneida Community, Ellen street, Niagara Falls, are preparing plans for a new factory.

NIAGARA FALLS, ONT.—The Oneida Community, Ltd., is contemplating an addition to their factory. Synder & Gillette, Niagara Falls, have been awarded the contract for erecting a foundry, to cost \$45,000.

ORANGEVILLE, ONT.—The Canadian Clock Co., Orangeville, is erecting a factory at a cost of \$40,000.

OSHAWA, ONT.—W. J. Trick Co., Toronto, have been awarded the contract for erecting a brass foundry for the McCullough Brass Foundry Co., to cost \$5,000.

OSHAWA, ONT.—Architect Geo. D. Redmond, 33 Fairview boulevard, Toronto, has prepared plans for three factories belonging to the Chevrolet Motor Co. of Canada, Ltd.; J. D. Young & Son, 835 College street, Toronto, have been awarded the contract.

OTTAWA, ONT.—Tenders have been called for by the Dominion Government for a flax building.

OTTAWA, ONT.—Geo. Crain, Clemow avenue, has been awarded the contract for a factory addition, to cost \$16,000.

PETROLEA, ONT.—Architect R. W. Fawcett, 116½ Front street, Sarnia, Ont., has prepared plans for a flax mill, storehouse, concrete tanks and shed.

PORT COLBORNE, ONT.—The International Nickel Co. and British-American Nickel Co. are contemplating erecting a nickel refinery, to cost \$3,000,000; Hon. G. H. Ferguson, Minister of Lands, Forests and Mines.

RENFREW, ONT.—Architect John McNeil, Renfrew, is preparing plans for a factory addition, to cost \$10,000.

SASKATOON, SASK.—An Eastern concern is negotiating for a site to erect a garment factory. The Manitoba Power Pulp and Paper Co., Ltd., have plans drawn for the erection of a sawmill, paper factory, pulp mill, and hydro-electric power transmission plant at Grand Rapids, to cost about \$2,000,000. The Sawyer-Massey Co. have prepared plans for a warehouse to cost about \$7,000.

SHERBROOKE, QUE.—Anglins, Ltd., of Montreal, have the contract for the addition to the machine shop of the Canadian Ingersoll Rand Drill Company, to cost about \$70,000. Messrs. Loomis-Dakin, Ltd., have the contract for an extension to the power house and tailrace of the Butterfield Co., Rock Island, to cost \$15,000.

SIMCOE, ONT.—The Unique Shoe Co. is erecting a factory, to cost \$20,000.

STAMFORD TOWNSHIP, ONT.—The Township Council are preparing plans for an electric light plant, to cost \$26,000; C. P. Munroe, clerk.

SUDBURY, ONT.—Architect P. J. O'Socman, Sudbury, has prepared plans for a warehouse for H. Peters, Toronto, to cost \$6,000.

TORONTO, ONT.—Architect W. H. Smith has prepared plans for a factory addition for Adams Bros., to cost \$55,000.

TORONTO, ONT.—Architects Prack & Perrin, Lumsden Building, have prepared plans for the Russell Motor Car Co.'s munition plant addition, Dufferin street, at a cost of \$40,000; Deakin Construction Co. have been awarded the contract.

TORONTO, ONT.—The Du Pont Fabrikoid Co., 864 Dufferin street, have prepared plans for a factory addition, to cost \$150,000. T. E. Essery, 441 Confederation Life Building, is erecting a warehouse at a cost of \$20,000. C. A. Scott, 575 Logan avenue, has been awarded the contract for building a factory addition, to cost \$12,000. Architects Henschel & McLaren, 431 Dearborn street, Chicago, have prepared plans for The Wm. Davies abattoir building, on Front and Cypress streets.

TORONTO, ONT.—Architect C. J. Gibson, 51 Yonge street, has prepared plans for a store and warehouse, to cost \$30,000. Architects and Engineers Prack & Perrin, 808 Lumsden Building, have prepared plans for a factory building, to cost \$65,000. H. C. Christman & Co., Federal Life Building, Hamilton, have been awarded the contract. Architect R. S. McConnell, 167 Yonge street, has prepared plans for a factory, to cost \$40,000; L. Dowling, 167 Yonge street, has been awarded the contract. Architect R. S. McConnell, 167 Yonge street, has prepared plans for a factory on William street; L. Dowling, 167 Yonge street, has been awarded the contract. The Canadian Handson Vanwick Co., 15 Morrow street, is building an addition to their factory at a cost of \$7,000. The Dominion Construction Co., 14 Wellington street, is excavating for a factory, to cost \$750,000; W. D. Spengler, 152 Simcoe street, is the architect. Architects and Engineers Prack & Perrin, Lumsden Building, have prepared plans for a warehouse, to cost \$365,000. Architect S. L. Yolles, 67 Baldwin street, has prepared plans for a warehouse, to cost \$40,000. The Dominion Government, Public Works Department, Ottawa, has awarded the contract for the erection of an examining warehouse at the corner of Front and Yonge streets, to Geo. A. Fuller, Ltd., of Montreal; work has been postponed. Architects Wm. Steele & Sons, Ryrie Building, have prepared plans for an embroidery factory, to cost \$75,000.

TRENTON, ONT.—A. E. Cuff, Ontario street, is erecting an addition to his factory at a cost of \$10,000.

VICTORIA, B.C.—Tenders have been called for by E. A. Wilmot, inspector of dykes, for removing and installing a semit pumping plant.

WALKERTON, ONT.—The Canadian Spool and Bobbin, Walkerton, are erecting a factory, to cost \$12,000.

WELLAND, ONT.—The Canadian Steel Foundries, Ltd., Crowland street, are having plans prepared for an ammunition factory, to cost \$40,000.

WELLAND, ONT.—Ryan & Gardiner, Main street east, have been awarded the contract for building a foundry addi-

tion to the Canadian Steel Foundries, Welland, to cost \$6,000.

WINDSOR, ONT.—A. F. Buers & Co., 340 University street, Montreal, have been awarded the contract for paper mills, to cost \$35,000.

PUBLIC BUILDINGS AND STATIONS.

BARRIE, ONT.—Architects Chapman & McGiffin, Toronto, have prepared plans for a library on Collier street, to cost \$15,000; Ball planing Mill Co. has been awarded the contract.

BRANTFORD, ONT.—Shultz Bros., Ltd., have been awarded the contract to build a station, to cost \$25,000.

HALIFAX, N.S.—Tenders have been called for by the city for the erection of a railway depot building at the new terminal; the building will be of granite.

HARRISTON, ONT.—The town clerk has awarded the contract for building the new town hall; cost \$12,000.

NIAGARA FALLS, ONT.—Walbridge, Aldinger Co., Detroit, Mich., have been awarded the contract for the erection of a terminal, to cost \$200,000.

OTTAWA, ONT.—Tenders have been called for the installation of incandescent lamps in public building; R. C. Desrochers, secretary.

PEMBROKE, ONT.—Architect R. S. Kalsch, Power Building, Montreal, has drawn plans for the sub-station at Pembroke; Wm. Markus, Ltd., Pembroke, have been awarded the contract; the station will cost \$10,000.

PORTAGE LA PRAIRIE, MAN.—Tenders have been called for the erection of a new court house at The Pas.

PORT COLBORNE, ONT.—The Grand Trunk Railway Co., Montreal office, has had plans drawn for the erection of a station and freight shed; W. J. Carmichael, architect.

THE PAS, MAN.—Architect G. N. Taylor, The Pas, has drawn plans for a public building.

TORONTO, ONT.—Tenders have been called for by the Hydro-Electric Commissioners, 226 Yonge street, for the erection of a sub-station, to cost \$90,000.

RESIDENCES, STORES AND FLATS.

BICTONA, B.C.—The Canadian Explosives, Ltd., have called for tenders for the erection of a three-storey boarding-house, at James Island, B.C.

DELHI, ONT.—A. E. Steele has had plans prepared for his store, to cost \$5,000.

EXETER, ONT.—W. S. Howis has prepared plans for his drug store, to cost \$7,000.

HALIFAX, N.S.—The Eastern Investment Corporation are erecting a warehouse on Phillips street, a residence on Jennings street. A store for Ben's, Ltd., is being erected on Pepperell street. Goodue & Petrie are erecting a warehouse on Shirley street. J. E. Bulter is erecting a store and dwelling on Shirley street. J. W. Hurshman has commenced work on a store at 612 Robie street. A MacDonald is erecting a house on Phillips street. J. S. Parker a house on Cork street. Emile Coume and Wm. Lockyer have prepared plans for two houses on Stairs street. F. A. Shaw is erecting a garage on Henry street.

HAMILTON, ONT.—Brennen & Sons, 40 Ferguson avenue, have been awarded the contract for an apartment house, to cost \$20,000.

HAMILTON, ONT.—Architect F. W. Warren, Bank of Hamilton Building, has prepared plans for a residence on Ontario street, to cost \$5,000.

HAMILTON, ONT.—Architect Gordon Hutton, Bank of Hamilton Building, has prepared plans for a residence, to cost \$12,000; Geo. F. Smith, 26 Carrick avenue, has been awarded the contract. Architect H. C. McBride, 148 Dundas street, has prepared plans for W. J. Ashplant's residence, to cost \$7,000. W. J. Workman, 15 Lottridge avenue, has been awarded the contract for J. P. Marshall's residence on Undermount avenue. Brennen & Sons, 40 Ferguson avenue, have been awarded the contract for an apartment house on Tisdale street.

HUMBERSTONE, ONT.—Architect C. M. Borter, Main street, Niagara Falls, is preparing plans for a residence for S. J. Quinn, Buffalo, N.Y., to cost \$6,000.

LONDON, ONT.—Architect J. W. Munro, Bank of Toronto Building, is preparing plans for Mrs. N. McHardy's residence on Grand avenue, to cost \$5,000. Architects Watt & Blackwell, Bank of Toronto Building, have prepared plans for W. H. McKewen's residence and garage on Piccadilly street, to cost \$10,000. Architect J. V. Munroe, Bank of Toronto Chambers, has prepared plans for Mrs. N. McHardy Smith's bungalow, to cost \$5,000; R. H. Smith has been awarded the contract. C. Trebilcock, Colborne street, has had plans prepared for his residence on Colborne street, to cost \$5,000. Architects Watt & Blackwell, Bank of Toronto Building, have prepared plans for a residence for W. F. McKewen, to cost \$8,000.

LUCKNOW, ONT.—A. Solomon has awarded N. MacCallum, Lucknow, Ont., the contract for building his two stores on Main street, to cost \$10,000.

MONTREAL, QUE.—W. H. Pyne & Co., local contractors, are putting up nine houses valued at \$8,000 each. There are in all twenty houses under construction in the Garden Suburb, the total value of which is \$160,000. Tenders have been called for the erection of a residence for the teachers at Caughnawaga, Que. Mr. Haugdon, architect, has prepared plans for two dwellings to be erected on Marlow street, to cost \$14,000. The Merchants' and Employers' Guarantee and Accident Co., 83 Craig street west, are making repairs to a dwelling on St. Denis street, at a cost of \$5,500. Gibear & McRobert, 10 Benoit street, are making repairs to a store on St. Catherine street west, at a cost of \$4,600. A. Lefebvre, 3632-33 Arenia street, has prepared plans for a dwelling to be erected on St. Gerard street, to cost \$1,200. Dr. E. Poulin, 2942 St. Laurent, is erecting six dwellings on Carle street, to cost \$5,000. S. Messier, 1993 Bordeaux street, is erecting a dwelling on Bordeaux street, to cost \$4,500. St. Urbain Academy is erecting a house on St. Urbain street, to cost \$6,000. Architect Chas. J. Brown, 4263 St. Catherine street, has prepared plans for T. A. Trenholme's residence, to cost \$12,000. Mr. E. Emery, owner and architect, has prepared plans for two dwellings, to cost \$8,000. Mr. W. H. Creed, owner and architect, has prepared plans for a house, to cost \$5,000.

OAKVILLE, ONT.—W. Whitaker, Jr., is having plans prepared for his store addition, to cost \$5,000.

OTTAWA, ONT.—A. E. Pagnette, 19 Noel street, is erecting a store and apartments on St. Patrick and Chapel streets, to cost \$12,000. Architect W. H. George, Castle Building, has prepared plans for a residence for J. M. Ross, 49 Metcalfe street, on Laurier avenue, to cost \$7,000. Miss E. Butterworth, Elmscourt Apartments, is erecting a residence on Rideau Terrace, to cost \$5,000. Architect S. F. Smith, 448 McLeod street, has prepared plans for a residence for B. and F. Blackburn, 202 Creighton street, on Rideau street, to cost \$5,000. A. E. Thoms, 155 Sunnyside avenue, is erecting a residence on Sunnyside avenue, to cost \$6,000. W. G. Adamson, 126 Spark street, is erecting a store on Rideau street, to cost \$5,000. Architect W. H. George, 19 Castle street, has prepared plans for J. Harper's residence on Powell avenue. R. A. Kemp, 149 First avenue, has been awarded the contract.

PORT STANLEY, ONT.—J. C. Duffield, 520 Queens avenue, has had plans prepared for his residence, to cost \$15,000; John Haymen & Co., 432 Wellington street, have been awarded the contract.

SARNIA, ONT.—Architect R. W. Fawcett, Sarnia, has prepared plans for E. Clark's store and apartments, to cost \$5,000.

TEKESWATER, ONT.—G. H. Hasenflugs has had plans prepared for his store, to cost \$5,000.

TORONTO, ONT.—J. Richards, 1 Lonsdale road, is erecting an apartment house on Ontario and Prospect streets, to cost \$30,000.

TORONTO, ONT.—A. D. Richards, 29 Glenholme avenue, is erecting a duplex residence on Regal road, to cost \$5,000. Architects Edwards & Edwards, 18 Toronto street, have prepared plans for two residences for A. A. Thompson on St. Clair avenue west, to cost \$12,000. J. J. Downey, 398 Sunnyside avenue, has commenced work on two duplex residences on Edna street, to cost \$10,000. T. J. Allan, 48 Oakmount road, owner and contractor, is erecting two duplex residences on Ascot and Earls court streets, to cost \$8,000. Architects S. B. Coon & Son, Ryrie building, have prepared plans for H. C. Fletcher's residence on East Roxboro and Edgar streets, to cost \$15,000. Architect P. H. Finney, 79 Adelaide street east, has prepared plans for Nightscales and Smith's bungalow, on Neville Park boulevard, to cost \$5,000. C. F. Cudmore, 62 Pacific avenue, is erecting a residence on Clendennan avenue, to cost \$6,000. Architect P. H. Finney, 79 Adelaide street east, has prepared plans for A. D. Richard's duplex residence on Regal road, to cost \$8,000.

WINDSOR, ONT.—Architect J. C. Pennington, La Belle Building, has prepared plans for D. W. McGregor's residence on Victoria street, to cost \$10,000.

WINDSOR, ONT.—Architects Walker & Phail, 156 Dougall avenue, have prepared plans for Woolworth stores, to be erected at the corner of London and Ouellette streets, to cost \$17,000. Architects C. Jacques & Co. have prepared plans for the Peninsular Security Co.'s store, to cost \$10,000; Urel & Jacques have been awarded the contract.

SCHOOLS, COLLEGES AND CHURCHES.

AMHERSTBURG, ONT.—Joseph L. Dufour, 132 Aylmer street, Windsor, Ont., has been awarded the contract for erecting a school, to cost \$5,000.

AVON, ONT.—The School Board is erecting a school, to cost \$20,000.

BEETON, ONT.—The School Board is preparing plans for a school.

BINSCARTH, MAN.—Tenders have been called for the erection of a one-room school at Clifford.

BRUCE MINES, ONT.—Architect Thomas R. Wilks, 612 Queen street, Sault Ste. Marie, Ont., has prepared plans for a public school.

BURSCARTH, MAN.—The Foxwarren council have borrowed \$6,000 for the purpose of building an addition to the present schoolhouse.

CALGARY, ALTA.—Plans have been prepared for rebuilding the Central Methodist Church, to cost about \$35,000.

CHATHAM, ONT.—Architects Chappell & Hunter, Charlottetown, P.E.I., have prepared plans for a church, to cost \$30,000; Robert Forrest, Chatham, has been awarded the contract.

EGANVILLE, ONT.—Architect B. Michel, Carlton Place, Ont., has prepared plans for a church, to cost \$15,000; Mr. Reinke, Eganville, has been awarded the contract.

FORD CITY, ONT.—Architect J. C. Pennington, La Belle Building, Windsor, has prepared plans for a school, to cost \$35,000; P. H. Secord & Sons, 133 Nelson street, Brantford, have been awarded the contract.

FROBISHER, SASK.—Tenders have been called for the erection of a two-room school, to cost \$10,000.

GALT, ONT.—Architect J. Evans, 30 Water street north, has prepared plans for a school, to cost \$45,000; P. H. Secord & Sons have been awarded the contract.

HAMILTON, ONT.—Architect F. W. Warren, Bank of Hamilton, has prepared plans for a church, to cost \$9,000.

HAMILTON, ONT.—Architect Stewart Witton has prepared plans for a school, to cost \$40,000. Architect F. W. Warren, Bank of Hamilton Building, is preparing plans for a church, to cost \$9,000.

HAMILTON, ONT.—Architects Stewart & Witton, 7 Hughson street, have prepared plans for a church addition, to cost \$15,000. Mitchell & Riddell, 46 Head street, have been awarded the contract.

HAYWOOD, MAN.—Tenders have been called for the erection of a new school for the Stirling School District.

MONTREAL, QUE.—An educational building is to be erected on Delormier street, to cost \$140,000. Commissioner Scolaire de St. Henri, City Hall, is making repairs to the school on College and St. Antoine streets, at a cost of \$17,000. F. S. Louis de France, 90 Rue Beilanger, is making repairs to the church at the corner of City Hall and Roy avenue, at a cost of \$2,000. The Catholic Common School, 55 St. Catherine street, is making repairs to their school at the corner of Western and Old Orchard streets at a cost of \$32,000.

NELSON, B.C.—Snyder & Brethour, Vancouver, B.C., have been awarded the contract for building an addition to the High School at a cost of \$19,403.50.

PETERBORO, ONT.—Architect Wm. Blackwell, 372½ Water street, has prepared plans for a church, to cost \$20,000; H. Fry, 190 Rubridge street, has been awarded the contract.

PORTAGE LA PRAIRIE, MAN.—The cornerstone of the new Victoria School has been laid.

RIDGEVILLE, ONT.—Architect J. L. Nichols, Welland, Ont., has prepared plans for a school, to cost \$5,000.

RIMOUSKI, QUE.—Architect Pierre Levesque, 115 St. John street, Quebec, has prepared plans for a convent addition, to cost \$25,000.

ROSSLAND, B.C.—Tenders have been called for a twelve-room school, to cost \$60,000; J. A. McLeod, secretary.

SHAWVILLE, QUE. (District No. 12)—Tenders have been called for by the School Board for the erection of a new school.

SIMCOE, ONT.—Tenders have been called for by the Board of Education for two new school buildings.

St. JOHN, N.B.—Architect F. Neil Brodie has prepared plans for a school, to cost \$70,000.

ST. JOHN N.B.—Architect F. Neil Brodie is preparing plans for a new school to be erected in St. John, N.B.

ST. JOHN—Tenders are being called for by the St. Damien School Board for the erection of a new school, to cost about \$10,000.

TAVISTOCK, ONT.—Architect J. Russell, 21 Downie street, Stratford, has prepared plans for a school, to cost \$10,000; A. Saltzer, Tavistock, has been awarded the contract.

TIMMINS, ONT.—Architects Ellis & Ellis have prepared plans for a school, to cost \$30,000; P. H. Secord & Sons, 133 Nelson street, Brantford, have been awarded the contract.

TORONTO, ONT.—Tenders have been awarded on the Boon Avenue Baptist Church, which is to cost \$10,000.

TRENTON, ONT.—The School Board is preparing plans for a school, to cost \$40,000.

TWEEED, ONT.—Architects Ellis & Ellis have prepared plans for a High School, to cost \$25,000.

VICTORIA, B.C.—Tenders have been called by the Minister of Public Works, British Columbia, for the erection and completion of a one-room addition, and sundry alterations to the Sidney School.

WATERLOO, QUE.—The work of the R.C. church and priest's house is well under way. A new two-storey boarding-house has also been erected.

WINDSOR, ONT.—Architect J. C. Pennington, Labelle Building, has prepared plans for a Collegiate Institute, to cost \$170,000; Wells & Gray, Toronto and Windsor, have been awarded the contract.

WINNIPEG, MAN.—The cornerstone of new Christ Church was laid on August 11; the building will be of stone construction.

MISCELLANEOUS.

CONISTON, ONT.—The Canadian Asbestos Co., Montreal, have been awarded the contract for the erection of a new roof on a smelter to cost \$20,000.

FORT WILLIAM, ONT.—Barnett McQueen Co., Fort William, have been awarded the contract for erecting a grain elevator to cost \$250,000.

HAMILTON, ONT.—Architects Stewart & Witton are preparing plans for an addition to the Beach waterworks, to cost \$70,000. Architects McPhie, Kelly & Darling, 701 Bank of Hamilton Building, have prepared plans for a yacht house, to cost \$18,000. The Mercury Mills on Cumberland street are nearing completion.

LONDON, ONT.—Architects Watt & Blackwell, Bank of Toronto Building, London, have prepared plans for a restaurant to cost \$15,500. Geo. White & Sons, Cabell avenue, are having plans prepared for an addition to their boiler works, to cost \$25,000. Architect Brigadier W. G. Miller, 20 Albert street, is preparing plans for a hall, to cost \$12,000; tenders will be called for.

McADAM, N.B.—Tenders have called for by the Canadian Pacific Railway, Montreal Office, for the erection of a powerhouse and storage building.

MERRITTON, ONT.—The Lincoln Paper Mills, Merritton, have prepared plans for paper mills additions to cost \$200,000.

MONTREAL, QUE.—Tenders have been called for by J. W. Pugsley, Secretary of the Department of Railways and Canals, for the superstructure of the elevator Transcona.

MONTROSE, ONT.—Work has been started on a round house to cost \$100,000. Walbridge Aldridge Co., Detroit, Michigan, has been awarded the contract.

OTTAWA, ONT.—Architects Hand, Harris & Merritt, 7 King street east, are preparing plans for a restaurant to cost \$40,000.

OTTAWA, ONT.—Tenders have been called for by Mr. McCallum, City Hall, for the erection of a workshop to cost \$10,000.

OTTAWA, ONT.—Tenders have been called for by the contractors of the new Parliament Buildings for brick and Portland cement.

PICTON, ONT.—Hogg & Lytle have started work on an elevator to cost \$15,000.

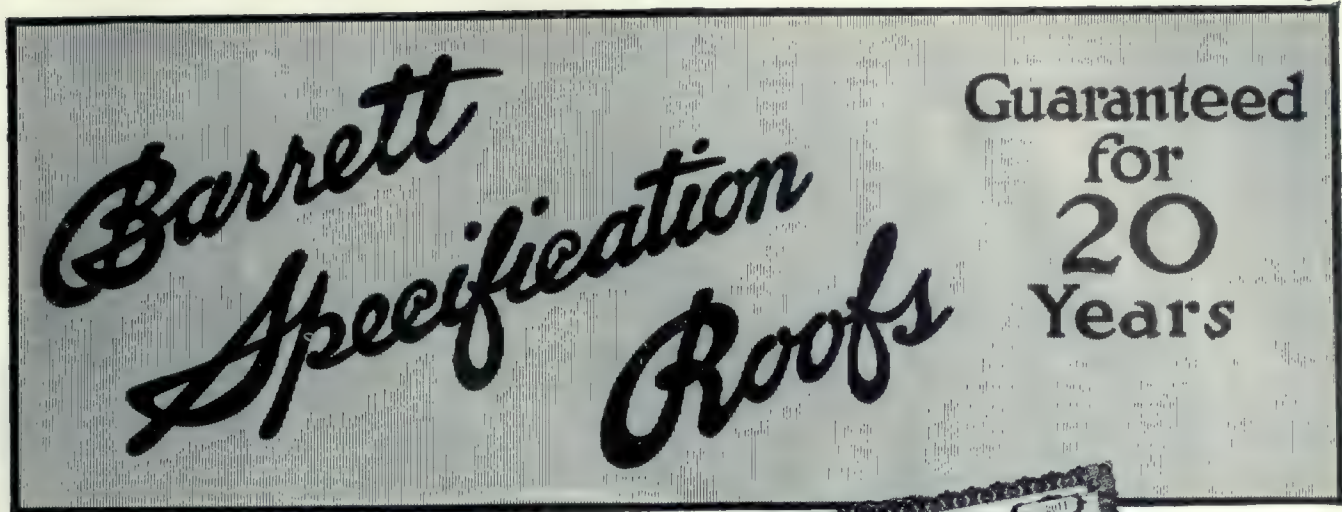
PORT ARTHUR, ONT.—Simmons Contracting Co. are excavating for a roundhouse to cost \$45,000.

PORT ARTHUR, ONT.—The Canadian Starch Co., Port Arthur, have prepared plans for a starch house to cost \$60,000.

PORT STANLEY, ONT.—Architects Watt & Blackwell, Bank of Toronto Building, London, are preparing plans for a refreshment pavilion and bath-house to cost \$25,000.

RENFREW, ONT.—Architect A. E. Spooner, Renfrew, Ont., has prepared plans for a curling rink to cost \$8,000. M. J. O'Brien, Renfrew, has been awarded the contract.

SMOOTH ROCK FALLS, ONT.—Morrow & Beatty, New Liskeard, have been awarded the contract for erecting pulp mills to cost \$150,000. E. W. Neelans, engineer.



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Here are details of a plan to guarantee your roof for 20 years—at no extra cost.

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We know from an experience of over half a century that a Barrett Specification Roof, if properly laid by a good roofing contractor, will last at least 20 years. Scores of roofs of this type have lasted almost twice that period.

In order that purchasers may have the benefit of this experience we have arranged with one of the largest Surety Companies to issue, hereafter, a 20 Year Guaranty Bond on all Barrett Specification Roofs of 50 squares or more in all towns in the Dominion of 25,000 population and over—and in smaller places where our Inspection Service is available.

Our only requirements are that the roofing contractor shall be satisfactory to us and that the Specification dated May 1, 1916, shall be strictly followed.

All you have to do to secure the 20 Year Guaranty Bond is to give the roofing contractors copies of The Barrett Specification of that date, and tell them to figure on that basis. From the buyer's standpoint the arrangement is practically ideal, for under the plan the owner is assured of having an inspector on the roof whose only interest is to make it as good as possible—for if it isn't right we alone are the loser.

Do not confuse this Surety Bond with the ordinary "Guarantee."



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carries
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When you give the roofing contractor a copy of The Barrett Specification of May 1, 1916, to figure on, you are ordering the very best roof it is possible to construct and one that takes the base rate of insurance. In addition you secure a 20 Year Surety Bond, guaranteeing freedom from upkeep cost for that period.

If you are interested and want any further information, write our nearest office and the matter will have prompt and careful attention.

A copy of The Barrett Specification, with roofing diagrams, sent free on request.

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MONTREAL TORONTO WINNIPEG VANCOUVER
THE CARRITTE-PATERSON MANUFACTURING CO., LIMITED
ST. JOHN, N.B. HALIFAX, N.S. SYDNEY, N.S.

ST. MARYS, ONT.—Specifications have been prepared by the Seneca Septic Tank Co., Stratford, Ont., for a sewage plant. Dr. J. R. Stanley, M.O.H., St. Marys, will supervise.

STRATFORD, ONT.—Dr. W. H. Hamilton, Fort William, Ont., is having plans prepared for a mausoleum to cost \$10,000.

TORONTO, ONT.—Architect M. Max Dunning, Chicago, Ill., has prepared plans for stables to cost \$25,000; tenders to be called for. Architects Hynes, Feldman & Watson, 105 Bond street, have prepared plans for a nurses' home. The Wm. Davies Co., Ltd., 521 Front street east, are excavating for an abattoir building, to cost \$2,000,000. Architects Chapman & McGinn, 95 King street east, have prepared plans for a refreshment pavilion, Toronto Harbor Commission, 50 Bay street, are the owners and contractors. Tenders have been called for by Engineers James, London & Hertzberg, 1005 Excelsior Life Building, for the erection of mechanical filters. Tenders have been called for by Chairman T. L. Church for a five-ton traveling beam. J. D. Young & Son, 835 College street, have been awarded the contract for erecting a shipping building, to cost \$10,000. The Harris Abattoir, Union Stock Yards, are working on an addition to their abattoir, to cost \$12,000; G. V. Gray, 625 Confederation Life Building, is the general contractor.

VANCOUVER, B.C.—The Canadian Pacific Railway is erecting an 850-foot pier at a cost of \$1,500,000.

WALKERTON, ONT.—J. W. South, Otter Creek, Walkerton, is having plans prepared for a rolling mills.

THE ARCHITECT'S OPPORTUNITY.

In the past the idea has held that in an abundance of money lay the architect's best opportunity for coming to the front and producing architecture of the finest quality. When the client had money, and enough to spare, he went to his architect and ordered a mansion that was to reflect his wealth and importance, the mansion was produced and gave satisfaction according as its designer had interpreted the client's wish to make it resplendent above that of his neighbors. It was the designer's opportunity in the sense that it enabled him to design without stint, to elaborate to the fullest extent of his desire, to produce something that must attract, no matter what form the attraction took. The client may have been a parvenu in which case it would be difficult for the architect to keep out of his design some at least of the vulgarity dear to the heart of the parvenu. If he were a person above vulgarity he would expect his architect at least to be unsparing in the details which commonly constitute ornament in design. If it were a public body or a Government Department there would at least be the encouragement to be over-generous with space, with height of facade, with size of door and window; and the architect would feel it impossible to deal with such work on a large scale without adding elaboration in proportion to the scale. In any case the tendency to free spending on building would create a tendency to free use of ornament, since ornament is so handy a thing for covering up bad design or ill proportion. This has truly been the source of much bad architecture; it may even be put down as one of the causes of present day degeneracy; and for examples we need not go further than India.

But how about the reverse of the picture? What should be the effect on design of a serious restriction of funds for building purposes? We take up the annual report on Architectural Work in India and looking over its illustrations, page after page, note how little the volume contains of anything that may be called florid in design. When one closes the volume and asks himself what is the keynote of its contents, he has to confess that it is absolute simplicity, almost baldness, yet that it is architecturally satisfying, a record of good taste expressed with but little elaboration and obviously at only small expense. We are not rich in India. The Indian Princes and many Indian business men are, and we see their riches reflected from their palaces but few of which would stand up against sober criticism. But the Government is not rich, and no one knows it better than its own officers who have to spend the funds they are entrusted with with a sparing hand. Has this circumstance not its educational effect on its architects? We think it has. They are being trained to depend for the worth of their work on the simple elements that constitute good art. The meretriciousness of ornament is discarded, and they are turning out work, much of it in plain brick and sand plaster, which possesses the intrinsic merit of good arrangement, good grouping and good proportion, with an adaptation to purpose which may be read in the very face of it. We do not say all this for the purpose of glorifying the men whose works we are referring to; it is probable that most men trained in the art and placed under the same circumstances would achieve the same results. Our purpose is to illustrate the principle that the architect's opportunity really lies in the restriction of the means furnished to him for pursuing his art. It is merely another exemplification of the old adage—"No school like the school of adversity."

But the lesson taught to our Indian architects is surely about to be taught to architects at home, and indeed over all Europe, on a much more impressive scale. This is a period in which building work is suspended, while buildings in large numbers are also being annihilated. The next will be a period in which the demand for building will be unprecedented while the wherewithal to build will be restricted as it never has been. The architect must then come to the rescue with a skill he has never been called upon to exercise before. He must cast aside the predilections of a lifetime and choose the materials which economy suggests, he must see to it that neither space nor material is wasted in any part of his design, must put on one side his most cherished features of ornament, and trust for his effects in simplicity and directness. His worth in fact as an architect will be valued in proportion as he has studied economy without sacrificing stability and beauty. This is to be the new ideal after the war and will be a direct outcome of it. It will create a new outlook and a new study, and if rightly taken might lead to a regeneration of art. The complaint has been made for years that the art is decaying and will soon cease to be an art; but we have with unexpected suddenness been brought to a halt with an outlook beyond differing materially from the one behind. It is for us to seize the opportunity and make the most of it—"Indian Engineering."

LONGEST STEEL ARCH BRIDGE IN THE WORLD.

The longest steel arch bridge in the world is the recently completed one over Hell Gate, East River, New York. It has a span of 1,000 feet between the abutment towers, a clear height of 135 feet and a total height of 200 feet above high water.

GAS ASSOCIATION CONVENTION.

The Ninth Annual Convention of the Canadian Gas Association was held at Quebec on August 16th and 17th, there being over one hundred and fifty in attendance. The papers read at the convention included "Gas Lighting," by J. P. Conroy, of the General Gas Light Company, New York.

"Is Industrial Fuel Business Worth While," by H. E. G. Watson, Consumers' Gas Company, Toronto.

"What is a Gas Meter?" by J. B. McNary, Manager, Canadian Meter Company, Hamilton, Ontario.

"A Comparison of Modern Coal Carbonization Systems," by Vernon Baker, Engineers, D. R. Russell Engineering and Development Company, St. Louis, Mo.

"The Relationship Between the Accounting and Operating Departments," by H. K. Tennent, Accountant, Quebec Railway, Light, Heat and Power Co., Quebec.

"Some Wrinkles on Distribution," by P. B. Lamb, Ottawa Gas Co., Ottawa, Ont.

The election of officers resulted as follows: President, J. P. King, Stratford, Ont.; 1st Vice-President, J. H. Yonge, London, Ont.; 2nd Vice-President, C. C. Folger, Kingston, Ont.; Executive Committee, R. A. Wallace, Quebec; Arthur Hewitt, Toronto; J. S. Norriss, Montreal; A. A. Dion, Ottawa; T. A. Gardner, Brockville; V. S. McEntyre, Kitchener, Ontario. Secretary-Treasurer, Geo. W. Allen, Toronto, Ontario.

CATALOGUES, ETC.

Kaustine Sanitary Equipment.—A descriptive catalogue setting forth the Kaustine waterless method of rural sanitation has been issued by the Kaustine Co., Limited, Toronto. It sets forth in a comprehensive and illustrated way the many conveniences of the system. How to make your village or country home sanitary is of necessary interest and is aptly covered by this catalogue.

"Corr-Mesh" is the title of the catalogue issued by the Corrugated Bar Company, of Buffalo, N.Y., describing the stiff rib expanded metal manufactured by them, and contains details, specifications, construction, photographs, instructions for using the material, and other data for architects, engineers and contractors. These materials are especially adapted for construction of partitions and exterior walls, as well as for floors and roofs, slabs, walls for factory buildings, stucco residences, and farm buildings.

Non-Slippping Treads and Tiles.—The specialties of the Diamond Tread Co., Ltd., are described and illustrated in a folder issued by them. The treads and tiles are supplied under exclusive contract to the War Office and Admiralty. They are made in any length and prepared ready for fixing on new or worn wood, stone or granolithic steps. The products of this concern should be of interest to architects. Copies of this catalogue may be obtained from W. A. Buchanan, Traders Bank Building, Toronto.

Concrete Swimming and Wading Pools and How to Build Them.—This is the latest publication of the Portland Cement Association. It treats of the fundamental principles that should be observed in locating, constructing and operating the private or small semi-public outdoor pool so that all of its advantages may be realized. The illustrations in this booklet will impress one with the wide range of cost that may govern in the construction of a swimming pool. This booklet may be obtained free of cost upon request of the Portland Cement Association, 111 West Washington street, Chicago, Ill.

"Modern" Heating Systems for large buildings are now being marketed by the Modern Heating and Engineering Co., Ltd., recently incorporated by Montreal and Hull business men. This heating system is of interest to every architect, engineer and contractor, as there is a guaranteed pure saving of at least 25 per cent. compared with the consumption of the next best system, which represents a claim that the system will pay for itself in four years. The headquarters of this company are at 83 Bleury street, Montreal, with the following officers: President, Jos. Gravel; Vice-President, Jos. Caron; Directors, A. A. Mondou, M.P., Dr. U. Archambault and A. A. Archambault; General Manager and Treasurer, J. W. Guilmette; Assistant Manager and Heating Engineer, John T. Lochart.

CONTRACTORS and SUB-CONTRACTORS

'As Supplied by The Architects of Building
Featured in This Issue

Building, Customs Examining Warehouse, Montreal, P.Q.

Architect, E. L. Horwood; Consulting Architect, A. H. Lapierre.

Brick, plain, LaPrairie National Brick Co.; fancy, No. 1 Buffalo Pressed, Toronto Pressed Brick Co. Dartnell, Ltd., agents; enameled, Don Valley White Enameled Brick, David McGill, agent.

Boilers, Warden King, Limited.

Casements and Window Construction and Window Trim, W. Pauze & Fils Co.

Concrete Work, Reinforced, Hofeller Concrete Co., Ltd.

Electric Wiring and Apparatus, P. Lather & Co.

Elevators and Hoists, Otis Fensom Co., Ltd.

Fire Doors, T. Lessard & Sons, Ltd.

Flooring, Seamen Kent Co.

Glass, Alex. Craig, Ltd.

Hardware, Peterborough Lock Mfg. Co., Ltd.

Marble, P. Lyall & Sons Cons. Co., Ltd.

Ornamental Iron, John Watson & Sons, Ltd.

Paints, Alex. Craig, Ltd., contractor, McArthur-Irwin, Sherwin-Williams.

Plumbing, bath fittings, sanitary fixtures, faucets, T. O'Connell.

Plaster Work, ceiling, R. D. Clarke & Sons, Ltd.

Radiators, manufacturers, Dominion Radiator.

Roofing, T. Lessard & Sons, Ltd.

Stone, natural, Wallace Sandstone Quarries, Ltd.

Granite, Stanstead Granite Co.

Structural Iron and Steel, National Bridge Co.

Terra Cotta, partitions, etc., Montreal Terra Cotta Co., Ltd., 42 St. Sacrament.

Varnish, Glidden Varnish.

Contractors, general, P. Lyall & Sons Construction Co., Ltd.



October, 1916

Vol. 9, No. 10

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H. GAGNIER, Limited, Publishers

GRAPHIC ARTS BLDG., TORONTO, CANADA

MONTREAL

BRANCH OFFICES

NEW YORK



LINCOLN HOUSE PORTICO, MANCHESTER-BY-THE-SEA, MASS. THE ORIGINAL HOUSE WAS BUILT IN 1700. THE PORTICO, ADDED DURING THE LAST CENTURY, IS A REPLICA OF A FAMOUS SALEM DOORWAY.



THE MALE AND FEMALE RECEPTION HOSPITALS, WITH THE ADMINISTRATION BUILDING IN THE CENTRE. HOSPITAL FOR INSANE, WHITBY, ONT.
JAMES GOVAN, ARCHITECT.

Hospital for Insane, Whitby, Ontario

A Notable Achievement in Hospital Construction and Equipment.

THE opening of part of the new Hospital for Insane at Whitby marks a very decided change in the type of hospital devoted to the care of the mentally sick in this country. The modern hospital for the mentally afflicted differs from the asylum of a decade ago quite as much as the present day reformatory contrasts with the penitentiary of a few years back. The public generally is not so well aware of this fact as it should be. The same advanced thought which resulted in the creation at the Provincial Reformatory, Guelph, of an institution which marks the Province of Ontario as standing at the head in penological reform, is in evidence in the design and construction of this new hospital.

The Hon. W. J. Hanna, Provincial Secretary, under whose regime both of these large undertakings have been evolved, is to-day being congratulated by all those who have had an opportunity of visiting the Whitby institution, and who are qualified to express an opinion, upon having duplicated the success of his Guelph achievement.

In its handling of this great question of treatment of those who have hitherto been looked upon as Pariahs, but who are now more and more beginning to be thought of as mentally sick—to differentiate from the bodily sick—the Province of Ontario is gradually developing the hospitalization of its institutions in a way which does not seem to be bettered, either on this continent or in Europe, at the present time.

A review of the work of this kind done in Europe reveals the fact that in the planning of their so-called asylums, the architects have been influenced very largely by the adoption of the village system in Germany,

which had its beginning at Alt-Scherbitz, in Saxony. The idea of the village type of mental hospital has also spread to the United States, and to some extent it has affected the work done at some of our Canadian institutions. Although the declaration of war was yet more than two years off when the first studies of the Whitby Hospital were made, the prevalent worship of German ideas and methods did not blind those responsible for the scheme to the very glaring defects which were evidently being ignored by those who were so slavishly following German practice.

Several of the physicians engaged in this work at the Ontario institutions who had visited the best German hospitals, were disappointed to find conditions there not as ideal in some respects as they had hoped to see.

While laboratory work occupied a very high place, the consensus of opinion was that the welfare of the patients seemed to be secondary to the opportunities for study and research afforded the doctors in charge. While it was true that much admirable scientific work was being done for the patients who were looked upon as being special hospital cases, many of the patients were neglected and relegated to separate buildings for so-called chronics, where there was an entire absence of the nursing and care which distinguish all branches of the work as now carried out in this Province.

A careful study of the plans of nearly all the German asylums reveals further that the tremendously important problem of planning for

sunlight in all buildings housing patients has been neglected there, and by those who have been following German examples, in a way that is almost unbelievable.



KITCHEN AND DINING ROOMS FOR THE WOMEN'S COTTAGE CENTRE.



SITE PLAN, SHOWING BUILDINGS AND FARM, HOSPITAL FOR INSANE, WHITBY, ONT.

INDEX TO SITE PLAN: 1, Administration Building; 2, Reception Hospital, men; 3, Reception Hospital, women; 4, Convalescent Cottages, women; 5, Convalescent Cottages, men; 6, Kitchen and dining rooms, Hospital group; 7, Hospital, men; 8, Hospital, women; 9, Surgical and Pathological Building; 10, Church and Hall; 11, Nurses' Home and annexes; 12, Recreation Building; 13, Cottage Centre No. 2, for men, with kitchen and dining rooms, in centre; 14, Cottage Centre No. 1 for women; 15, Double Residence for Doctors; 16, Infirmary No. 1 for women; 17, Infirmary No. 2 for men; 18, Tubercular and Isolation Hospitals; 19, Sewage Purification Plant; 20, Greenhouses; 21, Foyer House; 22, General stores, workshops, etc.; 23, Cottages for employees; 24, Cold Storage Plant; 25, Male Attendants' Home; 26, Residence for officials; 27, Garden and Nursery; 28, Farm Buildings; 29, Sewage Pumping House; 30, Laundry (south of Building 25).

JAMES GAVAN, ARCHITECT.



BANGOUR VILLAGE ASYLUM, NEAR EDINBURGH, SCOTLAND.

The ideas on which the scheme at Whitby is based are the result more of a close study of Ontario's own problem as revealed in the institutions already in existence, rather than the slavish following of work done in other countries.

The development of the use of trained female nurses for male as well as female cases, with the consequent change from the asylum to the hospital idea, which has been a feature of some of the Scottish institutions for many years, has won the approval of the Ontario psychiatrists, and has had a strong influence on the progress made along these lines in this Province.

Two main ideas influenced the development of the scheme as a whole, and the further working out of its component parts; first, the classification of patients into two different groups, hospital and industrial; and second, planning for sunlight in all wards and rooms occupied by patients at all seasons of the year, and particularly during the winter months.

Whitby differs from other institutions in that the hospital idea of nursing and treatment is being carried into all its buildings, and that while the cottages for patients who are physically well enough to be occupied daily have none of the all too common institution appearance and atmosphere, but are rather of a domestic type of architecture, they still preserve internally a hospital character in the arrangement of wards, single rooms and treatment rooms, which will call for the highest degree of nursing skill.

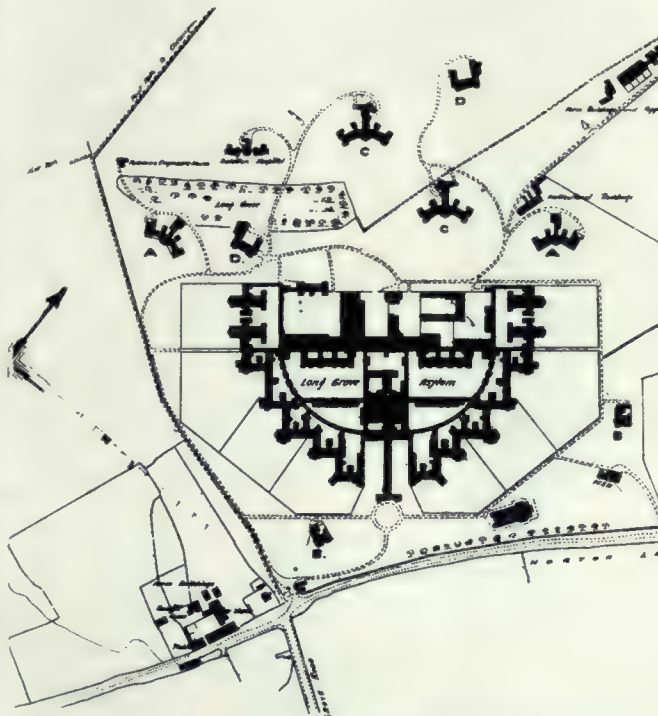
The result of this arrangement will be that the hospital training of all the nurses will be continued, no matter in which building they may be employed. This will contribute in no small degree to the successful training of the nurses, and will give them further opportunities to add to the reputation of the graduate nurses of the Ontario public institutions, a reputation which has been declared to be second to none by those who have had an opportunity of judging the work done by nurses who have gone from these institutions to serve in the wards of the overseas military hospitals.

The determination to place the buildings so that all wards and rooms occupied by patients shall receive direct sunlight at some period of the shortest day, implies some criticism of

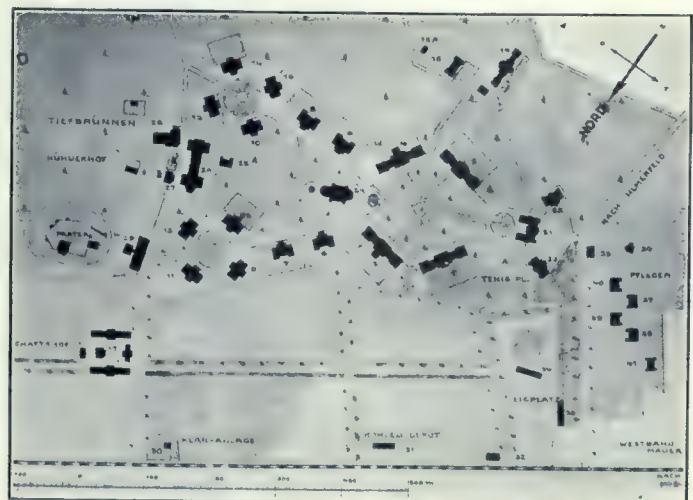
schemes which have in other respects received much favorable notice, such as, for instance, "Long Grove," in England; "Mauer Ohling," in Austria-Hungary; "Bangour," in Scotland—illustrations of which are given for purposes of comparison—and also other institutions in the United States, where evidently this problem has not been given any more consideration than in the examples illustrated.

That the orientation of hospital buildings in Canada is of the very greatest importance is evident when we remember that in winter

it is absolutely essential to admit the direct rays of the sun into our buildings, because the low



LONG GROVE ASYLUM, LONDON COUNTY COUNCIL, ENGLAND.



MENTAL HOSPITAL, "MAUER OHLING," AUSTRIA-HUNGARY.



JAMES GOWAN, ARCHITECT.

outside temperatures do not permit us to keep windows open, and thus admit the entry of sun-purified air.

DESCRIPTION OF HOSPITAL.

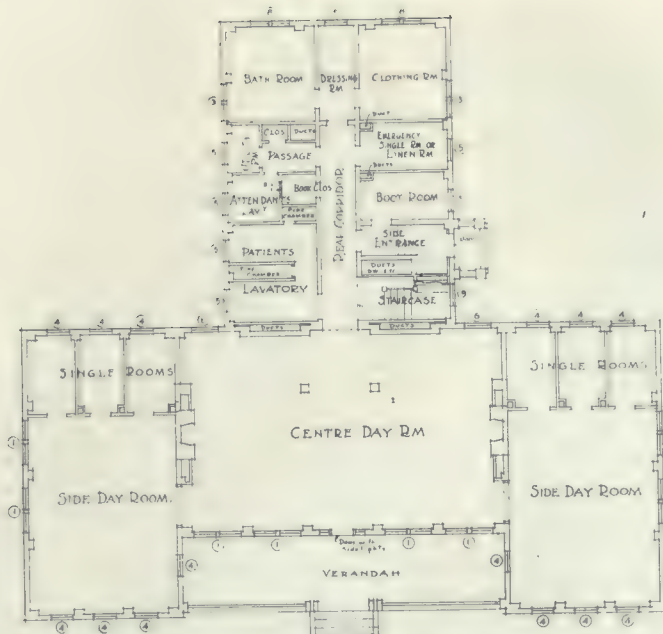
The main group of buildings is placed on a wide, gentle slope, having the advantage of a southeastern exposure. From this site extensive views may be had across Lake Ontario to the south, and Whitby harbor to the east. The town of Whitby lies to the north, and to the west is a prosperous farming country. Great natural beauty, existing trees, orchards and roads, convenient railway and water facilities, all emphasize the suitability of the property for hospital purposes.

A reference to the site plan shows an arrangement of buildings which may best be described as a hospital village. The institution is divided into three centres: First, nearest the lake front, the principal hospital centre, and the second and third, the two groups of cottages for men and women, separated from the hospital centre by the recreation and athletic grounds. The buildings when completed will accommodate fifteen hundred patients.

HOSPITAL CENTRE.

The hospital centre consists of four hospital buildings, with a central kitchen and dining-rooms. Two of these buildings accommodate sixty-three patients each, and will

VIEWS OF COTTAGES IN WOMEN'S CENTRE, HOSPITAL FOR INSANE, WHITBY, ONT.

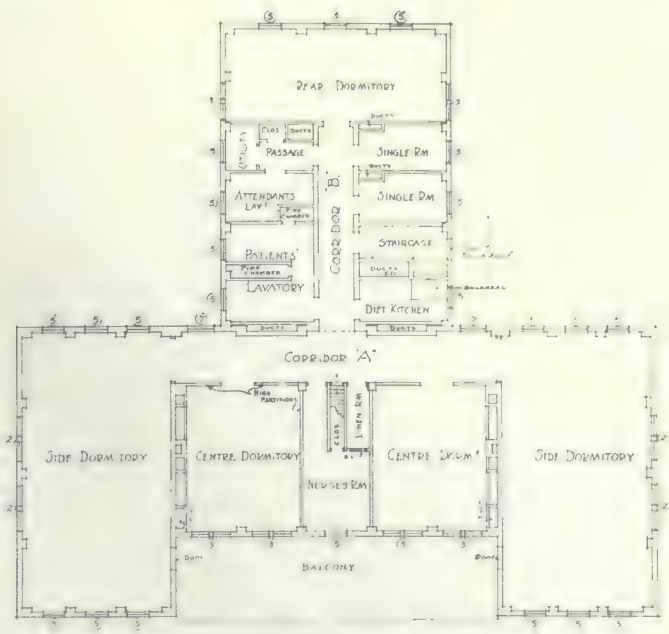


GROUND FLOOR PLAN
COTTAGES #1-2 & 3.

be used as reception or observation hospitals, and for incipient cases. With these should be included two convalescent cottages, accommodating thirty-five patients each. The other two buildings at this centre accommodate one hundred and four patients each, and will be used for recurrent acute cases.

The reception or observation hospitals form a separate unit distinct from the rest of the institution, but in close touch with it. Here patients will be received, cared for and treated; then, if satisfactory progress is made, given a period of probation in the adjacent convalescent cottages, without coming in contact with cases of longer duration in the institution.

The arrangement of the roads and grounds is



FIRST FLOOR PLAN
COTTAGES #1-2 & 3.

such that traffic to and from the other parts of the institution need not pass near the reception hospitals.

Should a patient not make the desired progress in the time allowed in the reception hospital, he or she will be transferred to another part of the institution, first either to one of the cottages in the industrial group, should bodily health be such as to make this transfer desirable, or secondly, to an infirmary or other hospital building as the necessity of the case may demand.

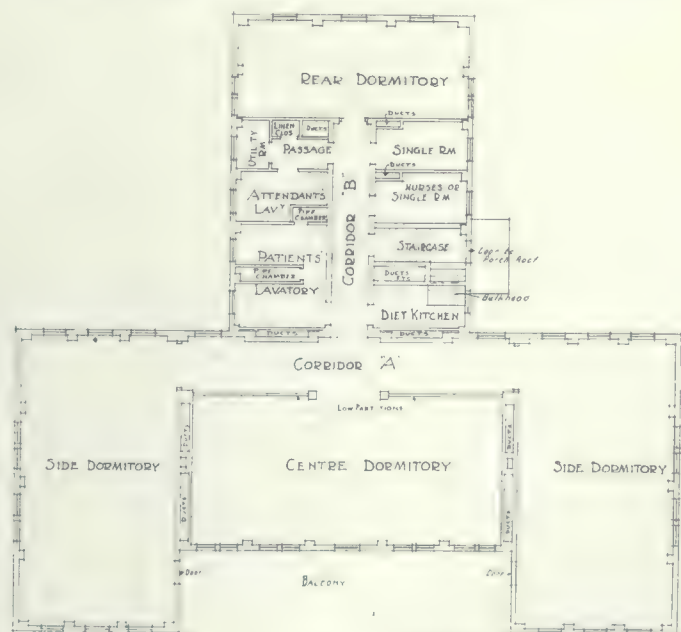
COTTAGE CENTRES.

The cottage centres consist of two groups of eight cottages each, accommodating from



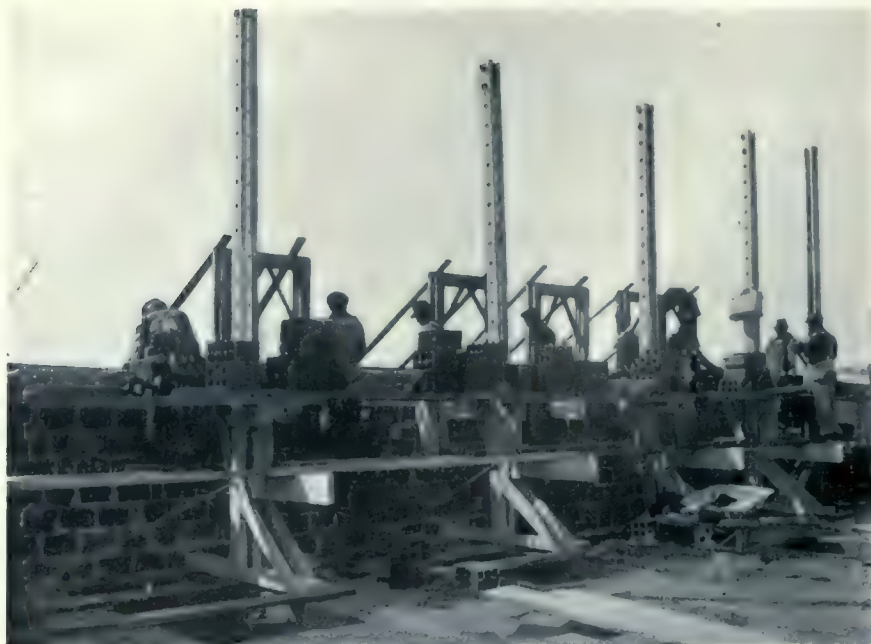
GROUND FLOOR PLAN
COTTAGES #4-5 & 6 & 7 & 8.

NOTE
FOR WINDOW #1 SEE PLAN OF COTTAGES #1-2 & 3



FIRST FLOOR PLAN
COTTAGES #4-5 & 6 & 7 & 8.

NOTE
FOR WINDOW #1 SEE PLAN OF COTTAGES #1-2 & 3



LAYING UP THE WALLS FROM GILBRETH SCAFFOLD.

fifty-seven to sixty-two patients in each cottage. For each group an infirmary is provided, which will take care of all patients assigned to cottage centres who require special nursing on account of general feebleness or physical illness. The cottage centres will accommodate all patients who do not require, or who have ceased to require for a time at least, special medical treatment, the more easily managed patients, the working patients, and all who would be benefited by the suggestion of normal home life.

ISOLATION HOSPITALS.

Isolation hospitals will permit



A COTTAGE UNDER CONSTRUCTION. NOTE USE OF LIGHT RAILWAY AND HOIST FOR DISTRIBUTING MATERIALS AND GILBRETH SCAFFOLD FOR UPPER STOREY.



GILBRETH SCAFFOLD BEING RAISED WHILE BRICKLAYERS CONTINUE THEIR OPERATIONS.

of the proper segregation of all cases of tuberculosis and other diseases requiring to be isolated from the general medical hospital.

TREATMENT ROOMS.

Provision for carrying out the best ideas of psychiatry in the treatment of patients has had careful attention, and the plans embody special arrangements for continuous baths and other hydro-therapeutic measures, electro-therapy, mechano-therapy, hot air baths, massage, special rest rooms and hygienic diet; also surgery, dentistry, ophthalmology, etc.

It should be noted that much of the equipment for this work has

been manufactured in Canada for the first time from special details prepared by the department. The goods produced are quite equal to those which have been imported hitherto; indeed, in some details, such as insulation and construction, they are superior.

SUN ROOMS.

In all the hospitals and infirmaries very liberal provision has been made for treating patients in sun rooms.

RESEARCH WORK.

Every facility is being provided for medical research work, both clinical and in laboratories, with lecture rooms for demonstrations and training of the staff.

OTHER BUILDINGS.

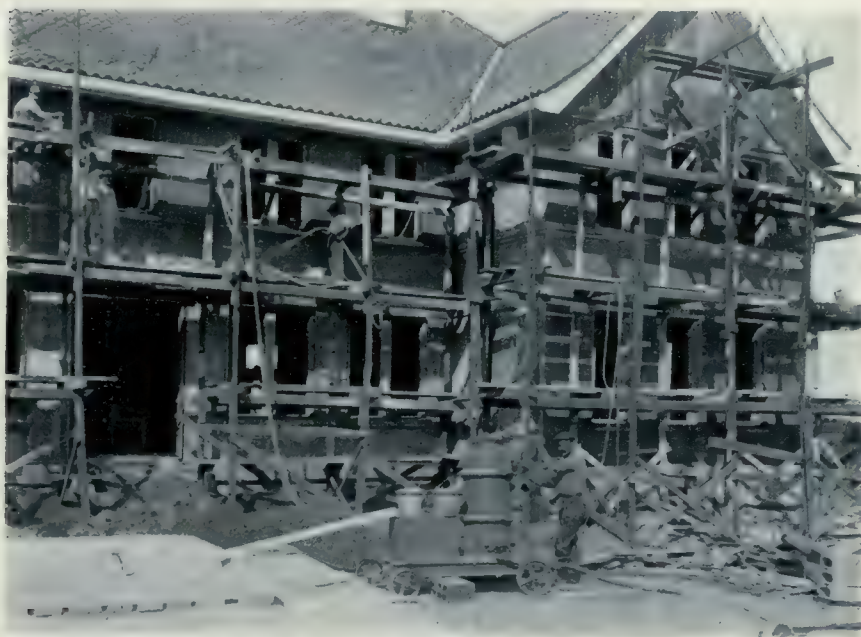
The nurses' home and annexes, officers' quarters, surgical, pathological, church, hall and recreation buildings are all centrally located, so as to be convenient to all sections of the institution, while the power house, stores building and workshops are adjacent to the railway siding, which was purposely kept as far away from the patients' buildings as practicable.

WORK COMPLETED.

The buildings erected and ready for occupation so far include the eight cottages of the women's centre and the central kitchen and dining room building for the group. The sewage dis-



LAYING SPANISH ROOFING TILE MADE AT GOVERNMENT CLAY PLANT.



PUTTING ON STUCCO WITH "CEMENT GUN."

posal plant for the entire hospital is also completed. Part of the cold storage plant, power house, men's cottage centre and dining-room building for that group are also almost finished. Infirmary No. 1 is up to the roof level, and infirmary No. 2 is well up in the second story. All underground work, such as sewers, water, heat, light and power mains, have been completed for the two cottage centres. Materials have been delivered to the site for the construction of the reception hospitals.

While the plans for the buildings not yet erected embrace many features which would be of interest to readers of CONSTRUCTION,

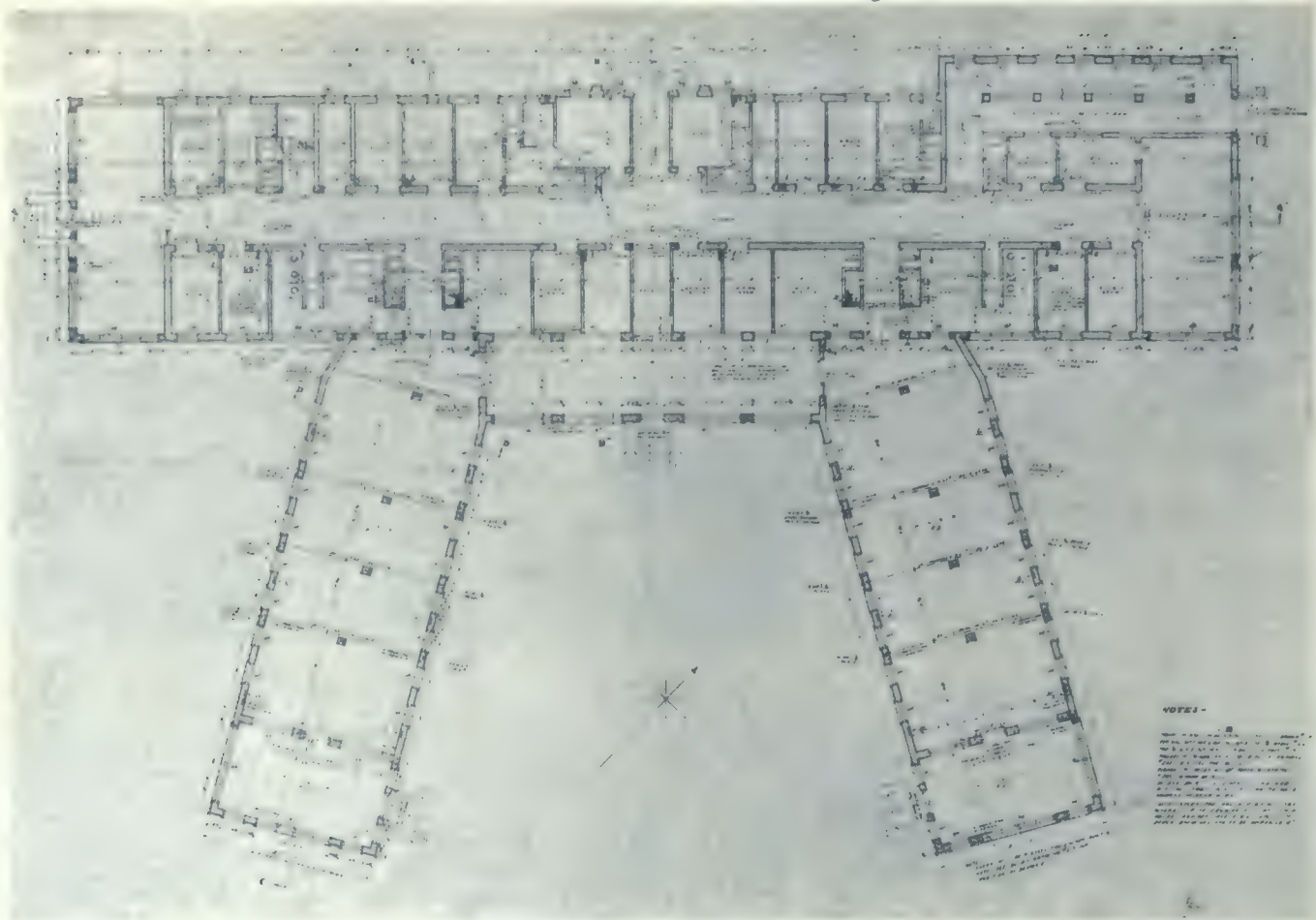
it will perhaps be better to confine attention to the details of those buildings which can be illustrated.

COTTAGES.

With the exception of some single rooms for specially privileged patients, the ground floor is reserved for day use, while the sleeping accommodation is provided on the upper floor. The sleeping wards and day rooms are extremely bright and cheerful, and their openness and lack of any suggestion of restraint, strike the visitor at once as being unique. They are so arranged, however, that supervision by the nurses is rendered almost per-

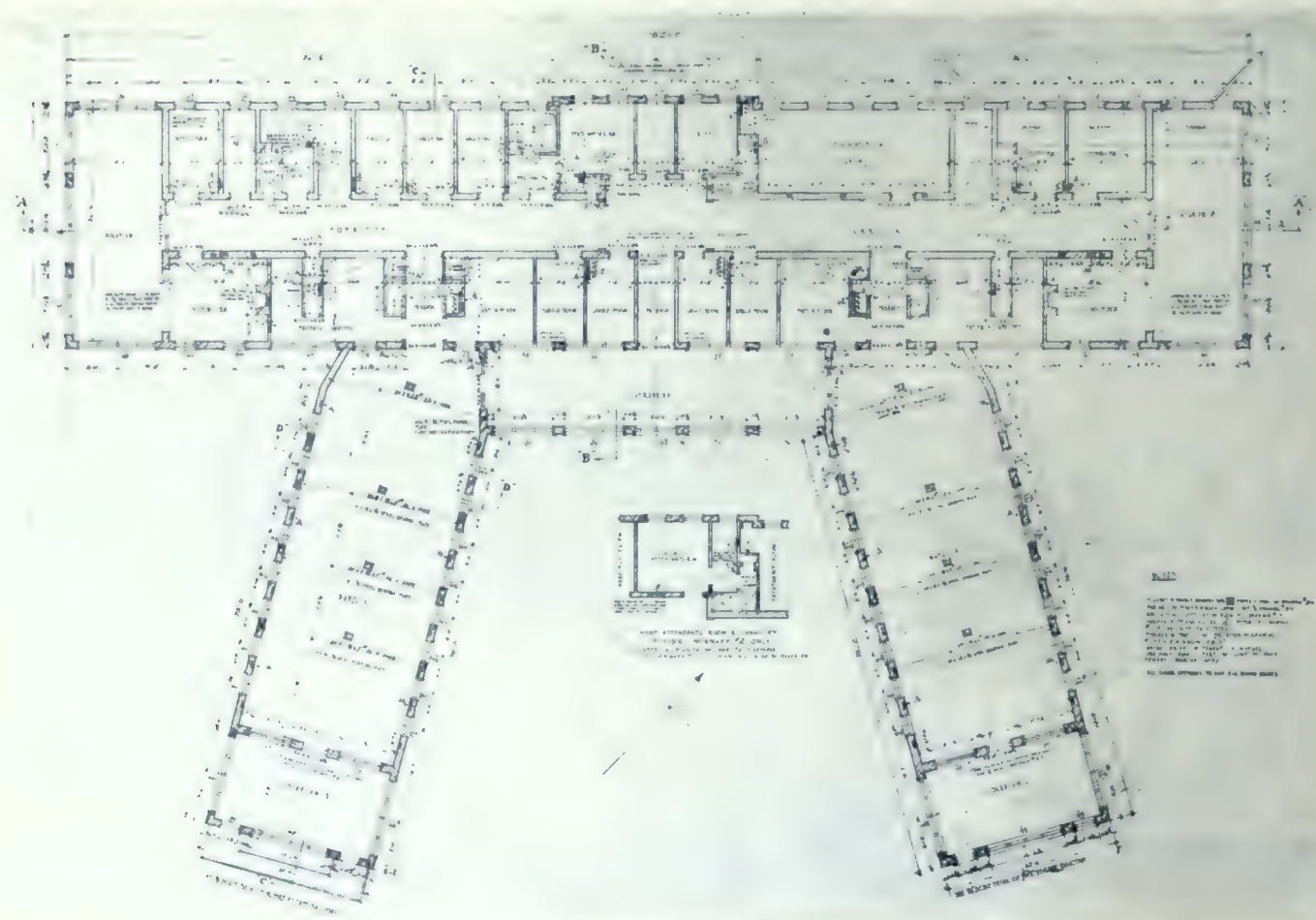


ENTRANCE, INFIRMARY NO. 1, SHOWING USE OF TAPESTRY BRICK AND TILE PATTERNS.



INFIRMARY NO. 1, GROUND FLOOR PLAN, HOSPITAL FOR INSANE, WHITBY, ONT.

JAMES GOVAN, ARCHITECT.



INFIRMARY NO. 1, UPPER FLOOR PLAN, HOSPITAL FOR INSANE, WHITBY, ONT.



ONE OF THE ENTRANCES TO DINING ROOM, BUILDING NO. 1. THIS ADMITS PATIENTS FROM TWO COTTAGES.

feet. Each cottage is a hospital in itself, having its own facilities for hydro-therapeutic work, and its own diet kitchen. Convenient access to external balconies is provided at the front and rear wing of each cottage, so that patients can be easily removed in the event of a fire taking place—a most unlikely occurrence, when the fireproof nature of the materials used in the construction of the buildings is taken into account.

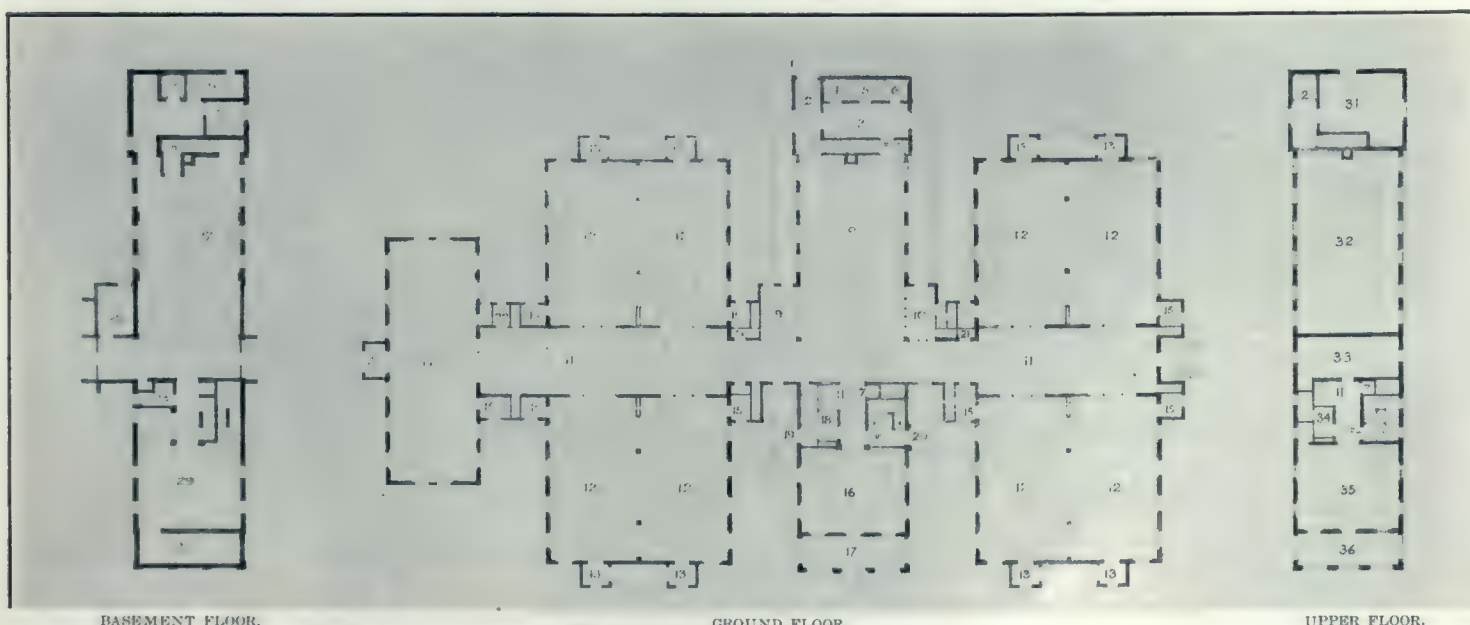
The entire absence of the drab neutral colors, which are so characteristic of hospitals of this kind, is noteworthy. While no expensive finishes and decorations have been used, the general

effect of the harmonious color combinations of tan, delicate green and ivory on the walls and ceilings, together with the warm reds of the quarry tile floors and brown linoleum, relieved by the brighter patterns and colors of the window draperies—all tend to create a home-like atmosphere. This effect is added to by the simple lines of the furniture, which has the necessary strength without being cumbersome, thus maintaining the domestic character of the rooms.

In the wards and single rooms the provision of small tables with a drawer for each patient to take care of brush, comb and other toilet articles, and a small brass



END OF NURSES' DINING ROOM WING OF DINING ROOM BUILDING NO. 1, WOMEN'S CENTRE.



BASEMENT FLOOR.

GROUND FLOOR.

UPPER FLOOR.

KITCHEN AND DINING ROOM BUILDINGS AT COTTAGE CENTRE 1 AND 2, HOSPITAL FOR INSANE, WHITBY, ONT.

JAMES GOVAN, ARCHITECT.

INDEX TO PLAN OF KITCHEN AND DINING ROOM BUILDINGS: 1, Goods receiving platform; 2, Hoist; 3, Daily stores; 4, 5, 6, Cold storage rooms; 7, Dumb waiter; 8, Kitchen; 9, Alcove for dish washing machine; 10, Chef's office; 11, Serveries; 12, Patients' dining rooms, one for each cottage; 13, Patients' entrances; 14, Dining room, infirm patients; 15, Patients' toilet rooms; 16, Dining room for help; 17, Verandah; 18, Coat room and toilet for help; 19, Entrance to nurses' dining room; 20, Entrance to nurses' dining room; 21, Drying closets; 22, Utility room; 23, Fish cold storage; 24, Fuel store; 25, Sterilizing room; 26, Fresh air duct to kitchen; 27, Scullery; 28, Grease pit room; 29, Sub Power Station for Cottage Centre; 30, Transformer room; 31, Cold storage, primary tank room; 32, Upper part of kitchen; 33, Exhaust ventilating chamber; 34, Nurses' toilet and coat room; 35, Nurses' dining room; 36, Nurses' balcony.

Siegwart Beam Fireproof Floor construction



Beds of Beams just before cutting



From the Factory to the Seasoning Yard



In the Seasoning Yard



From the seasoning Yard to the Delivery Railway



Delivering Beams at the Building Site



Conveying Beams at a long Building from pile to lying crane



Lifting Beams directly by Travelling Crane to Upper Floors



Placing Beams on the Building



Floor ready for grouting and finishing

PROGRESSIVE PICTURES OF SIEGWART BEAM MANUFACTURING AND LAYING. HOSPITAL FOR INSANE, WHITBY, ONT.

JAMES GOWAN, ARCHITECT.

rail for an individual towel, is proving to be a very successful solution of a problem which has caused a great deal of worry to the administrators of such institutions.

CENTRAL KITCHEN AND DINING-ROOMS FOR COTTAGE CENTRES.

As the climatic conditions of this country

make it extremely difficult to carry food from a central kitchen to a large number of separate buildings and have it served hot and palatable, at Whitby it has been deemed advisable to bring the patients to the dining-rooms, which are grouped round the central kitchen. Provided that patients are suitably clothed to cross the short distance from the cottage to their

dining-room, there is no objection to this arrangement. It must be remembered that patients with bodily infirmities which would make it inadvisable for them to be exposed in our extreme weather conditions will not be housed in these cottages, but will be accommodated in one of the special hospital buildings provided for such cases.

Each cottage has its corresponding dining-room, so that the classification of patients is maintained during meal times. To facilitate supervision, and also to make for more compact planning, cross-lighting and cross-ventilation, the dining-rooms are arranged in pairs, with a low dividing wall between, just high enough to prevent patients from seeing into the adjacent dining-room while they are seated at the tables, but which does not prevent a nurse in one dining-room from exercising a certain amount of supervision over patients in the next. An opening through one end of this dwarf wall allows nurses access from one dining-room to another.

A vast amount of care and detailed study has been given to the kitchen and its equipment. Competent critics with a wide experience in this special branch of hospital and hotel work have declared that it is superior to anything of its kind on the American continent. At first glance this part of the building is only remarkable for its orderly simplicity; but it is just this simplicity and bareness which distinguish it from work done elsewhere. The entire absence of all piping, hoods, lighting fixtures and other impedimenta between the top of the cooking equipment and the ceiling, marks a great advance in this branch of institution work. This kitchen has now been in operation long enough to demonstrate that it is a success. Even without the mechanical ventilation system in operation, it is possible to stand in the middle of the room and scarcely be able to realize that a meal is in course of preparation. The low pressure steam (less than five pounds) on all the cooking equipment, and the down-draught method of taking vapors from the kettles and smoke from the range have almost entirely eliminated all odors and visible signs of cooking, even when the equipment is being used to full capacity. Gauges recording steam pressures, a clock and an automatic indicator of the amount of steam used in the kitchen, are mounted on a specially designed sanitary type of gauge board,



INFIRMARY NO. 1. WARDS AND SUN ROOMS.

which is placed on the side wall so as to be under the observation of the chef either from his office or the kitchen. This arrangement allows him to discard rule of thumb methods in his work and be guided by the temperature of the cooking medium, while the recording counter checks wastage of steam.

The apparatus used in the kitchen, scullery and serveries embraces many new sanitary features not hitherto found in standard goods of this kind. It was all manufactured under the direction, and in many cases to the special designs of the department, and the manufacturers are to be congratulated on the results of their co-operation in the working out of the advanced ideas which distinguish this part of the work.

The danger that a helper may be locked into a cold storage room is even greater at such an institution than in a general hospital or commercial building. This has been overcome by a contrivance invented by the architect, which provides for the locking securely of all refrigerator doors from the outside, while permitting their unfastening from the inside by very simple means.

INFIRMARIES.

The most notable features of these buildings are: First, the arrangement of connecting the main wards by verandahs, which can be closed



SIEGWART BEAM LOAD TEST. TYPICAL BEAMS FOR ALL DIFFERENT SPANS HAVE BEEN TESTED IN THIS MANNER TO CHECK CALCULATIONS.



SIDE DAY ROOM IN WOMEN'S COTTAGES, SINGLE ROOMS FOR PRIVILEGED PATIENTS IN BACKGROUND.

with storm sashes in winter time, thus enabling nurses to supervise the wards, verandahs and sun rooms without being disturbed by traffic in and out of the central administrative portion of the building; second, a sloping ramp connecting all floors, thus doing away with the need for an elevator, which cannot be used with this class of patient, and also providing a very safe type of fire exit for the patients who will be quite powerless to use an ordinary stairway; third, the large proportion of patients accommodated in sun rooms is unique in this type of building.

SEWAGE PURIFICATION SYSTEM.

The system installed embraces



CENTRE DAY ROOM IN WOMEN'S COTTAGES.



ANOTHER SIDE DAY ROOM IN WOMEN'S COTTAGES.

the most reliable features of modern sanitary practice, and the details have been approved by the Provincial Board of Health. As there are two drainage levels on the site, it is necessary to collect sewage from the lower level in a sedimentation chamber, and pump it to the main disposal plant for treatment in contact beds. The system provides for the convenient removal of sludge, and bacterial treatment by rapid filtration through a bed of crushed stone to break up and render inoffensive the organic matter in the liquid, and final chemical treatment to destroy any remaining disease-producing bacteria. Provision has also been made

whereby sewage can be stored and pumped on to the land of the farm for fertilization and irrigation purposes in dry seasons, if required.

NOTES ON CONSTRUCTION.

To permit of the most extensive use of the great variety of building materials produced at the Ontario Reformatory in Guelph and the Government clay plant at Mimico, and the employment of prison labor as far as practicable, the work was undertaken and carried out by the construction organization created by the department of the Provincial Secretary. The many admirable methods of construction adopted have aroused the interest and won

the approval of those who have visited the institution and have been in a position to compare it with other work of similar character.

No attempt need be made to describe the details of construction of the various buildings, but the following special points are worthy of consideration.

Fireproof floors are being made of hollow reinforced concrete beams, manufactured in a special factory on the site. The adoption of this type of floor has resulted in a reduction of approximately fifty per cent. in cost as compared with other types of floor which have been tried out by the department, not only on this job, but also at other institutions. This is largely due: first, to the elimination of all temporary wood formwork; second, to the effective use of concrete where it performs its greatest service, viz., in the top flange of the beams, and its omission in the centre of the beam, where it only adds weight to the floor; and third, to the use of factory methods in the manufacture of the beams, with more effective inspection than can be obtained where the work is spread over a large area of buildings. These beams are also used in many other ways, such, for instance, as roof construction, and also as stair steps.

A large deposit of gravel and sand on the lake front of the property has been of great value in providing material for the construction of buildings, roads, sidewalks, etc.

With the exception of the basement walls of cottages one to eight, which are of mass concrete, all walls, exterior and interior, have been built with hollow clay tile blocks and bricks supplied from the Government clay plant at Mimico, or concrete hollow tile blocks supplied from the Ontario Reformatory, Guelph.

The extraordinary success which has attended the operation of the Government plant at Mimico is responsible for the use at Whitby of clay products for purposes which are almost unique on this continent. Many unusual shapes have been made to meet special requirements. An example of this is the stair step-nosing, which allows the use of quarry tile for finishing the top of the concrete beam steps of the stairs. Other products used from this plant are Spanish and shingle tiles for roofs, cove bases, which have been used throughout all buildings at the junction of floors and walls, quarry floor tiles of several shapes and sizes, which have not only been extensively used for interior floors, but also for verandahs and balconies. Special rounded edge tiles are being used to form sanitary window stools in the interiors of men's cottages and hospital buildings. Hollow window sill blocks are being used with good results, and as may be seen from the illustrations, tapestry bricks of remarkable quality have added color to the architectural composition of the buildings. It is unfortunate that the photo-



A PATIENT'S SINGLE ROOM IN WOMEN'S COTTAGES.



A TYPICAL COTTAGE CORRIDOR.



CENTRE DORMITORY IN WOMEN'S COTTAGES. NOTE OPENINGS TO CORRIDOR ON RIGHT HAND SIDE WITHOUT SCREENS OR DOORS, ALSO RACK FOR PATIENTS' CLOTHING AT NIGHT.



A SMALL WARD IN WOMEN'S COTTAGES.



A LARGE WARD IN WOMEN'S COTTAGES.

graphs give no conception of the great variety of colors of these bricks, roof tiles and floor tiles, which are being produced by this small plant at Mimico, but some little idea of the great diversity of the output may be obtained from the illustration of an exhibit of its wares.

The varied products of the Ontario Reformatory at Guelph have also contributed much to the success of the Whitby undertaking. Special hospital sanitary slab doors, in both oak and white-wood, wood trim of all kinds, windows, frames and furniture, are the output of the woodworking factory at that institution. In addition, hydrated lime and alca lime were supplied from the Reformatory, and at the machine shop there were manufactured the many different types of racks and shelving which have been used throughout at Whitby, to the entire exclusion of insanitary stationary wood shelving. As the illustrations indicate, these racks are made with welded joints where it is absolutely essential to do away with dirt-collecting corners, and in other cases with standard pipe fittings and specially cast clamps. All this equipment is assembled in unit sections, mounted on casters, so that it is quite clear of the walls, and can be moved about for cleaning purposes.

Instead of following the usual custom of folding patients' clothing and storing it on open shelving, it will be hung on coat hangers suspended from rails in closed metal cabinets. These hangers can be slid along the rails, which in turn can be pulled out of the cabinets. By this arrangement the handling of clothing is not only simplified, but its appearance and wear are also improved. These cabinets are also of sectional construction on casters.

Nearly all the exterior stucco and interior plaster work has been applied with a cement gun, and the use of alca lime stucco, with its extremely high proportion of sand (amounting to five parts of the latter to one part of alca lime—eighty-five per cent.

hydrated lime and fifteen per cent. alca—and one-quarter part of cement), has given results which are very gratifying, both in regard to quality of product and low costs.

The walls of the power house differ from those on all other buildings, in that they are of ferro-dovetail sheets carried on the structural steel members, and having outside and inside plaster applied with the gun, which consists of three and one-half parts sand to one of cement, and one-tenth part of hydrated lime. It was not considered desirable to risk the danger of corrosion of the metal by using a stucco with high lime content on this building.

The sloping roofs of cottages and on the centre part of infirmaries are of slow-burning wood construction, from which patients are separated by fireproof ceilings having fire doors in openings.

It is interesting to note that the costs of some of the later roofs were reduced below those built earlier, by making special detailed studies of the roof members with a view to reducing the time required by carpenters for erection and having much done by machinery at the woodworking shop on the site, which would customarily be done by workmen at the buildings. To do this it was found necessary to increase the amount of timber used, but the decrease in labor costs was much greater than the increase in cost of materials.

In this connection it can be further stated that the very efficient system in operation for obtaining unit costs of all the work has been found to be of inestimable value in the preparation of the drawings, as the work has progressed from stage to stage. To an equal extent costs have been materially reduced, and more satisfactory results obtained on the job by devoting time in the architect's office beforehand to the study of field problems and the preparation of the necessary exhaustive details required to meet them.

The illustrations of the special



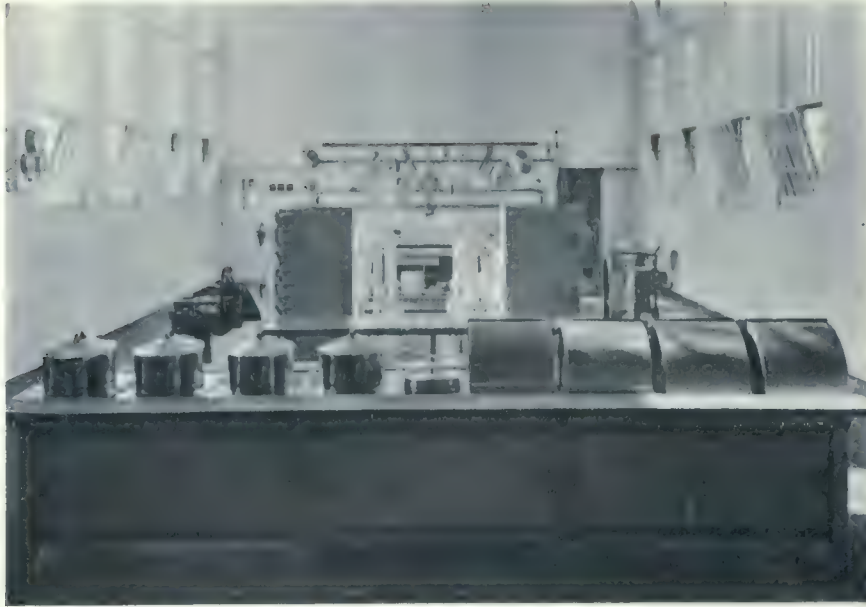
DIET KITCHEN IN WOMEN'S COTTAGES.



PATIENTS' LAVATORY IN WOMEN'S COTTAGES. NOTE PLUMBING CHAMBER FOR ALL PIPING BETWEEN BASINS AND CLOSETS.



PATIENTS' BATH AND TREATMENT ROOM IN WOMEN'S COTTAGES.



INTERIOR OF KITCHEN. NOTE ABSENCE OF OVERHEAD HOODS, PIPES, FIXTURES, ETC.



INTERIOR KITCHEN, SHOWING ALCOVE FOR DISH WASHING MACHINE.



A SPACIOUS VIEW BETWEEN KITCHEN AND PATIENTS' DINING ROOMS.

Gilbreth scaffolds should be studied, as this scaffold affords a most convenient method of dealing with the problem of handling materials in wall construction. It not only enables the bricklayer to perform his work with greater efficiency and comfort, but it avoids all delays in the raising of scaffolding, as the workmen are carried up with the scaffold while the jacks are operated, without necessitating any stoppage of the work.

The method of taking care of all plumbing piping in chambers, to which access can be had at all times, may be seen on the various plans and in the view of the patients' toilet room in one of the cottages. This does away with the use of all exposed piping in the toilet rooms, which might be tampered with by the patients, and allows the use of ordinary iron or rough brass piping in a position readily accessible, instead of nickel-plated or other more expensive material.

In place of the usual hot and cold water taps and w.c. tanks, small push buttons on the walls above the fixtures operate valves located in the plumbing chambers. To accomplish the desired results some of the fixtures were specially designed and manufactured for this work.

Heat, Light and Power

The heating, lighting, ventilation and other mechanical services for a group of buildings of this size and nature present an important and by no means simple power plant problem, especially when the buildings are of a cottage type and extend over a considerable area of ground.

There are now installed in the boiler room of the power house four boilers of three hundred and twenty horse-power each, these being arranged in two batteries with provision for additional batteries as the hospital section is developed. Further provision has been made for forced draft equipment, economizers, and the installation of super-heaters within the boilers. The boilers are of the B. & W. type, made in

Ontario, with settings built of a high quality fire brick, having outside walls of nine inches thickness. Over these two inches thick eighty-five per cent. magnesia blocks are secured, the whole being enclosed by steel casings as illustrated. The working pressure under which these boilers are operated is one hundred and fifty pounds. As the high pressure steam headers and feed water lines, main and auxiliary, are interconnected and liberally valved, continuity of operation is insured as far as possible; further, extra heavy fittings are used throughout. A Murphy automatic stoker is installed under each boiler, each stoker containing sixty-three square feet of grate surface.

A fifteen hundred horse-power open feed water heater, with a V notch meter and recorder, is arranged to permit of feed water measurement. Double acting single cylinder boiler feed pumps are provided in duplicate. An overhead hand-operated ten-ton double girder crane was erected in the apparatus room to facilitate any necessary repair work. The steam and exhaust piping system has been designed and installed so that in the future, if desired, steam may be supplied to engines and current generated, space being provided in the building for the number of engine generator sets required for the completed institution.

The proper selection and installation of indicating and recording instruments for the power plant is a subject which is seldom given much consideration as compared to the operating equipment. In this case care has been taken to provide for all the records necessary for complete and satisfactory determination of operating costs. Recording instruments having standard depth cases, uniform in size, design, material and finish are mounted upon a dull black marine slate board in the chief engineer's office. A Venturi recorder is also installed in this office, being connected to a Venturi meter in the flow of the hot water heating



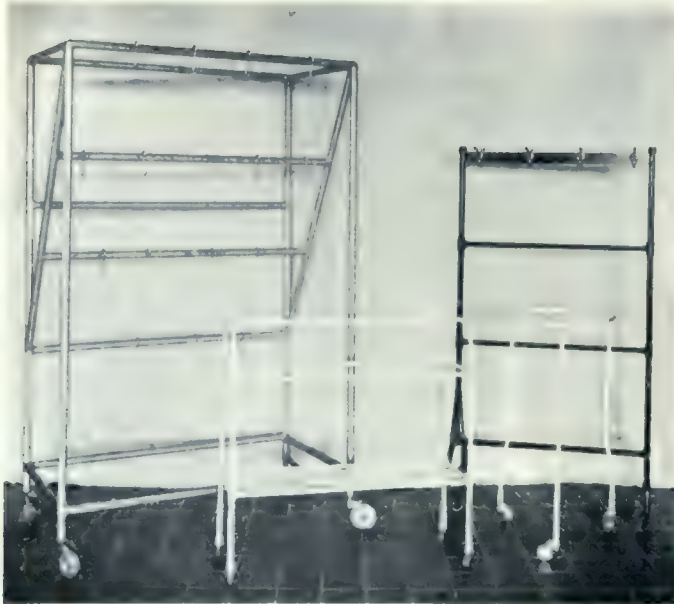
FOOD RACK IN KITCHEN STORE. NOTE SANITARY WELDED JUNCTIONS OF PIPE, UPPER SHELVING NOT SHOWN IS OF THE WIRE TYPE AS SHOWN IN ANOTHER ILLUSTRATION. ONTARIO REFORMATORY INDUSTRIES.



A DINING ROOM FOR PATIENTS FROM ONE COTTAGE.



ANOTHER VIEW OF TWO DINING ROOMS, SHOWING OPEN DIVISION.



MEAT RACK, TOWEL RAIL STAND, LAUNDRY BAG HOLDER AND DORMITORY CLOTHES RACK, ONTARIO REFORMATORY INDUSTRIES.

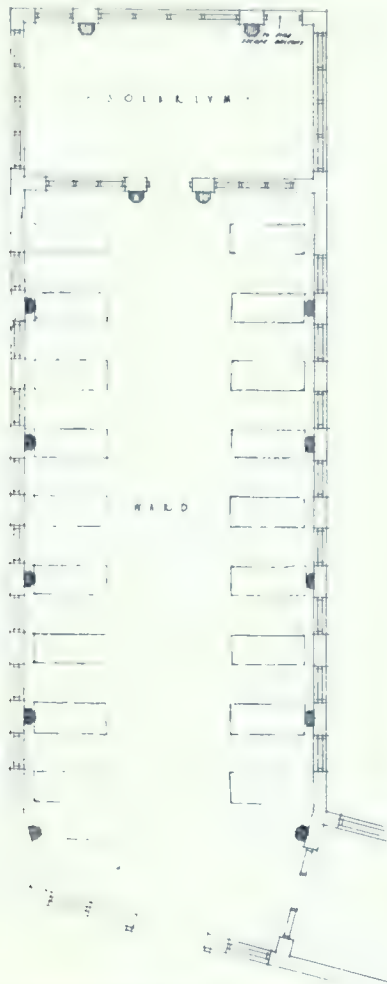
main. These instruments, together with those of the indicating type located at desirable points throughout the plant, furnish in connection with a simple form of log sheets an accurate basis for computing actual unit costs; the performance of the plant can thus be checked and leaks and wastes in its operation readily detected.

Coal is delivered from railroad cars on a

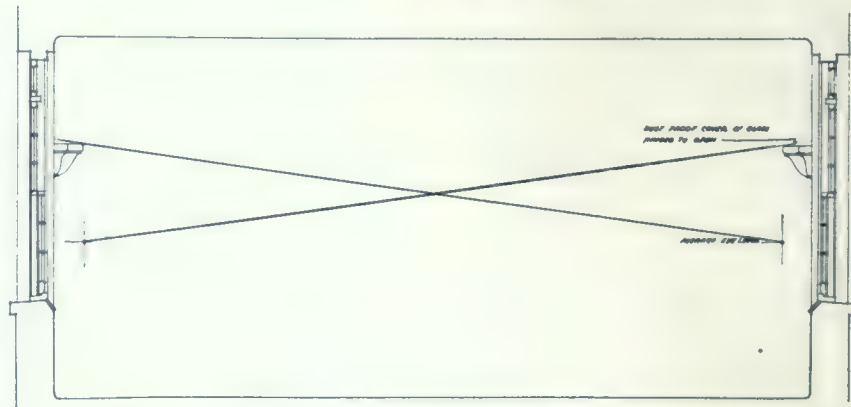
siding into a track hopper. This has an outlet over a scraper conveyor which discharges into the V bucket conveyor in the boiler room, the latter being used for the removal of ashes and delivery of coal into the overhead storage bunkers. An overhead travelling weigh hopper is used for the weighing of coal. Coal used is soft slack.

The chimney stack of reinforced concrete is one hundred feet high, and has an inside diameter of eight feet.

The heating system is of the hot water forced circulation type in which the water is heated in steam heaters and circulated through the buildings by pumps. Two one hundred and twenty-five h.p. steam turbines running at one thousand five hundred r.p.m. are direct connected to twelve inch centrifugal pumps each having a capacity of two thousand seven hundred and fifty g.p.m. Provision has been made for a third unit. One high and one low steam pressure heater have been installed for heating the circulating water, with provision for a second set. Due to the arrangement of piping, the heaters may be operated in parallel or series as desired, the temperature of the water being controlled by varying the effective heating surface. This is accomplished by adjusting the main return valve at these heaters, thereby allowing the con-



INTERIOR VIEW OF WARD



CROSS SECTION THROUGH WARD

NEW TYPE OF INDIRECT FIXTURE FOR HOSPITAL WARD LIGHTING IS BEING USED AS INDICATED IN ABOVE DIAGRAMS, HOSPITAL FOR INSANE, WHITBY, ONT. JAMES GOVAN, ARCHITECT.

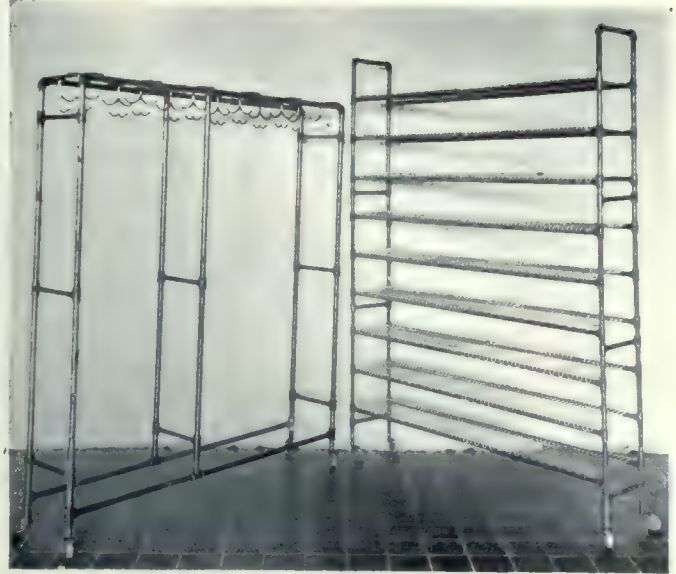
condensate to back up and decrease the available steam space, thus when only a slight rise of water temperature is desired, the heaters are nearly flooded. The condensate from the hot water heaters is discharged through traps and flows to an automatic pump and receiver from which it is discharged to the feed water heater. A large expansion tank equipped with an automatic cold water make-up is connected to an air compressor by means of which a constant pressure is maintained upon the system.

HOT WATER HEATING AND STEAM DISTRIBUTION PIPING IN CONDUIT.

Flow and return mains for the hot water heating system, live steam and return mains, are installed underground and insulated with Ric-Wil sectional tile conduit, the chief insulating material being moulded integral with the tile. The latter is supported upon a hollow tile base drain which rests upon a concrete base. This base drain tile was specially manufactured at the Government Clay Plant. The conduit system is designed throughout so that repairs can be made with a minimum of disturbance should they become necessary, the larger mains being in separate conduits. Provision for expansion has been made in the runs at approximately every one hundred and twenty feet, the expansion joints and anchor fittings of special design being bolted securely to concrete bases which are integral with the concrete bases under the main runs, thus insuring positive alignment. These joints are of the sliding sleeve type packed to suit the medium being carried. Large concrete pits with manholes have been located wherever expansion joints and anchor fittings occur so as to permit of ready access to the same.

Direct radiators of the Hospital type set three inches out from the walls are installed throughout the buildings. Each radiator has one valve located at the supply end, this being of the lock shield packless type. The majority of the radiators are connected on the shunt system, in a few buildings, however, the radiators are connected from separate flow and return mains. The general design of the system has been such as to simplify adjustment and operation, pipe sizes being arranged accordingly with such variations as tend to provide an equal resistance to all radiators. The major portion of the piping is accessible in spaces to which the patients have no access, being run in plumbing and piping shafts, basements and attics. The control valves are located at convenient points in the pipe shafts.

The heating of the Greenhouses will be done by means of a gravity hot water system, the main items of equipment being hot water heaters to which exhaust and live steam will be



STAND AND RACK FOR PATIENTS' OUTDOOR CLOTHING AND BOOTS IN COAT ROOMS. ONTARIO REFORMATORY INDUSTRIES.

pipied, live steam being supplied from the Power House and reduced in pressure. Use will be made of exhaust steam when available.

As the heat losses for the somewhat novel type of building construction adopted at Whitby were not known, a number of tests were conducted at the University of Toronto in order to determine the actual coefficients for such losses.

A full report giving all the data obtained would take up too much space in this article. It will therefore be published separately, covering fully the work done. The following is a summary of the results in so far as they affected



TYPICAL SANITARY MOVABLE RACK FOR LINEN AND CLOTHING. EACH DIVISION OF CEDAR SLATTED SHELVING IS A SEPARATE UNIT, AND THE WHOLE RACK STANDS CLEAR AND INDEPENDENT OF WALLS. ONTARIO REFORMATORY INDUSTRIES.



PATIENTS' CLOTHING CABINETS.

the construction adopted at Whitby:

1. A brick wall is a better insulator than a hollow wall of similar thickness.
2. A hollow clay tile wall is better than a hollow concrete block wall.
3. A hollow wall built with the webs of the blocks running horizontally is better than one built with the same blocks having the webs vertical.
4. The heat losses through hollow walls are

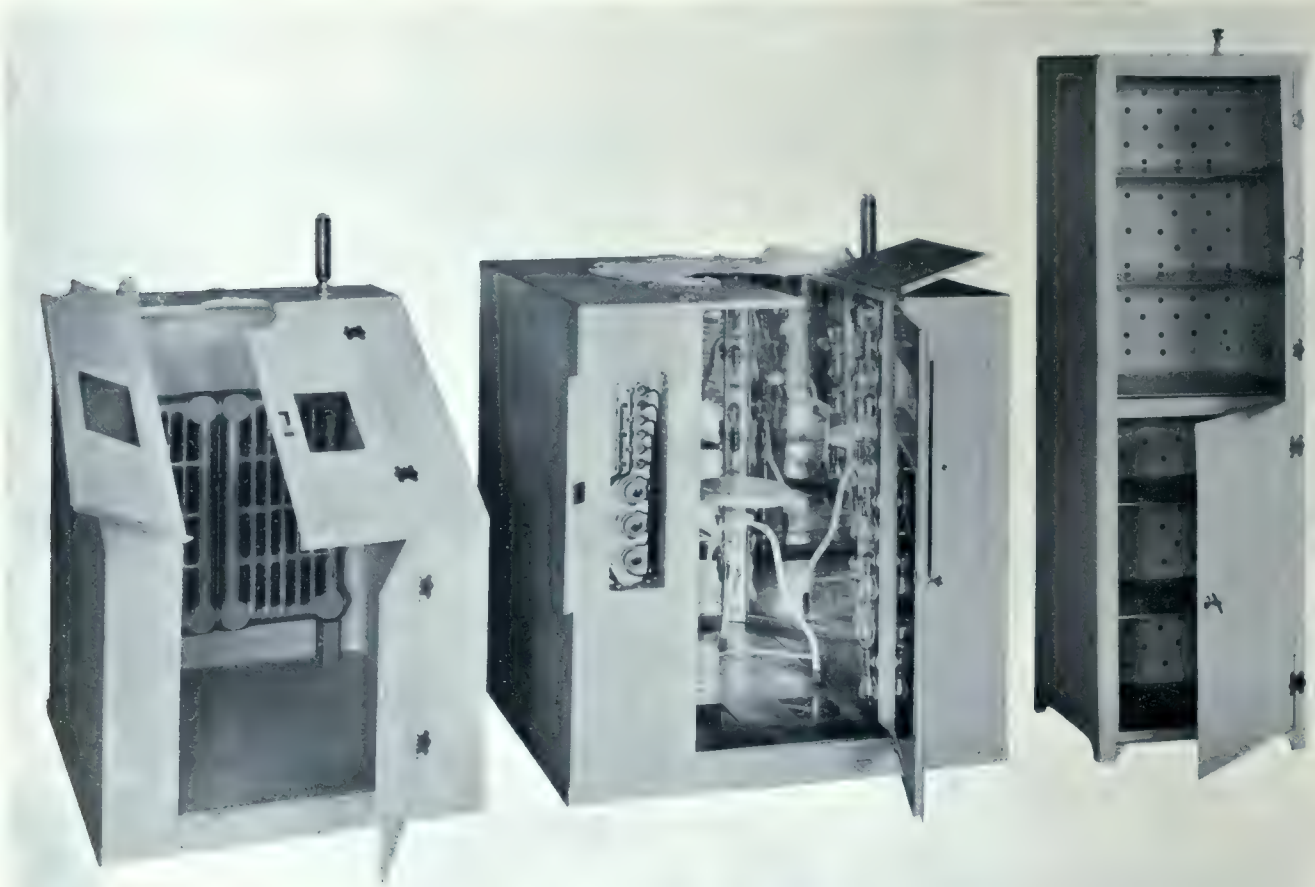
reduced very considerably when the spaces in the walls are filled with a material which, when placed in the wall, forms a number of very small air spaces separated from each other. For instance, it was found that ordinary pit gravel had practically the same value as an insulating material as mill shavings.

5. Tarred or asphalted felt, tarred or asphalted papers and heavy waterproof papers are all of great value in reducing heat losses through walls.

6. Equally good results were obtained by coating the walls with a good coat of a damp-proofing material which completely filled the pores and prevented air leakage through the wall.

7. Ordinary plaster, even three coat work, has little practical value as insulating material on a wall.

As the Ontario Government is able to produce hollow tile blocks very economically at its own clay plant, and as their use has many advantages which offset their disadvantages as a heat insulator, hollow walls have been used in the greater part of the construction at Whitby. Steps have been taken, however, to reduce the



HOT AIR CABINET, ELECTRIC LIGHT CABINET AND BLANKET WARMER (NEW CANADIAN PRODUCTS), HOSPITAL FOR INSANE, WHITBY, ONT.
JAMES GOVAN, ARCHITECT.

heat losses to a point lower than is obtained in general building practice. Paper, damp-proofing materials, cork, mill shavings, etc., have all been used, either separately or in combinations, to get the results desired in different parts of the buildings.

It is interesting to note that incidental to these tests, the usual constants for heat losses of standard brick and concrete construction were verified as practically correct.

The mechanical ventilation in the cottages is furnished by separate supply and exhaust systems. All fans are located in the basement so as to avoid noise, conserve space, and permit of easy attendance. Further, in each cottage all mechanical equipment has been confined to one room in the basement. This precaution, of course, tends to avoid any danger resulting from interference by the patients. The mechanical ventilation as provided will be used to supplement the direct heating system during spells of very cold weather. At such seasons it has been found in other Ontario public institutions that natural ventilation cannot be depended upon to provide a sufficient amount of fresh air. By making the comfort of patients and nurses dependent to some extent on the operation of the mechanical ventilation system, it is expected that the tendency to have no ventilation at all during severe weather, which is found in many hospitals of this kind, will be absent at Whitby.

The supply system consists of the usual fan, vento stacks and ducts, the latter being arranged so that by means of a damper, air can be supplied to the ground floor during the day and to the upper floor at night, in accordance with the requirements in each cottage building. The living rooms are located upon the ground floors, while the upper floors are used for sleeping rooms. By a similar arrangement air can be exhausted as desired. This method of design and operation permits of an economical fan installation due to the smaller size of fan required. Air is supplied in all buildings to the corridors and exhausted from the individual rooms, transoms being located over the doors to each of the lat-



TYPICAL STAIRCASE, SHOWING USE OF SPECIAL STEP NOSING, STRINGER AND OTHER TILES MADE AT GOVERNMENT CLAY PLANT.

ter. The exhaust ducts are carried up to the attic for sanitary reasons. From this point they are collected and lead to one main duct, which is extended down to the exhaust fan. All closets and utility rooms are arranged for the exhaust of air by gravity, the flow of which is increased when the mechanical supply system is put in operation, although there is no direct connection between the system of ducts.

The vento stacks are arranged four rows in



HOSPITAL FURNITURE, BLANKETS, MATTRESSES, TWEEDS AND OTHER FABRICS, BROOMS, ETC., MANUFACTURED AT ONTARIO REFORMATORY, GUELPH. BRICK, HOLLOWWALL AND SILL BLOCKS, ROOFING, FLOOR AND DRAIN TILES, FLOWER BOXES, ETC., ETC., MADE AT GOVERNMENT CLAY PLANT, MIMICO.



HOT WATER AND STEAM MAINS INSULATED WITH CONDUITS.

depth, the last three being supplied from the hot water circulation system, while the outer stack is supplied by steam to avoid freezing. The fresh air for ventilation is automatically controlled by a regitherm connected to a by-pass damper.

Dining room ventilation is arranged so that air is supplied to the dining rooms and exhausted from the kitchen. The exhaust system is equipped with a by-pass damper so that with the mechanical system stopped, ventilation will still be insured through the gravity discharge of air to the outside atmosphere. Direct radiation is figured for wall and window losses only. The intention is to introduce warm air shortly before meal times and rapidly heat the dining

rooms to the desired temperature. These vents are extended down to the floor and connected underneath to a main vent duct, one end of which exhausts to the atmosphere by gravity. The large amount of cooling surface of the main duct condenses most of the vapors, the condensation being drained to the main grease pit, where waste grease is recovered.

The supply of domestic hot water is provided for by the use of individual steam tube heaters in the basement of each building, steam being supplied from the high pressure main in an underground conduit and reduced in pressure at the buildings. The larger buildings near the power plant, and the laundry, will be supplied by hot water pumped direct from a large heater located in the power house. This location permits the use in the heater of a portion of the available exhaust steam from the power house auxiliaries.

High and low pressure steam is also used for the heating of domestic water, cooking, drying in a number of the buildings, sterilizing in the medical buildings and a portion of the ventilation in each building.

A careful investigation, together with extensive experimental work in other institutions under the direction of the Provincial Secretary's Department has established the fact that low pressure steam of not more than five pounds pressure is both efficient and desirable for the cooking of food. Low pressure steam has proved to be sufficiently high in temperature to accom-



BASE DRAIN TILE LAYING TO RECEIVE STEAM AND HOT WATER MAINS ON TOP. TILE MADE AT GOVERNMENT CLAY PLANT.

plish the desired results quickly and satisfactorily. For many other reasons it has also been demonstrated at Whitby to be more satisfactory than steam at higher pressure. In an institution such as this, where it is desired to measure the condensed steam as a basis of accounting charge for the steam used by the different departments for cooking, the tilting type of steam trap may be made to serve an additional purpose. Each operation of this trap represents a certain number of pounds of condensate, so that by attaching a suitable counter giving the number of times the trap has operated, a record of the steam consumption is secured from which accurate costs may be figured. By connecting the drips from all kitchen apparatus to a main tilting trap equipped with a counter, all condensation is measured, this being the method followed in this instance.

The condensation return system consists of return traps in the cottages, infirmaries and dining-room buildings, together with the necessary receivers, pumps, and pipe lines. The traps in each of the two cottage centres are grouped, and the condensation from each group is collected into a return tank, one tank being placed in each dining-room building. The water of condensation runs from each tank by gravity to the suction of a motor-driven centrifugal pump, the starting and stopping of the pump being controlled by a switch operated by a float in the tank. The float rigging can be adjusted to permit the pump to return small or large quantities of water as desired, and the rate of discharge of the pump can be controlled by a valve. The two pumps discharge into one main return pipe, which empties into the feed water heater in the power house.

This scheme was adopted in order as far as possible that all traps of the same group would have to work against the same back pressure. For this purpose the traps were grouped in their natural order as determined by the structural conditions, and pumps were provided to discharge positively through the long return lines. The pumps, being motor-driven, are entirely independent of variations in steam pressure for reliability in operation. The traps, being vented, are under atmospheric pressure only,



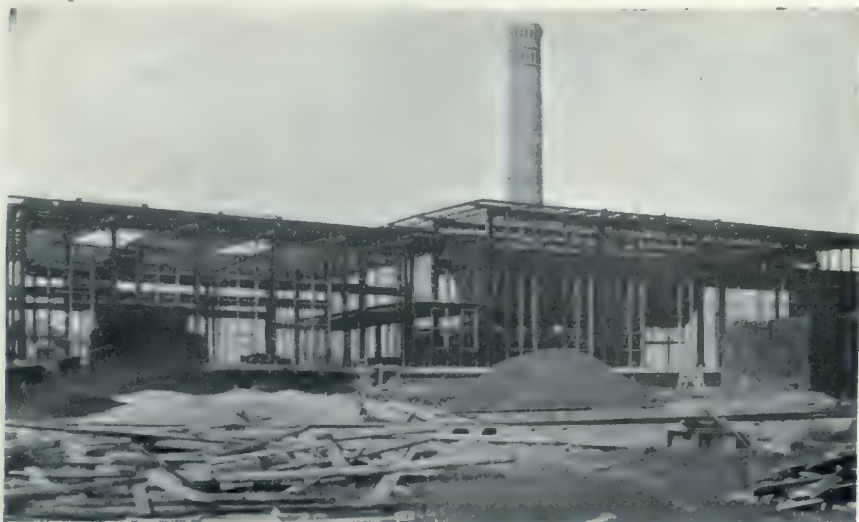
POWER HOUSE UNDER CONSTRUCTION, SHOWING HALF OF OVERHEAD BUNKERS IN BOILER ROOM.

and each trap of a group has the same freedom of discharge, all traps being roughly the same distance from the return tank of their group.

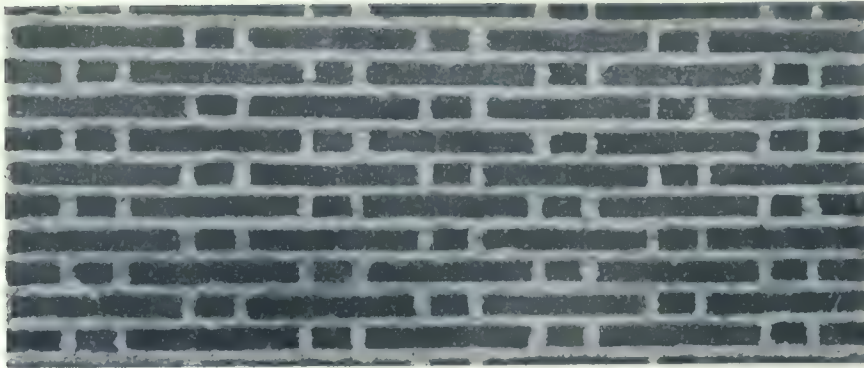
The fire protection system, supplied direct from the mains of the town of Whitby, with a connection also to the fire pumps of the institution, is extensive and complete in detail. The hydrant system is of good design, well gated with liberal-sized mains, and covers the entire property as a loop.

All buildings are equipped with standpipes, with fire reels and hose on each floor. Portable hand chemical fire extinguishers are well distributed at advantageous positions throughout the buildings. The fire brigade will be organized from the staff of the institution.

The question of refrigeration and cold storage facilities has been carefully studied, and the cheap and plentiful supply of good ice derived from the water adjacent to the property, together with inexpensive facilities for har-



POWER HOUSE IN COURSE OF CONSTRUCTION. UPPER WALLS ARE OF STRUCTURAL STEEL COVERED WITH FERRO-DOVETAIL AND STUCCOED BY USE OF CEMENT GUN OUTSIDE AND INSIDE.



DETAIL OF TAPESTRY BRICKWORK IN BASE OF COLD STORAGE PLANT AND POWER HOUSE. NOTE USE OF ONE AND ONE-QUARTER ROUGH PEBBLED JOINTS AND DOUBLE STRETCHER AND SINGLE HEADER FORMING DUTCH BOND.

vesting, indicated that a refrigerating system calling for the use of natural ice should be adopted. The original decision to make use of natural ice has already been amply justified, since ice has been harvested and stored at the cold storage plant at a cost which makes the operation of this system much lower than that of any mechanical plant.

The ice is stored in a building which has its floor, walls and ceiling thoroughly insulated, thus doing away with the use of any loose covering material, such as sawdust, shavings, etc., to prevent ice melting.

The system of refrigeration adopted was the brine system, and this is already in-

stalled in eight cold storage rooms of the dining-room buildings. It will also be applied in the main cold storage rooms attached to the general store rooms.

Crushed ice and salt are used in overhead tanks to cool the brine passing by gravity through the coils in the tanks and the cold storage rooms. The circulation of brine is maintained by the difference in temperature between the cold brine in the cooling tank coils and the

slightly warmer brine coming from the coils in the cold storage rooms. By this method low temperatures can be maintained simply by the use of ice and salt mixed in the required proportions, provided that the equipment has the proper amount of cooling surface. The simplicity of this system permits of its operation by unskilled labor. Surplus moisture in the cold storage rooms is taken up by calcium chloride, as used in the process in the troughs over the cooling coils. The calcium chloride dissolving as it absorbs the moisture, drips over the coils and removes the frost from the surface of the pipes, thereby maintaining the system at its maximum efficiency, as well as providing a



POWER HOUSE FROM RAILWAY SIDING, HOSPITAL FOR THE INSANE, WHITBY, ONT.

JAMES GOVAN, ARCHITECT.

pure and dry atmosphere within the room.

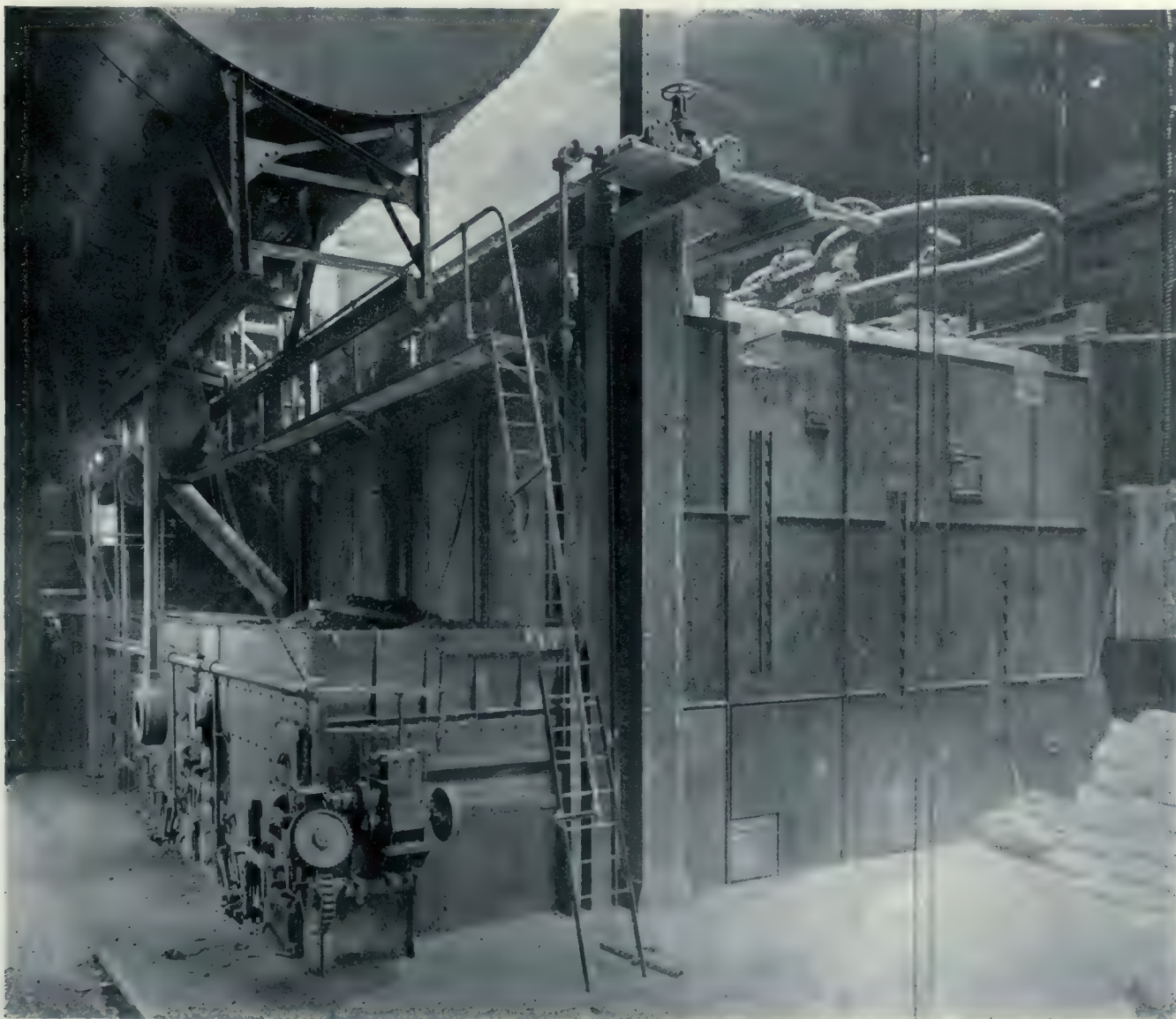
The general scheme of electric distribution is as follows:

Three phase two thousand two hundred volt current is distributed by underground cables installed in duplicate from the main switch-board in the generator room to the various transformer stations throughout the institution. The transformer stations, which are located at the different centres, contain the necessary equipment to transform the current from two thousand two hundred volts to two hundred and twenty volts, together with a low tension distributing board, each station being laid out so that equipment may be installed in duplicate.

The cables from the low tension side of the transformers run to this board, and are connected to bus bars through the switching apparatus. This board has mounted on it the switches controlling the low tension distribution feeders which are run underground to the different buildings comprising the centre. The current thus supplied is three-phase at a pressure of two hundred and twenty volts, this be-



GOODS ENTRANCE TO POWER HOUSE.



BOILER ROOM, SHOWING HALF OF THE BOILER, STOKER AND COAL STORAGE EQUIPMENT, HOSPITAL FOR INSANE, WHITBY, ONT.

MACMULLEN, RILEY AND DURLEY, CONSULTING ENGINEERS.

JAMES GOVAN, ARCHITECT.



PORTION OF COLD STORAGE PLANT, WITH PART OF POWER HOUSE IN BACKGROUND.

ing used to operate the electric motors for fans, etc.

One phase of the three-phase system is continued to the main lighting switch, thence to an auto-transformer for lighting, which is installed so that a three-wire system may be used for lighting in the different buildings. This allows the use of standard one hundred and ten volt lamps, while the distribution feeders are designed for two hundred and twenty volts, a much more economical voltage to distribute than one hundred and ten volts. Lighting in the cottages is controlled from one panel box located on the ground floor, in which are located the switches controlling the various circuits. In the diet kitchens, electric ovens and other cooking appliances have been installed, and are fed directly from the lighting panel, one circuit being allotted to each appliance.

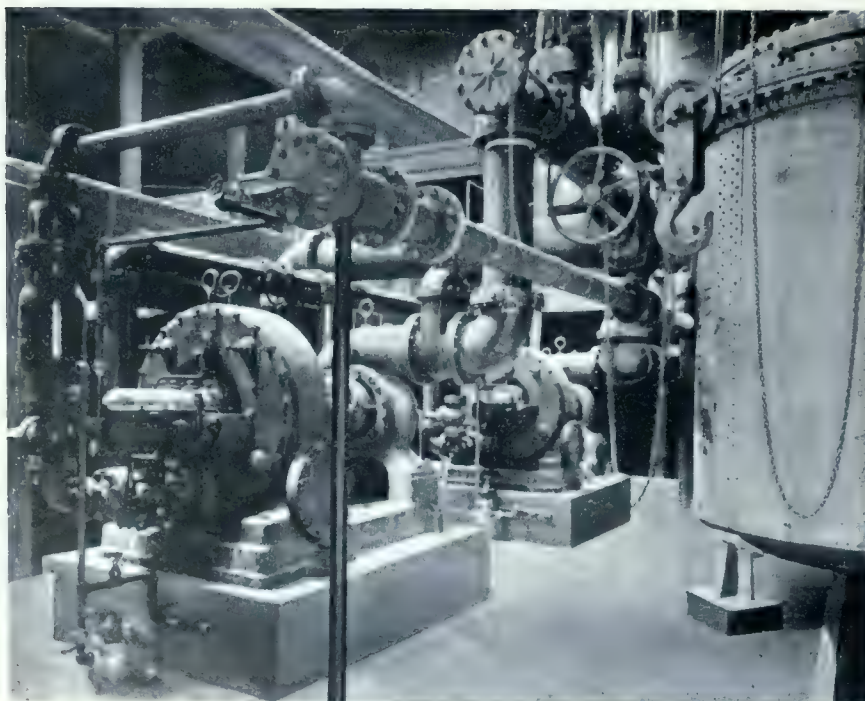
Direct illumination is used in the cottage and dining-room buildings, the fixtures being designed and manufactured with the special object of making them as sanitary as possible. Some of these fixtures can be seen in the il-

lustrations of the various wards, day rooms, etc. Their construction and position on the ceiling make it almost impossible for patients to tamper with them, while the glassware diffuses the light very satisfactorily, and kills the glare without reducing the efficiency of the unit to any considerable extent. Night light circuits and specially arranged fixtures have been provided, so that the general lighting can be cut off, while the nurses are enabled to

exercise proper supervision without disturbing the slumbers of the patients.

The lighting in the kitchens is worthy of special note, the rooms being forty-four feet long, twenty-five feet wide, and approximately twenty-one feet high. The objects sought in working out this lighting were: First, to eliminate all drop cords, chains or rods above the cooking kettles, which would collect grease; second, to provide an even diffusion of light without shadows, all over the floor area; third, to evolve a fixture which would be absolutely sanitary. The results obtained have fully come up to expectations. There are eight ceiling outlets, each provided with a one hundred and fifty watt lamp, which, together with an X-ray reflector, are inserted into the space above the ceiling. The only parts of the fixture which extend below are the shallow frosted bowl, used to diffuse the light, and the metal band which takes the bowl and fastens to the ceiling. These fixtures are steam and air tight, and the cleaning of them is a very simple operation. Their position in the room is such that the required intensity of light is at a plane about the level of the serving tables.

In the hospital buildings a new system of ward lighting by indirect means has been worked out, which is already attracting the attention of hospital authorities elsewhere. The fixtures, which are of compo-plaster work, are colored the same as the walls on which they are located, and are placed at such a height that none of the rays from the lamp can strike the eye directly. An X-ray reflector is used to direct the rays up to the ceiling, which in turn acts as a reflecting surface, the result being a well diffused, soft, even illumination, which will be of distinct therapeutic value in the treatment of patients accommodated in these buildings. The top of the fixture is made dustproof and sanitary by a protecting



STEAM TURBINES, PUMPS AND HEATERS FOR HEATING BY HOT WATER CIRCULATION.

glass plate. This arrangement of fixtures gives an illumination quite as satisfactory as concealed cove lighting, and at the same time eliminates all the dust collecting, insanitary features of the latter system, which make its adoption for hospital wards impossible.

Two separate circuits in a ward each feed half of the fixtures, and, furthermore, the wiring is so arranged that some of the lamps can be operated on half voltage. With these provisions different intensities of illumination can be obtained merely by the operation of a few switches, and the half voltage arrangement provides a very satisfactory dim night light. In addition, switches control individual fixtures, so that in case of emergency a nurse can obtain light in any part of the ward without being encumbered with a portable lamp.

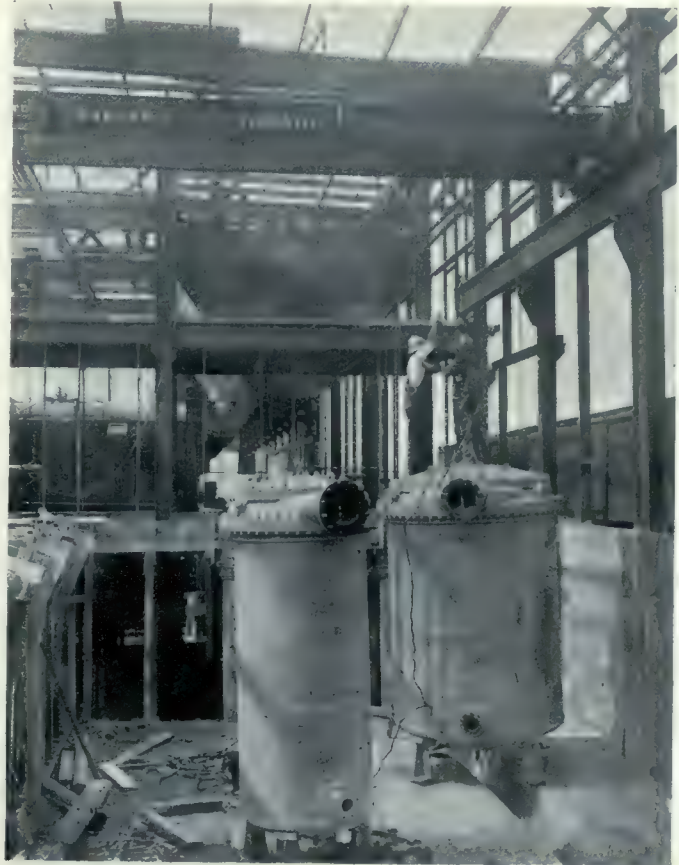
Not only is the absence of all overhead wiring very noticeable at the institution, but this effect is enhanced by the elimination of road lighting standards. This has been accomplished by lighting all roads and grounds with specially designed fixtures placed on the walls of the buildings, these fixtures being of a very simple type of sheet copper lantern, having a highly efficient reflector behind the lamp, which is type C, nitrogen gas filled, one hundred watt. The necessary air circulation is obtained through a gauze screen in the bottom of the lamp and openings in the soffit of the overhanging cover on top, the direct glare being softened a little by the use of slightly obscured glass.

The telephone system is of the common battery manually operated type, and will have no connection with the Bell telephone system, the latter being only installed for communication outside of the institution. A private exchange will be located in the administration building. Wires are run underground in lead-covered cables, suitable potheads are located in all buildings where cables enter, and terminal strips are installed so that any necessary changes can be made to the system very readily, or any trouble located. It will be unnecessary to have an operator on duty at night, as the following scheme will allow the night attendant in the power house to handle all night calls. This night service is not a general service, but will allow a sufficient number of telephones to be connected. All that is necessary to change over from the day service to the night service is for the operator to turn over a switch at the switchboard, thereby transferring all calls to the 'phone located in the power house, the latter being supplied with a number of buttons, one button for each line that can be called on the night service. All that the attendant at the power house has to do is to find out who is wanted and to press the button corresponding to the number called. He then puts up the re-

ceiver, connection having been made between the two parties.

In connection with the telephone system there is a general call, by means of which, on a code previously arranged, any official wanted can be signalled at every point where a telephone is located, by the use of a special buzzer.

It has been decided to install a combination watchman and fire alarm system. The wires for this system are carried in the telephone cable, and therefore will enter every building in the institution. The watchman's calls come over the same wires and are signalled with the same mechanism as the fire alarms. This is an



INTERIOR OF POWER HOUSE UNDER CONSTRUCTION, SHOWING TWO OF THE HOT WATER GENERATORS, THE END OF OVERHEAD COAL-BUNKERS, CRANE FOR HANDLING EQUIPMENT IN ENGINE ROOM, AND END OF FIRST BATTERY OF BOILERS.

advantage, as it ensures that the system is always tested and in proper shape for operation. The signals are given in code, each box having a certain number. The watchman signals by inserting a key in the box and turning it. This signalling is registered on a tape, the time of the signal being also registered by means of a time stamp. For a watchman's signal the code number of the box is registered on the tape once. However, when a fire alarm signal comes in, the code number of the box is registered several times, and certain gongs are operated, which are not at all affected by the watchman's signal. The necessary current to operate this system will be supplied by means of a duplicate storage battery equipment, which will in turn be

charged by means of a motor generator set, all located in the power house.

In addition to the general fire alarm system mentioned above, there is a local automatic fire alarm system in each cottage to notify the attendants should any fire occur in the roof space. This is thermostatically operated, and will ring the bells located on the first and ground floors. There is no connection whatever between the two systems, the local one being operated by means of dry batteries in the basements of the cottages. Other dry batteries similarly located operate the bells, buzzers, annunciators, etc., in the buildings, which serve as signals for attendants, etc.

ORGANIZATION.

The whole of the organization for the designing, construction and administration of this institution is under the personal supervision of Mr. S. A. Armstrong, Assistant Provincial Secretary, with whom the following have been associated on the work:

Dr. J. M. Forster, Superintendent; Dr. Harvey Clare, Assistant Superintendent Hospital for Insane, Toronto, as medical advisers, to-

gether with the members of the medical staffs of the various public institutions.

Mr. James Govan, architect.

Mr. A. C. B. Nicol, assistant architect.

Mr. James S. Hogg, clerk of works.

Mr. T. L. Rowe, superintendent of construction.

Mr. F. W. French, business manager.

Messrs. MacMullen, Riley and Durley, Toronto and Montreal, consulting engineers (Mr. M. A. Boyd, former, and Mr. T. W. Reynolds, present, manager of the Toronto office), who prepared plans, etc., for heat, light and power work, and supervised its installation.

Mr. George Black, Provincial Director of Heat, Light and Power, as consultant for the department.

Mr. S. E. Todd, Provincial Farm Director, in charge of landscape garden and roads layout, with Messrs. Harries and Hall, landscape architects and engineers, consulting.

Mr. L. E. Granger, Director of Domestic Economy in the public institutions of Ontario, as consultant.

Mr. C. R. Young, consulting engineer on structural steel and reinforced concrete.



ALPHONSE CHAUSSE, MONTREAL, HON. SECRETARY, ROYAL ARCHITECTURAL INSTITUTE OF CANADA.



J. W. H. WATTS, OTTAWA, HON. TREASURER, ROYAL ARCHITECTURAL INSTITUTE OF CANADA.

Royal Architectural Institute of Canada

AFTER the war broke out the conditions in the architectural field were such that it was decided to postpone the annual meeting of the Royal Institute from the 21st and 22nd of September, 1914, until some later date. The postponed meeting was held in Quebec on the 8th and 9th of September, at which time the postponed seventh annual assembly was held, with which was incorporated the eighth and ninth general meeting.

The Royal Architectural Institute of Canada was founded on the 19th of August, 1907, and in-

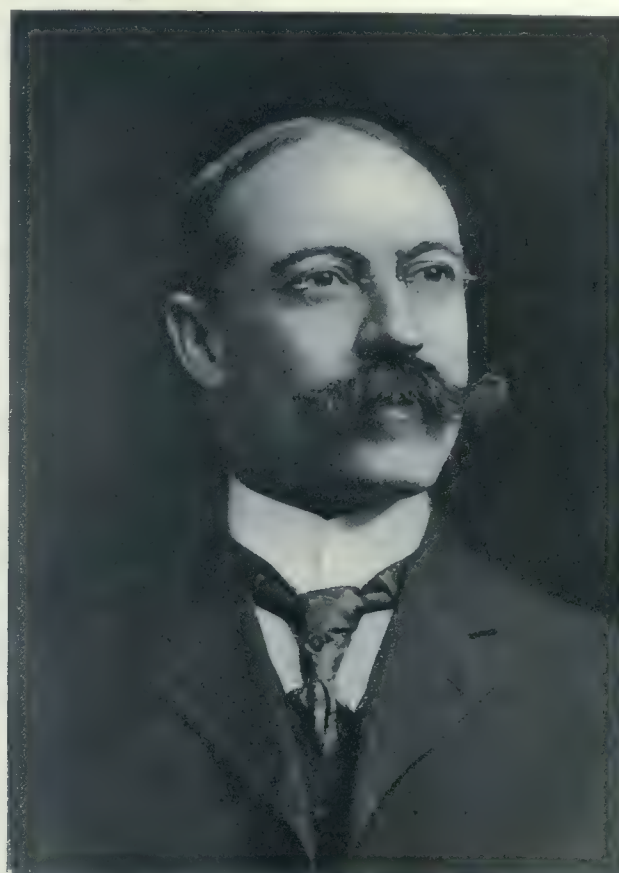
born at St. Fidele, County of Charlevoix, P.Q., on the 22nd of October, 1871. His father is Cyrias Ouellet, contractor, of Kamouraska, P.Q.

After a brilliant course of classical studies, at Levis College, he graduated in Arts at Laval, in Quebec, and entered the office of Messrs. Tanguay & Vallee, architects, of Quebec, for the study of his profession.

In 1893, he passed the final examinations and practiced for two years in the office of his former patrons, after which he opened an office for himself in 1895.



JOS. P. OUELLET, QUEBEC, PRESIDENT ROYAL ARCHITECTURAL INSTITUTE OF CANADA



A. FRANK WICKSON, TORONTO, VICE-PRESIDENT, ROYAL ARCHITECTURAL INSTITUTE OF CANADA.

corporated by an Act of Parliament in June, 1908, and April, 1912. It includes the Alberta Association of Architects, the Manitoba Association of Architects, the Ontario Association of Architects, the Province of Quebec Association of Architects, and the Saskatchewan Association of Architects, and is allied with the Royal Institute of British Architects.

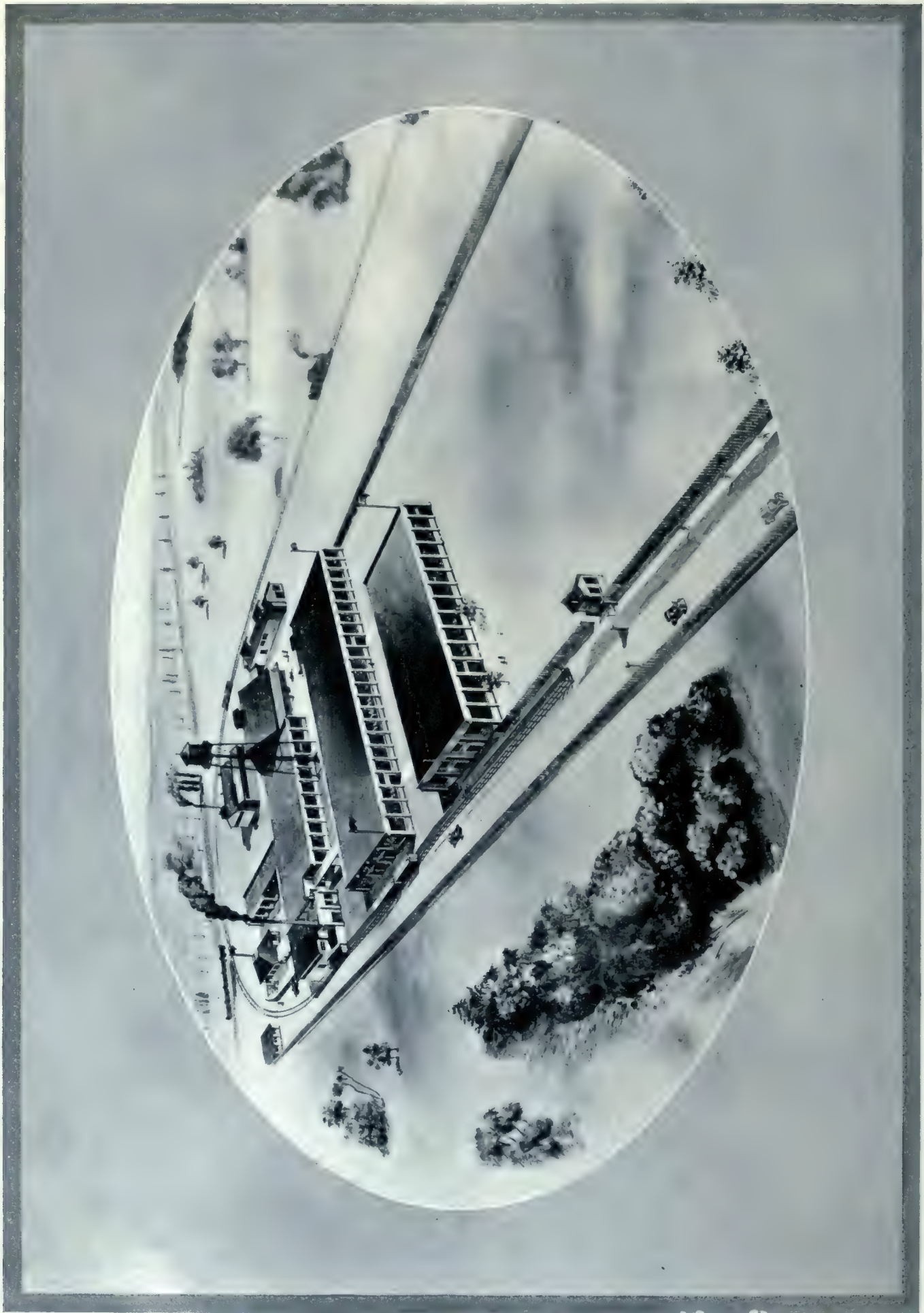
It is to be hoped that before the next Assembly, which will in all probability be held at Hamilton, the two architectural associations in British Columbia will have joined hands, thus ensuring affiliation with the Royal Institute.

Mr. Jos. P. Ouellet, the new President of the Royal Architectural Institute of Canada, was

Mr. Ouellet makes a specialty of church architecture, in which he excels, and, although relatively young, he has a good many important churches to his credit, which tell highly in favor of his artistic taste, and are only the prelude of still greater successes.

He was elected President of the P. Q. Association of Architects when he was only 30 years of age, and now is, at the presidency of the R.A. I.C., scarcely forty-five years old.

Mr. Ouellet has since twenty-eight years of age devoted a good part of his leisure to military matters, and holds a prominent position in the Canadian militia as Brigade Major of the City of Quebec Infantry Brigade.



GENERAL VIEW OF PLANT, CANADIAN CARTRIDGE CO., LTD., HAMILTON, ONTARIO.

A Canadian Designed Arsenal

Construction of Buildings. Method of Manufacturing Brass Cartridge Cases.

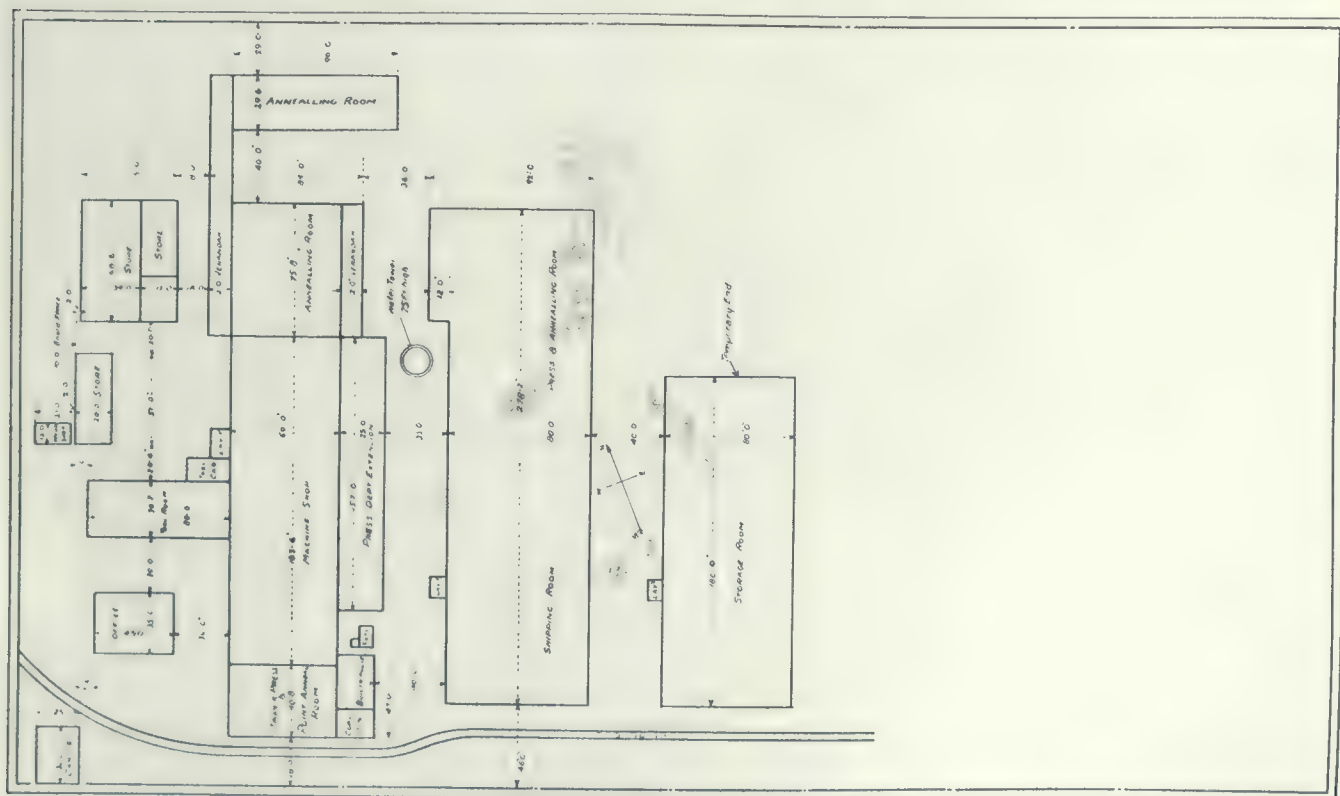
AN instance of Canadian enterprise where precedents had to be created, and the design, erection and installation achieved through sheer determination, coupled with considerable creative genius, is exemplified in the buildings and plant of the Canadian Cartridge Co., at Hamilton. The first of its kind in this country, it offers an interesting illustration of factory construction and equipment.

The general arrangement and appearance of the buildings are shown in the prospective view, and more definitely in the plan. The buildings are located on a block of six and one-half acres owned by the company, and situated in the industrial district of Hamilton. This area was secured to allow for the erection of additional buildings. The wisdom of this has been proven from the fact that the plant has already been extended.

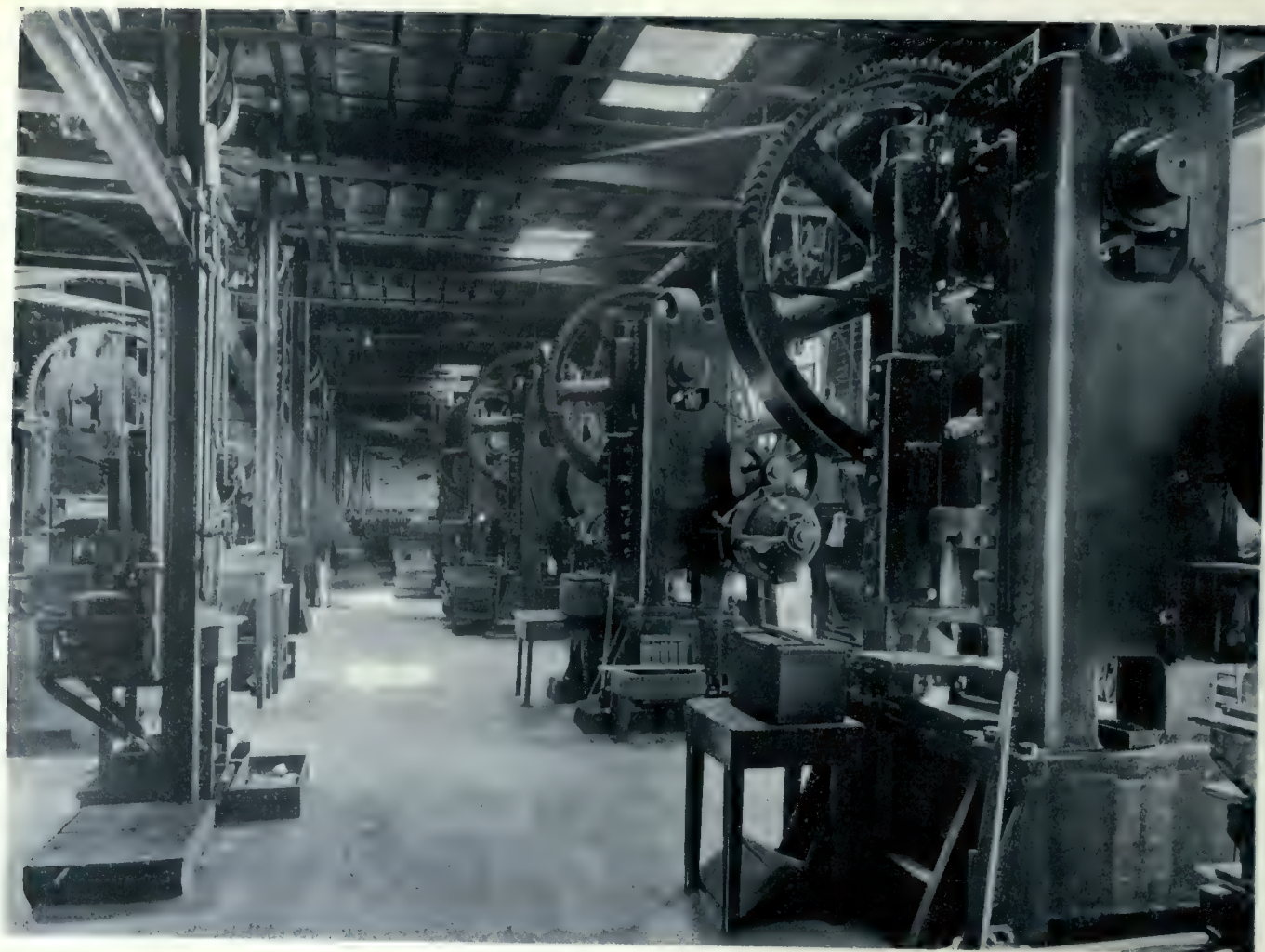
The main buildings are constructed in accordance with the most modern factory practice; the walls are of pressed brick, built on concrete foundations, and the roofs, which are carried on heavy steel columns and girders, are made of two by five timbers, laid on edge, close to-

gether, as recommended and approved by the Fire Insurance Underwriters. The roofs are covered with heavy tarred paper, tar and gravel. In consideration of future extension, the buildings are designed to carry additional storeys. Iron covered fire doors are provided between departments. Large windows with steel sash fitted with tilting or ventilating section, provide the maximum amount of light and ventilation, a recognized necessity in modern industry. Floors are of concrete, six inches thick, covered with tarred floor paper, overlaid with one and one-half inch maple flooring.

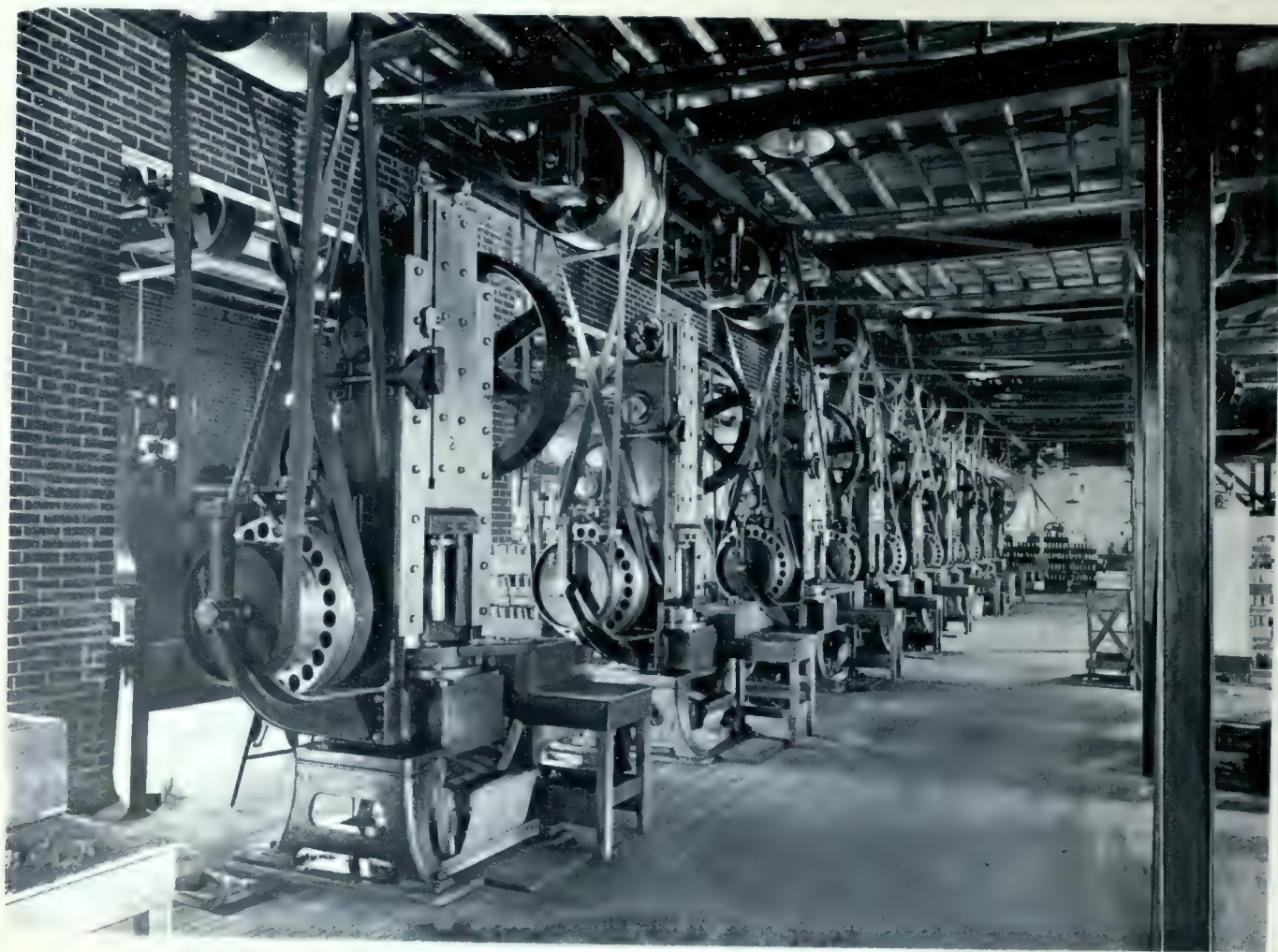
The plant is served with two railway sidings, one at each end of the buildings, the floor of the latter being on the same level as the floor of the freight cars, facilitating expeditious loading and unloading of merchandise. Mechanical conveyors carry the packed cartridge cases from the shipping room across the platforms into the freight cars. Heating is provided by steam radiators, supplied from the company's boiler plant, which also supplies hot water required for the various processes. Lavatories, wash basins, sanitary drinking fountains, and



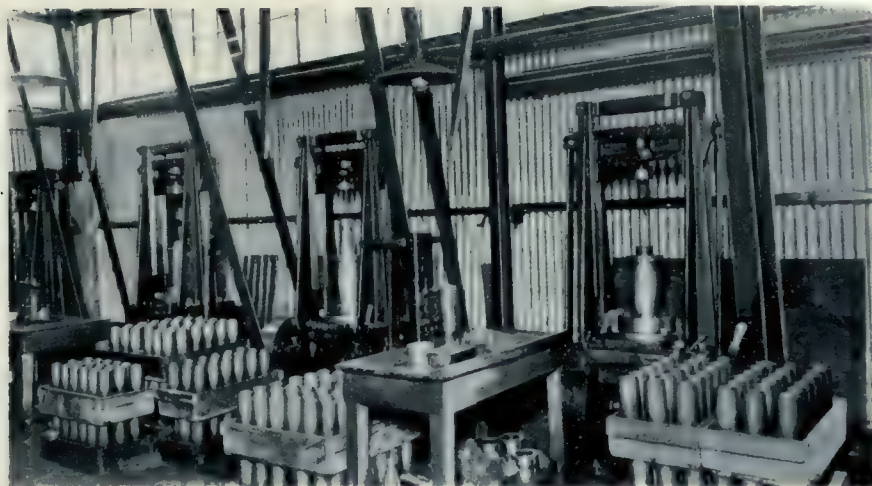
PLAN OF BUILDINGS AND GROUNDS, CANADIAN CARTRIDGE CO., LTD., HAMILTON, ONTARIO



HEAVY DRAW PRESSES—EARLIER DRAW OPERATIONS.



RACK AND PINION PRESSES—FINAL DRAWS.



TAPERING PRESSES.

racks for the workmen's clothing, are all indicative of the thought given to the comfort of the workmen.

PROCESS OF MANUFACTURE.

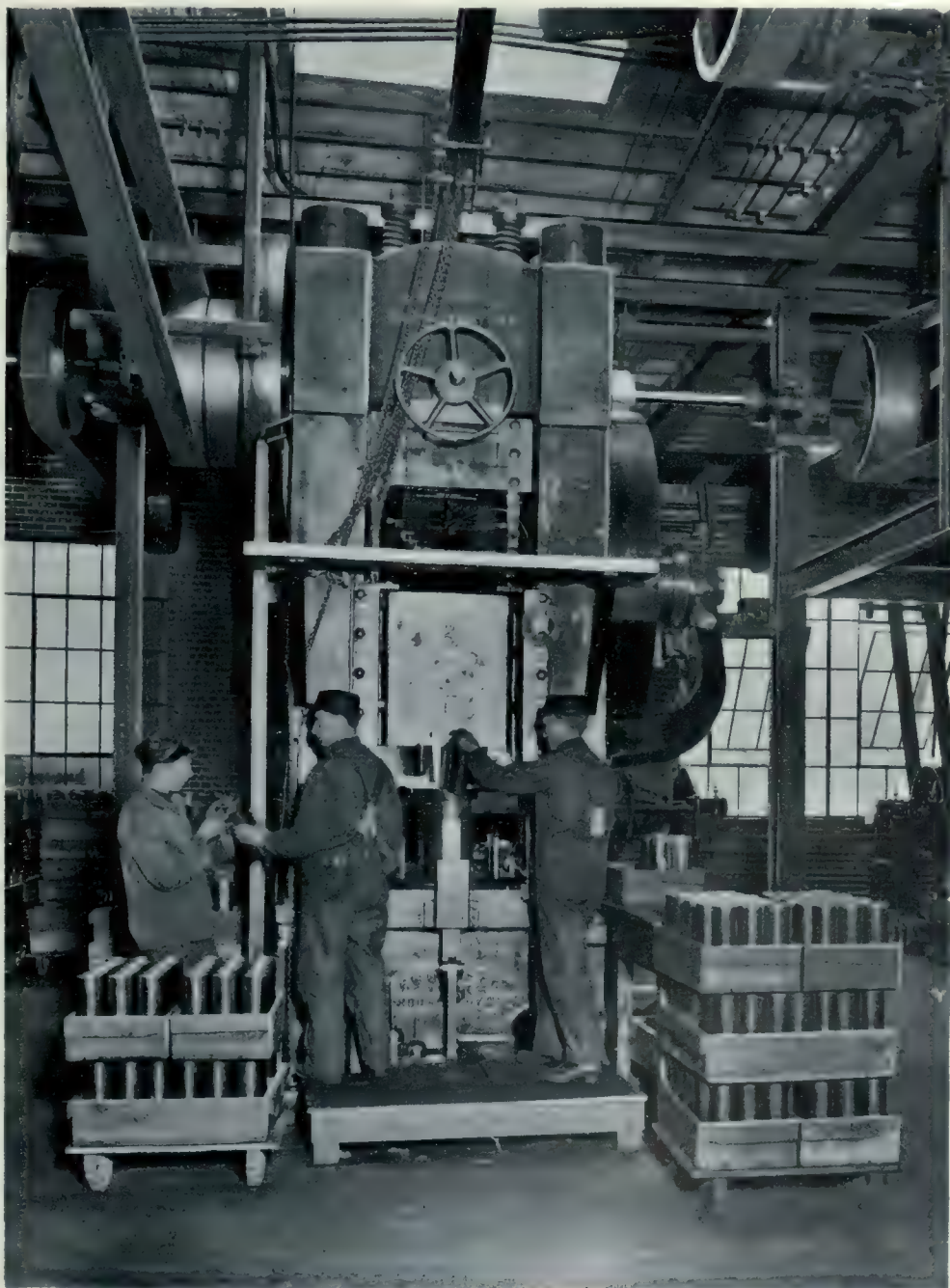
Minimum handling of material and economy of operation are in constant evidence. These are a reflection of the well arranged grouping of the buildings, the proper allocation of the various departments, and the skillful placing of machinery and equipment. The function of the plant is to turn out brass cartridge cases conforming to the British Admiralty standard. Three different sizes of cartridge cases are manufactured, being thirteen-pounder horse artillery; eighteen-pounder quick-firing field gun for shrapnel or high explosive, and 4.5 howitzer. With from four hundred and fifty to five hundred hands employed the output in this plant is six hundred thousand cases per month.

The actual manufacturing of the brass case consists for the most part in a series of stampings or drawing of the metal from its original shape, that of a circular disc, to the extended cylinder of brass

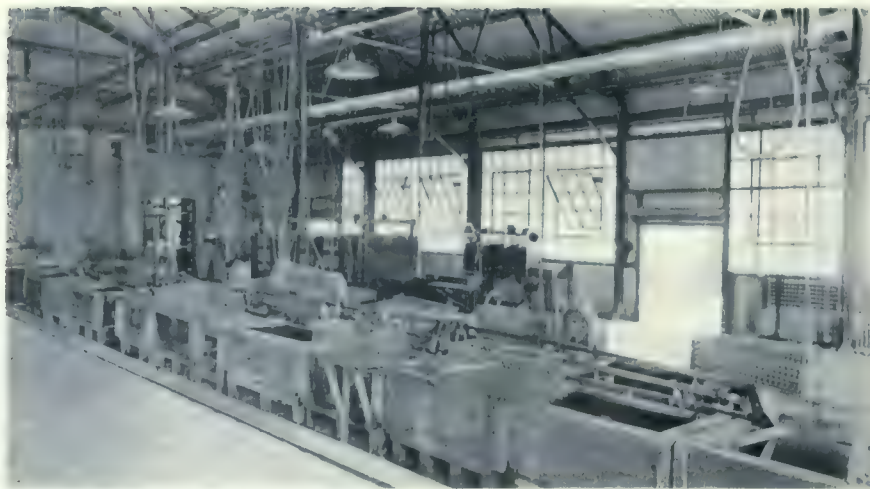
having the required dimensions and accuracy of measurement within the limits of four one-thousandths of an inch.

The first operation towards the completion of the case is that of cupping, which consists in stamping the metal disc, which is the form in which the raw material for the case is received in the plant. This disc is placed in a powerful press and stamped in the form of a cup or bowl, having an oval bottom. From the cupping press the stamped discs are taken to the annealing room, be-

ing an adjoining department, and carefully annealed by passing through a furnace kept at a constant temperature of about twelve hundred



HEADING PRESS, CANADIAN CARTRIDGE CO., LTD., HAMILTON, ONTARIO.



PICKLING DEPARTMENT.

degrees, the time occupied in this process being from forty to sixty minutes.

A careful maintenance of the proper temperature in the annealing furnace is insured by pyrometers, the readings of which are registered by recording meters, which not only show the temperature at any one time, but keep a record of the temperature throughout the twenty-four hours each day. After each an-

nealing, tests are made from selected samples to determine the hardness of the metal. This is accomplished by means of a scleroscope and microscope, and affords a thorough check as to whether the proper temperature in the annealing furnace is being maintained.

From the annealing furnaces the cups are taken to the open air to be cooled, after which they are washed in a weak solution of sulphuric acid and rinsed in clear water. This washing removes all deposit from the metal, and reduces the possibility of scratch-

ing the surface in the press, to a minimum.

The second operation is known as drawing. The same style of press is employed as for cupping. In this press the length of the sides is increased by about an inch, the bottom being oval as before.

Inasmuch as the process of drawing hardens the brass, it is necessary that it be annealed and washed after each drawing. The embryo



METHOD OF COOLING CASES AFTER ANNEALING, CANADIAN CARTRIDGE CO., LTD., HAMILTON, ONTARIO.

cases are again taken to the annealing room, where they go through the same process of annealing, cooling, and washing as before. In the second draw a similar press is employed as before. The operation consists in again slightly lengthening the sides, after which the first indent is made in the base. This indent later becomes a priming hole in the cartridge case. When again annealed and washed the cases are brought to another press with a longer punch, in which they are lengthened about four inches. The fourth draw consists in lengthening the case considerably, when the second indent is made, and the shape of the base changed. A different type of press, of a rack and pinion pattern, is employed in the fifth draw, which consists, as in the fourth, of drawing out the sides still further, after which it is trimmed to a specified length.



POINT ANNEALING FURNACE, BEFORE TAPERING.

Since the physical qualities of brass differ very materially from those of steel, the punches and dies are designed with a view to drawing



LATHE DEPARTMENT, CANADIAN CARTRIDGE CO., LTD., HAMILTON, ONTARIO.



FURNACE FOR MELTING SCRAP.

the case to the size required with a degree of accuracy within the limits of four one-thousandths of an inch. It would be impossible, as in the case

of steel shells, to accomplish this on a lathe. The sixth and final draw is on a press similar to that used in the last operation, when it is again trimmed to a specified length. In the presses in all operations a compound of soap and oil is used somewhat thicker in consistency than is used for lathe work.

At this point the cases are washed in a solution of soda water to remove all grease, and are then rinsed in clear water. They are now ready to be headed. Heading is performed on a one-thousand-ton toggle joint press, two blows of the header being necessary. The die on the header flattens the base and makes the flange of the proper size and shape. The indent hole is also increased at this operation.

Following the heading the cases are taken to a point annealing oven, where they are annealed by gas about half way down their length from



TOOL ROOM, CANADIAN CARTRIDGE CO., LTD., HAMILTON, ONTARIO.



CASES IN BOND, AWAITING RESULTS OF FIRING TEST, CANADIAN CARTRIDGE CO., LTD., HAMILTON, ONTARIO.

the mouth. The annealing is necessary because the shape of the case is changed in the next operation. Up to this time the sides are perfectly straight. They are now tapered in a press to fit the shape and taper of the gun in which they are to be used. Machining follows. Special turret lathes are required to finish the heads, and drill, recess and thread the priming hole, as well as trimming the case to the proper length. From the lathes the cases are taken to the primer rectifying machine, where all holes are tapped or cleared to the proper gauge. This constitutes the final mechanical operation on the case.

TESTING.

As in the case of testing shells for the British Government, the same high standard is maintained in the production of the cartridge cases, and similar efficient and elaborate testing methods adopted. The company has its own staff of inspectors, who examine the cases from time to time during the process of manufacture. The Government inspectors perform the final examination, and accept or reject the finished product. The cases are inspected for machining, size of pilot hole, dents and imperfection of metal, by the company's inspectors, after which the case is brushed inside and out with a revol-

ving wiping apparatus. In the stamping press the date, including the day, month and year are stamped on the base, together with the company's private trade mark and serial letter. When the Government examiners have made a thorough test, both as to machining and defects, they gauge for all sizes, and also check up the markings already stamped. If O.K., the Government acceptance mark is applied.

From each lot of one thousand shells the Government examiner extracts three which are sent to Quebec to be proved, the balance of that lot being kept in the plant until the result of the firing test is received. This test consists of firing one shell at nineteen tons pressure, and the two others at fourteen tons each, the normal firing pressure being thirteen tons.

When the Government inspectors have passed on the cases and placed their official stamp thereon, they are taken to the shipping room and packed in special wooden boxes furnished by the Government, under the supervision of a Government inspector, after which the official stamp is placed on the box.

Of further interest in connection with the manufacture of cartridge cases in this plant is the fact that the company maintains a tool room, employing thirty-five hands, where all tools are

made or repaired. In conjunction with this is a blacksmith's shop and tool-hardening department.

Inasmuch as there is considerable scrap brass from the machining operations, provision has been made for taking care of this. One of the illustrations shows a melting furnace installed in the plant having twelve pits, capable of taking No. 80 crucibles. Here all scrap, after hav-

ing been passed through the annealing furnace and baled, is melted down and poured into ingots. This brass is sold in the open market.

The Canadian Cartridge Co., Ltd., was organized and started by F. W. Baillie and F. P. Wood, the former holding office as president and general manager, and the latter vice-president. There are no other shareholders in the company.

CONSTRUCTION

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INTERESTS OF CANADA



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CONTRIBUTIONS.—The Editor will be glad to consider contributions dealing with matters of general interest to the readers of this Journal. When payment is desired, this fact should be stated. We are always glad to receive the loan of photographs and plans of interesting Canadian work. The originals will be carefully preserved and returned.

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FRASER S. KEITH - - - EDITOR AND MANAGER

Vol. IX Toronto, October, 1916 No. 10

Progressive Hospital Construction

In the light of the many recent outstanding instances of irregularities connected with the erection of public buildings, it is refreshing to be able to point to a striking example, contradicting in every particular the popular idea that extravagance prevails when the general public are paying the bills. At the Provincial Government Hospital for Insane at Whitby the people of the Province have an institution to which they may point with pride, not only because it is conceded to be one of the finest of its kind in

the world, making a distinct advance in mental hospital design and equipment, but also because it has been erected by a Department of the Ontario Government, utilizing strict, economical and highly efficient business methods. *

In the selection of plant and equipment, methods of construction, purchase and testing of materials, and in the use of an accurate unit cost system to permit the checking of costs for work as it is executed, the most up-to-date methods and ideas of the large contracting firms have been followed and in many ways improved upon. Not only can contractors draw valuable lessons from this work, but Canadian manufacturers also have been shown that goods and materials can be made in this country which were never made here before.

Notwithstanding regrettable delays due to difficulties of financing such a large undertaking since the war broke out, and the greatly increased cost of labor and materials, the methods adopted for carrying out the work show, in the carefully scrutinized costs now available, that great economies are being effected and that the work compares more than favorably with that of the best private contracting organizations.

Especially praiseworthy is the amount of research and experimental work which has been done in developing the scheme and in producing the materials which have been used in construction. Members of the staffs of our universities have been called upon to assist in solving many problems, and their scientific equipment has been used in a way we do not believe has been attempted in this country before.

The quality and properties of the shale at the Government Clay Plant were thus tested and reported upon before any development was attempted. Tests of the sand and gravel from the Whitby property: an investigation of all the best systems of reinforced concrete floor construction which occupied many months; experiments on various types of wall construction and insulation to determine values for heat losses; freezing and thawing tests of the products of the Clay Plant; crushing experiments on many varieties of hollow clay and cement blocks; experiments with different mixtures of subflooring materials to produce a resilient cushion between linoleum covering and the hard concrete

of the structural floors; the development of the manufacture of roofing and floor tiles equal to the best which can be imported; the many new types of hospital lighting fixtures evolved; the method of arranging plumbing piping and the special fixtures designed and standardized for institution work; specially designed hospital hardware; numerous new ideas in the kitchen arrangement and equipment; the careful studies of the orientation of all buildings for sunlight—this work and much else of practical and scientific interest are suggestive of the laboratory rather than a large undertaking by a Government in this country.

Giving credit where it is due, a large share falls to the lot of Mr. S. A. Armstrong, Assistant Provincial Secretary, whose genius for organization is reflected in the masterly manner in which his Department is carrying on the work.

The originality and initiative displayed and the advanced ideas incorporated in the designing of this institution and in the working out of the many problems arising during its erection are all indicative of a harmonious and effective co-operation between designers, builders and craftsmen which reflects the greatest credit on all who have been associated on the work.

It is impossible to mention all the unique features which distinguish this undertaking, which are of such interest to all classes of our readers—professional and lay—that we believe a careful perusal of our descriptive article will stimulate a desire for more information on many points just touched upon.

The scheme is not yet completed, but what has been done justifies the expectation that the buildings yet to be finished will show the same originality of conception and capacity for detailed study which the architect, Mr. James Govan, has so successfully brought to bear on the work already done. We hope to be able to furnish our readers later with further details of some of his work not yet far enough advanced to be illustrated.

Developing The Individual

Taking outsiders for granted and making Canadians prove their mettle seems to be the order of the day in this country. Everybody is doing it. The heads of the Federal Government and many private corporations are equally engaged in following out the idea. It has become a national pastime. It even appears to be a national policy. In the early days of shell contracts, tens of millions of dollars' worth of orders were handed over to our neighbors with few questions asked, but when a Canadian wanted to keep his plant busy by manufacturing munitions, it was, generally speaking, a case of "Show me." They did. Our Canadian manu-

facturers showed the whole world that they could meet an emergency with as great a resourcefulness as was ever exhibited by any nation.

When we require an expert to advise on railway valuations, we choose the head of an American railway whose lines compete with our own.

A Dominion arsenal is needed—surely beyond the scope of Canadian intellect. What was done to secure it is a matter of inglorious history. The jokers at Ottawa perpetrated a grim one. For already we had an arsenal, planned, erected, installed and operated by Canadians. The plant of the Canadian Cart ridge Company at Hamilton is an arsenal in every sense of the word. While the complete shell is not manufactured, the creation of this plant—by Canadians—involved all the problems necessary for a complete arsenal. The skill in designing the structures, the technique in co-ordinating departments, and placing equipment, the working out of economical and efficient process, the precise operation in the various stages of manufacture all in their essentials, required every possible demand that could be made upon technical adaptability to produce the Lindsay arsenal.

This is not a narrow, provincial question affecting a few individuals in the country, but one that strikes at the very root of our national life. We must, both as Government and as individuals, get rid of the idea that every time a special occasion arises, requiring scientific knowledge or special ability, it is necessary or even advisable to look beyond our borders to obtain it. This tendency is an insult to our universities and to our technically trained professional men and an absolute deterrent to the best development of the country's interests.

Hopeful Outlook

The spirit manifested at the annual assembly of the Royal Architectural Institute of Canada augurs well for the future of the profession in this country. It was clearly impossible to settle all the important matters demanding attention. The meeting itself was an indication that we are getting over the shock occasioned by the adverse conditions forced upon us by the war. A courageous, hopeful outlook was evident, justified by the fact that conditions have already improved in the building line. Harmonious co-operation indicates and assures progressive development. Canadians owe much to our architects and engineers. The future will surely bring the deserved recognition. CONSTRUCTION appreciates the attitude of the Royal Architectural Institute of Canada towards ourselves, and hereby thanks the members who at the annual meeting gave us such a unanimous expression of their good-will and esteem.

Architectural Digest

Articles of More Than Passing Interest From Our Contemporaries

THE EVOLUTION OF GAS LIGHTING AND HEATING.

By Prof. Vivian B. Lewes.

The real inception of the gas industry came at the end of the eighteenth century, at a time when there was a marvelous wave of scientific activity spreading over the whole of Western Europe. We had in this country at work men like Priestley and Cavendish. In Edinburgh there was Black, who, with limited means at his disposal, did an enormous amount of work and effected vast improvements in all forms of scientific work. He showed us that the weight changes which take place whilst the matter is altering in form were far more important than the changes perceived by the eye, and in introducing the chemical balance he put a new weapon in the hands of scientific observers. At the same time there was at work in Sweden a little another, named Scheele, who discovered more facts than any man breathing, and in France there was the master-mind of the great philosopher, Lavoisier, who had the faculty of weaving facts into theories of the most beautiful character. He showed us what combustion really was, and he (Prof. Lewes) could assure his audience that at the present day one-half of our scientific information was due to Lavoisier's theory of combustion. At that time two men were born in England who were destined to throw an enormous amount of scientific light upon the civilized world. One was William Murdoch, and the other Humphry Davy. Murdoch was born in 1754, the son of a miller in Lugar in Ayrshire, and as a boy showed extraordinary adaptability and extraordinary experimental skill. He began as soon as he was able to do so to make experiments. There happened to be an outcrop of Scotch shale in his father's cabbage garden, and he used to experiment with it and ignite it. He carried on a certain number of experiments, and finally was able to dispel it, and it was recorded that in an old cave by the side of the mill stream he used to make gas by which he illuminated the cave, using as a retort his mother's teapot. Subsequently young Murdoch went to Birmingham, and obtained employment at the Soho works, not many miles away, where were the great works of Bolton & Watts, renowned for the beauty of the workmanship they turned out. They were pioneers in stationary steam-engine work, and their pumps were also world renowned, and to them went young Murdoch. Watts himself happened to see him, and at first treated him very much as he treated any other lad who turned up and wanted a job. The youngster was standing with a billycock hat in his hand, which finally dropped on to the floor, and the ring of that billycock hat on the floor attracted Watts' attention. "Hallo!" said Watts, and Murdoch shamefacedly produced his billycock hat, which was one he had turned out of an old log of wood. Watts was so struck by this fact that he took him on at 5s. a week. In 1780 Watts sent Murdoch into Cornwall to push the sale of his firm's pumping engines. At that time the tin mines of Cornwall were at their zenith, and powerful machinery was necessary for keeping them clear of water, owing to the great depths to which they went. Murdoch's duty in life was to push pumping machinery amongst the mine owners. He settled down in a small house at Redruth, near Truro, and set to work to do this, but it left him a good deal of spare time, sufficient at least to work up many of the early schemes of his boyhood; and remembering the experiments which he had made in distilling the shale at Lugar, he set to work to do something on a bigger scale. After making trials he hit upon a form of pot not unlike an ordinary washing boiler, and in that distilled coal. He sent the gas through a rough sort of scrubber, and finally by a pipe into his front office, and he found that every night the villagers would come up and see this wonder. The news of it spread, and finally he had people coming from a great distance to see that in that day was as great a wonder as radium or X-rays, or any other modern scientific wonder is now. The great wonder of the thing was that it was a flame burning without a wick, as up to that time all illuminants had had wicks. No one had ever for an instant believed that it was possible to get an illuminating flame without a wick, and Murdoch's wickless flame was among the wonders of the day. At that same period also he designed practically a motor tricycle driven by a small engine, with which he used to frighten the neighborhood into the belief that he was at least, if not the devil, a very fair imitation of him. In fact, we should have had as Murdoch the inventor of the locomotive if it had not been for the opposition of Watts, who naturally did not like this experimental work which was being done. Undoubtedly Murdoch, but for this, would have invented the locomotive many years before Stephenson. Murdoch returned to the Soho Works in 1801, and put up there a fair imitation of a gas works for illuminating the works and shops, and this attracted a good deal of attention. By this time it would have been thought that Murdoch's claims to the discovery of the utilization of coal gas must have been established. Murdoch did not claim that he discovered coal gas, because it was well known 600 years before that coal could be distilled, but Murdoch had shown the way in which it could be practically used, and in which it could be harnessed for the good of civilization. Unfortunately, like so many inventors, he did not reap the reward of his invention, because in 1801 a Frenchman in Paris found out that if one distilled wood in a retort away from contact with air, a gas was obtained which also gave a very good light. Lebon took and furnished a sort of show house in Paris and exhibited this wonderful invention, which made ordinary smoke burn with luminosity, and this also attracted a good deal of attention. To one of his shows came a German named Winsor, who was enormously impressed with Lebon's discovery, and tried to buy the secret. In this he was unsuccessful, and he went back to Germany, bent on finding out how it was done. Within two years he had discovered the secret of illuminating gas, and he found that he could obtain it not only from wood, but from peat and coal.

Winsor got a charter to enable him to light a portion of London, rather a come-down from his original idea, but it was something to go on with. In 1805 he put in two or three lamps in the Strand in order to demonstrate the process. In 1810 he

formed a company—the Chartered Gas Company—which was the forerunner of our present Gas Light and Coke Company, now the premier gas company in the world. These first two or three years of the Chartered Gas Company were anything but a bed of roses. Winsor's ideas as to the distillation of coal had gone very little beyond the experiments which he had shown in the Lyceum Theatre, and when he came to try to do it on a practical scale, he was met with troubles which he had not the faintest idea how to get over. Fortunately at that time he succeeded in getting hold of Clegg, who had been an assistant to Murdoch. Murdoch had really done a great deal of work in perfecting the system, all of which Clegg knew, and Clegg it was who joined Winsor and made his work a success. In 1814 Westminster was lighted. Two years later Liverpool also adopted it, and had never regretted it since. Glasgow followed in 1817, and finally, in 1818, came Dublin, so that the whole of the United Kingdom was at this time taking up gas lighting. This industry, so started, has never looked back. It has gone on increasing, and within the last 100 years it has grown with such leaps and bounds that, looking back even five years, we realized that none of us, even such a short period ago as that, dared to imagine the great developments which it had since made.

There were various methods by which was at that time used to be burned. When Murdoch first made gas at Redruth, and burnt it in his village parlor, he burned it at the end of a pipe that gave a big flaring flame with a maximum of consumption and a minimum of light, and inasmuch as his holder was a very small one, his shows did not last for any length of time. On one occasion, when he had a room full of people watching the flame, he had the uncomfortable feeling that his holder was only half full, and he knew it would only last about ten minutes. He was not at all sure what would happen if the holder grounded. He had the dim idea as the back of his head that unless the pressure of the weight of the holder was on the gas, the gas might flash back and cause an explosion. He had a very primitive method of arranging the gas supply in those days. He had no taps, and his method of closing the end of the pipe was simply to have a little plug of clay, which he plugged into the end. On this occasion, however, he was anxious and flurried, for that little plug had got knocked on to the floor and he could not find it. The flame was growing smaller and smaller, and he looked around anxiously for something to stop the flow of gas. He happened to see his wife's thimble on the table and rammed it over the end of the pipe. That thimble was in the condition that every good housewife's thimble should be. The head contained several holes bored by the unsympathetic needles, but a curious thing happened when he put this on, and he noticed that the gas was still hissing through these small holes, and in order not to waste it uselessly, put a match to it, and to his astonishment he found that the gas escaping through these tiny holes gave a much better light than when he was burning gas as the end of an open pipe. He at once had the idea of making a burner. He first went to work by welding up the end of the tube and drilling in it three or four holes, which was an enormous advance, because he found that from the consumption of two or three cubic feet per hour, he could get as much light as with twenty previously. From that point he began to develop his burners, and when he set up to the illumination at the Soho Works, he constructed a burner which was at that time considered a remarkable success.

In 1820, Neilson, the man who would always be remembered as having introduced the hot blast into iron making, made what was known as the union jet burner; it was immediately a success. This simply consisted of a burner in which in the head were two little jets at an angle towards each other, and when these two jets of flame impinged upon each other they flattened out into a flame narrower and higher than was given by the batwing burner. They also drew in a little air at the base of the flame to increase the illumination, and the fact that the flame came out in a more upright form was responsible for its being given the name of the fish-tail burner, which was the burner of the people for considerably over eighty years. Until 1900 it was the burner most generally used.

Whilst these changes were going on in the burners themselves, Humphry Davy was playing his part in illumination. He it was who explained why any flame containing hydrocarbons possessed light-giving properties, and the researches which led to this were brought about by the successful attempt of Davy to solve the problem of the miner's lamp. At this time coal was being more and more largely used, and at that time, especially in the north of England, there were a large number of fiery mines which were known to be dangerous for some reason or other, although it was not clearly known in those days why: there was no such thing as a method of rendering the working of such mines safer. The miner's means of light was a tallow dip on the end of a piece of wood, and he became so skilful in flame that he was in a dangerous atmosphere, and that for the flame that he was in a dangerous atmosphere, and that for the sake of his own life and that of his comrades that tallow dip should be put out. Nevertheless a large number of accidents did happen in coal mines from explosions, and in 1888 a Royal Commission was appointed to enquire into the causes of them, and to find out in what way mines could be rendered safer. At that time Davy was at the Royal Institution in Albermarle Street, and also was an ardent fisherman, and was away in Scotland enjoying his holiday salmon fishing. On his way down to London by the coach he stayed at Newcastle, and went to some of the pits where there had been explosions and brought samples of the gas away and experimented with them, and he found that the factor which gave rise to the explosion was a gas known as methane or marsh gas, which was occluded in the coal and which, as the seams were worked, and the pressure gradually fell, found its way into the seams and formed with the air an explosive mixture which would ignite when a light was brought near. Davy then carried out experiments to see how the trouble could be overcome, and he finally found out how to construct a miner's safety lamp.

THE ARCHITECT IN LITERATURE.

The word "architect" does not occur in English until 1563, in which year John Shute, the dates of whose birth and death are alike unknown, published his "First and Chief Groundes of Architecture, used in all the Auncient and Famous Monyments," in the introduction to which he describes himself as painter and architect, and mentions his studies under the best architects in Italy, whither he was sent by the Duke of Northumberland in 1550. The next reference to the word, according to the Oxford Dictionary, occurs in "Paradise Lost," over a century later, for the architect had not come to his own sufficiently to be realized as a person in any of those books of characters, such as Earle's and Overbury's, which were the delight of the educated in the reigns of the first Stuarts; the Good Architect therefore does not balance the Bad in literature, whatever he may have done in life. Inigo Jones, satirized on the stage as Vitruvius Hoop, is described as "eminent in architecture," and this is in itself proof that the word "architect" was no recognized part of the vocabulary of the day. In Milton even the word is probably one of his own learned coinings; it had taken no hold when introduced by Shute, and does not reappear after "Paradise Lost" until well on in the eighteenth century. Satan, in fact, is not only the earliest example of the word in literature, but of the profession. The fallen archangel, once "known in Heaven by many a towered structure high," recalls his powers in hell, and the growth of his new capital is described with a fierce power and bitter admiration singularly striking in the case of a blind poet. It is as if the memories of Milton's early travels—of castles set on lonely Italian hills, of the overwhelming mass of St. Peter's—were blended into one great and gorgeous vision. Nor would it be surprising, in the case of so stern an opponent of Rome, if Milton had in his mind's eye the actual image of the vast cathedral when he wrote:—

A fabric huge . . .
Built like a temple, where pilasters round
Were set, and Doric pillars overlaid
With golden architrave; nor did there want
Cornice or frieze, with bossy sculptures graven.

The very doors "opening their brazen folds" suggest their Roman counterpart. Fancy might even take the lines further on as symbolical of the Christian Gothic theory as against the forms borrowed from the Pagan temple, and contrast the "towered structures high" which Satan had raised in Heaven with the columns and architraves of Pandemonium, which could not but be in a style the reverse of that celestial architecture:—

Nor aught availed him now
To have built in Heaven high towers; nor did he scape
By all his engines, but was headlong sent
With his industrious crew to build in Hell.

It is as if Milton's early love of cloisters pale and high embowed roofs were taking its revenge on the unwilling recognition of the splendors of that great cathedral which to him was the embodiment of Satan's kingdom upon earth, and on the stately Neo-Classicism of a dynasty which he abhorred, the Banqueting House of Whitehall, that fragment of a mighty plan, and the Corinthian portico added to St. Paul's by the King, whose death-warrant Milton signed, in 1633.

Fantastic, then, as it may seem, we may regard Pandemonium as the first capital, Satan as the first architect, of modern fiction, and he has to wait long for a successor. The earliest novelists were interested in men, and not their houses; one cannot imagine Tom Jones as interested in architectural improvements, or one of Smollett's heroes calling in professional advice, and even the first efforts of the romantic revival deal in buildings as they were, not as they were to be made. The Castle of Otranto is already built; so is that castellated erection in which much of the action of its little-known predecessor, "Longsword, Earl of Salisbury," takes place, while Mrs. Radcliffe's castles, including that which is chiefly known to modern readers by Miss Austen's allusions to Laurentina's skeleton, date back to a hoary antiquity. But the heaven was working; it is only a step from Gray's admiration of the ivy-mantled tower to his friend Mason's love of ruins for their own sake, and with Mason we at last come to another architect in literature. Mason's "English Garden" is not a work familiar in our mouths, but the activities of its hero Alcantara, "an English country gentleman, as his name implies," are really noteworthy. On his "site" that worthy "first his taste employ'd," the "blank horizon" of the "sacred" site in question being only broken by a thin line of beech, whose "tameness" was thus done away

"Draw we round yon knowl,"
Alcantara cries, "in stately Norman mode,
A wall embattled; and within its guard
Let every structure needful for a farm
Arise in castle-semblance; the huge barn
Shall with a mock portcullis arm the gate,
Where Ceres entering, o'er the flail-proof floor,
In golden triumph rides; some tower rotund
Shall to the pigeons and their callow young
Safe roost afford; and every buttress broad,
Whose proud projection seems a mass of stone,
Gives space to stall the heifer and the steed.
So shall each part, though turn'd to rural use,
Deceive the eye with those bold feudal forms
That fancy loves to gaze on."

Filled with the idea of carrying out the beautiful scheme in the three latter lines, Alcantara proceeds to "build of old, disjointed moss-grown stone A time-struck abbey," whose prosaic purpose is to conceal the whereabouts of the dairy and the icehouse. The "fane conventual" accordingly arises, and Alcantara proceeds to "lead his pensive maid" around its glories, and to propose the erection of a "proud rotunda" built of "forms pellucid," on "ionic shafts"—"anglice," a conservatory—whence the maid, Alcantara's "living goddess," viewed reluctantly after all, not, we regret to read, because of Alcantara's bad taste, but because:—

"My wish, thou know'st, was humble as my state,
I only begg'd a little woodbine bower,
Where I might sit and weep."

But we must leave these pseudo-pastoral love scenes for the creations of the Tilney family at Northanger Abbey, those admirable kitchen quarters, built by the general's father, which

called forth Catherine's reluctant admiration, and that "tolerably large eating-room" which we are sure must have been a creation of General Tilney's own, with such modest pride does he admit it to be one of the necessities of life.

"Northanger Abbey" was got ready for the press in 1803, though not published till 1817; thus it actually, though not apparently, preceded "Waverley," with its romantic joy in the picturesque domain of the Baron of Bradwardine, which would not, however, have called for mention here had not Waverley, who probably fulfilled Flora's prediction that he would "refit the library of Waverley Honour in the most exquisite Gothic taste, draw plans and landscapes, and write verses, and rebuild temples, and dig grottoes," rebuilt the whole after its destruction in 1746, as a surprise for his father-in-law the Baron, who promptly entails it on his second grandson, the first, who is to have Waverley Honour, being not yet even in sight. Scott, however, greatest of antiquaries and most loving of archaeologists, hardly comes into our purview, since his characters live in or near ancestral homes and are not themselves, like their creator, the architects of their own dwellings. Perhaps the earliest professional architect in literature—for the elegant Alcantara was only an amateur—was Mr. Pecksniff, who held that proud position, not by virtue of qualifications or of practice, for he "had never designed or built anything," but by virtue of his brazen (Dickensian prose for brass) plate and his reception of the pupils who spent from three to five years "in making elevations of Salisbury Cathedral from every possible point of sight (sic); and in constructing in the air a vast quantity of castles, Houses of Parliament, and other public buildings." In so far as beginning his adult life as a pupil of Pecksniff's constituted an architect, Martin Chuzzlewit was one, but we are not told that the varied fortunes of that young man included any efforts at putting his profession into practice. If Pecksniffs were common at the beginning of the nineteenth century, we feel that Adam Bede, that admirable master-builder, was justified in his contempt: "As for th' architects, they set up to be fine fellows, but the most of 'em don't know where to set a chimney so that it shan't be quarrelling with a door. My notion is, a practical buldier, that's got a bit o' taste, makes the best architect for common things; and I've ten times the pleasure i' seeing after the work when I've made the plan myself."

The function of the practical architect on which Adam Bede insists is explained and broadened by two novelists of our generation, Mr. Howell's architect in "The Rise of Silas Lapham," who knows what a woman wants in a scullery better than she does herself, and Mr. Arnold Bennett's Card, who in the course of his meteoric career creates a fitting house for his grim old mother, having previously bought up through an agent the lease of her hovel and turned her out in the role of the rapacious landlord in order to ensure her living in a style befitting her position as his parent; and so admirable did the new house prove that its unwilling tenant was constrained to admit that, servantless as she insisted on remaining, she could clean everything up and be ready for callers by ten o'clock. We feel that there is a distinct opening for the Card in modern life.

But we must retrace our steps and leave the light comedy of Howells and Bennett for the more serious paths of fiction, in which the architect as a character is curiously infrequent. It was reserved for Mr. Hardy, wise by his own experience, to treat the architect as hero. No one can help liking Stephen Smith in "A Pair of Blue Eyes" any more than the ill-fated Elfrida who lacked the courage to be true to him, or the excellent George Somerset of the "Laodicean," who "sketched or measured many old country churches now pulled down or altered." If more of our architects had the true passion of Mr. Hardy and his heroes for the legacy of the past, the architect in fact might play a larger part than he has in fiction, and the restoration age of the Victorian era might have been less unhappy than it was in the eyes of a generation that has grown as much beyond the ideals of a Scott or a Butterfield as it has beyond those of the forgotten Gothicisings of Alcantara.—"The Builder."

TO BUY PULP MILLS.

Capitalists in the United States are very much interested in the vast expanse of pulp lands in Canada. Following a conference of New York capitalists, a deal is now pending for the purchase of several pulp mills at Reversing Falls, near St. John, N.B. The syndicate includes Hugh Chisholm, President of the Oxford Paper Company, of Portland, Oregon. If the deal goes through extensive additions will be made to the present plants.

PUBLIC TENDERS.

The Dominion Government is now calling for tenders for the various materials required in the erection of the new Parliament Buildings at Ottawa. The general contract for the work was awarded some time ago to P. Lyall & Sons' Construction Co., Ltd., of Montreal, who will supervise all the work. The Government is steadfastly adhering to the policy of giving contracts to the lowest tenderer whose materials are up to the architects' specifications.

BIG JUMP IN BUILDING.

Despite building conditions, and the lack of labor due to the war, the City of Windsor reports that building permits for the nine months preceding September totalled \$1,088,580, or a little less than the total for the year 1913, which was the largest year in the history of the City of Windsor. Forty-four permits were issued in September, as compared with thirty-four in the same month last year. Over four hundred permits have been issued to date this year.

Architects, engineers and contractors are invited to contribute information on construction work, whether it be proposed or in progress, and such information will be published in these columns.

CONSTRUCTION NEWS

Information of Special Interest to Architects, Contractors, and Manufacturers.
Construction Building Reports will Give You Up-to-date Information Every
Day on all New Buildings About to be Erected or in Course of Erection.

BUILDING PERMITS.

CHATHAM, ONT.—Permits issued to date this year total \$243,849.

PORT ARTHUR, ONT.—Permits issued for the month of September totaled \$93,035. for September last year the permits only totaled \$2,220.

QUÉBEC, QUÉ.—Building permits issued for week ending Sept. 2 totaled \$8,500; the total for week ending August 25 was \$21,995.00.

SUDBURY, ONT.—The permits issued since January 1 total \$140,375, as compared with \$97,065 for the corresponding period last year.

WINNIPEG, MAN.—Permits this year are nearly half a million dollars in advance of those for a corresponding period last year, the figures being \$2,195,300 and \$1,721,900 respectively for the nine months ending September 30. The total for September alone is \$231,850.

BUSINESS BUILDINGS.

BRANTFORD, ONT.—Architect G. W. Hall, 321 Colborne St., has prepared plans for an office and dairy building, to cost \$5,000. Jago & Richards have been awarded the contract, and building operations are well under way.

CALGARY, ALTA.—Architect George M. Lang has prepared plans for a business block on Eighth Ave. Tenders have been called.

DUNDAS, ONT.—John Bertram & Sons, Ltd., have commenced work on an office building to cost \$20,000.

LONDON, ONT.—Architect L. Carrothers, Bank of Toronto Building, has prepared plans for an office building to cost \$75,000. Architect L. Carrothers, Bank of Toronto Building, has prepared plans for a Hydro office building to cost \$100,000, work has started.

MURKIRK, ONT.—Horton Bros., 34 John St., St. Thomas, have been awarded the contract for a bank building, to cost \$10,000.

NEW CARLISLE, QUÉ.—Architect P. Levesque, 115 St. John St., Quebec, Que., has prepared plans for an alteration to a bank to cost \$25,000.

NIAGARA FALLS, ONT.—Architect C. M. Borter, Main St., has prepared plans for a bank to cost \$40,000. Architect C. M. Borter, Main St., has prepared plans for an office building to cost \$10,000. Tenders will be called.

OSHAWA, ONT.—Architect Geo. D. Redmond, 33 Fairview Blvd., Toronto, has prepared plans for an office building to cost \$5,000. W. J. Trick Co., 131 Delaware Ave., Toronto, have been awarded the contract.

OTTAWA, ONT.—Architect J. A. Booth, Booth Building, has prepared plans for an addition to an office building to cost \$50,000. Morcross Bros. have been awarded the contract. Architects Richards & Abra, Booth Building, have prepared plans for an office building to cost \$30,000. Doran & Devlin have been awarded the contract.

PETERBOROUGH, ONT.—Bond & Smith have been awarded the contract for building an office building and apartments to cost \$10,000.

PETERBOROUGH, ONT.—The Royal Bank, Hunter St., have commenced work on a new bank at the corner of Hunter and George St., to cost \$10,000. Purdy & Henderson, of Montreal, have been awarded the contract.

PORT ARTHUR, ONT.—Architect John Warrington has prepared plans for a business block to cost \$80,000. Mr. Edwin C. Penniman has been awarded the contract.

SUMMERSIDE, P.E.I.—Mr. P. C. Clark has started work on a new building for the Canadian Bank of Commerce.

TORONTO, ONT.—The Brown Brass and Copper Rolling Mills, of New Toronto, are excavating for a new office building to cost \$40,000. Architect F. S. Mallory, 65 Adelaide St. East, has prepared plans for an office building on Front St. East to cost \$6,000. Architect C. J. Gibson, 53 Yonge St., has prepared plans for an office and warehouse to cost \$25,000; work has started.

CIVIL ENGINEERING.

QUELPH, ONT.—Plans are being prepared for a new Victoria Bridge.

MISSION CITY.—J. Harper and E. Conley have been awarded the contract for the erection of a bridge at the Law Slough.

MONTREAL, QUÉ.—J. H. Dubuc, City Engineer, is preparing plans for a new \$100,000 bridge which is to span the tracks of the Canadian Pacific Railway Co. between Wurtelle and Lesperance Sts., on Sherbrooke St. East.

PETERBOROUGH, ONT.—Tenders have been called for taking down and rebuilding the west pier of the Wallace Point bridge over the Otonabee River and Trent Valley Canal. E. M. Elliott, County Clerk.

SHERBROOKE, QUÉ.—Tenders have been called for the construction of a reinforced concrete bridge over the Yamaska River, at Savage's Mills.

SCHOMBERG, ONT.—Tenders have been called for the erection of a concrete bridge.

TORONTO, ONT.—Tenders have been called for the erection of the Cherry Street bascule bridge superstructure.

VANCOUVER, B.C.—Tenders have been called for the superstructure of the bascule bridge, Selkirk Water Victoria, B.C., by T. H. White, Chief Engineer of the Canadian Northern Pacific Railway, Vancouver.

WINNIPEG, MAN.—Tenders have been called for the con-

struction of a reinforced concrete bridge in the Municipality of Brokenhead.

WINNIPEG, MAN.—F. McClain and R. McQueen have been awarded the contract for the erection of four truss bridges. The municipality of Strathcona is building a \$1,500 bridge over a small river. The municipality of Roblin have called for tenders for the erection of three bridges.

CLUBS, HOSPITALS, THEATRES AND HOTELS.

HAMILTON, ONT.—L. Solman, Manager Alexandra Theatre, Toronto, is selecting a site to build a theatre to cost \$250,000.

INGERSOLL, ONT.—Architect W. G. Murray, Dominion Savings Building, London, has prepared plans for a hospital addition to cost \$10,000. R. G. Wilson & Son have been awarded the contract and work has started.

PORT DOVER, ONT.—The Canadian Pacific Railway Co. are looking for a site to erect a summer hotel to cost \$40,000.

SAULT STE. MARIE, ONT.—Nicholls Bros., Gore St., have commenced work on a picture theatre to cost \$12,000. Tenders wanted for interior fittings.

TORONTO, ONT.—Architect T. W. Lambe, Ruddy Building, may be instructed to prepare plans for a theatre to cost \$200,000. The new theatre will be built at Hamilton Ont.

TORONTO, ONT.—Architect J. D. Ure, 122 Westmount Ave., is preparing plans for a picture theatre to cost \$10,000. Architect G. D. Redmond, 33 Fairview Blvd., has prepared plans for a theatre to cost \$25,000.

VANCOUVER, B.C.—Skene & Christie, have been awarded the contract for the terra-cotta work on the Pantages Theatre at a cost of \$95,980. John Coughlan & Sons have been awarded the steel contract.

WINDSOR, ONT.—The Hotel Dieu, Ouellette Ave., has awarded Urel Jacques the contract for erecting a hospital addition at the cost of \$40,000.

FIRE LOSSES.

APPLEBY, ONT.—George Shaw, barns destroyed by fire; loss \$6,000.

PETHANY, ONT.—Thomas Atkins, farm buildings destroyed by fire; loss \$6,000.

BRAMPTON, ONT.—J. W. Hewetson Shoe Co.'s factory was destroyed by fire; loss \$2,000.

BROCKVILLE, ONT.—Susman & Cohen, Louis St., Kingston, warehouse destroyed by fire; loss \$6,000.

BROMHEAD, SASK.—Fire razed the town of Bromhead from Tergumud's livery barn to the wheat fields adjoining the town limits; loss \$70,000.

CALABOGLE, ONT.—The Renfrew sawmill was destroyed by fire; loss \$5,000.

CHANNEL GROVE, ONT.—The Canadian Locomotive Co.'s hotel, Kingston, Ont., was destroyed by fire; loss \$25,000.

CHARLOTTETOWN, P.E.I.—The Baptist parsonage and out-buildings destroyed by fire; loss \$3,000.

MITCHELL, ONT.—Fullerton, Hibbert & Logan's agricultural exhibition buildings were destroyed by fire; loss \$3,000.

OTTAWA, ONT.—A grocery store, the property of T. B. Woodroffe, was destroyed by fire; loss \$10,000.

PETERBOROUGH, ONT.—The farm buildings of Thomas H. Aikens, Cavan Twp., were destroyed by fire; loss \$15,000.

PICTON, ONT.—A store belonging to Albert Powers was destroyed by fire; loss \$25,000.

SARNIA, ONT.—The planing mill of the Laidlaw Lumber Co. was destroyed by fire; loss \$30,000.

SASKATOON, SASK.—Fire destroyed the building of the Grand Trunk Railway at Asquith.

ST. MARY'S, ONT.—St. Mary's Candy Kitchen factory was destroyed by fire; loss \$2,000.

ST. THOMAS, ONT.—St. Thomas Dehydration Co.'s factory was destroyed by fire; loss \$30,000.

ST. THOMAS, ONT.—The St. Thomas Construction Co.'s factory was destroyed by fire; loss \$20,000. George McAllister's barrel factory was destroyed by fire; loss \$20,000.

TORONTO, ONT.—E. H. Harcourt & Co.'s building on Wellington St. West damaged by fire; loss \$2,000.

TORONTO, ONT.—The factory of the Harry Webb Co., Ltd., on Buchanan St., was destroyed by fire; loss \$150,000.

MISCELLANEOUS.

AYLMER, ONT.—J. Davis has been awarded the contract for erecting warehouses to cost \$5,000.

BELLEVILLE, ONT.—Tenders have been received by Architect J. W. Evans for the erection of a steel and concrete machine shop to cost \$100,000.

BRANTFORD, ONT.—P. H. Secord & Sons, Ltd., have been awarded the contract for the erection of a garage to cost \$20,000. L. Taylor, Colborne St., is the architect.

BRIDGEPORT, ONT.—The City of Kitchener has prepared plans for the city waterworks to cost \$100,000.

BROCKVILLE, ONT.—Chas. R. Rudd has prepared plans for a garage to cost \$15,000.

COLLINGWOOD, ONT.—Architect Philip C. Palin has prepared plans for a garage to cost \$10,000.

DOVER TOWNSHIP, ONT.—A. Cadotte has prepared plans for a stock barn to cost \$7,000.

FORT WILLIAM, ONT.—Work has commenced on a con-

crete elevator to cost \$800,000; Barnett, McQueen & Co., Minneapolis, Minn., have been awarded the contract. Architect D. A. Gordon, Luci Court, has prepared plans for an elevator on Sells St., to cost \$30,000; work has started.

GLENCOLIN, ONT.—Gordon Staley is having plans prepared for a planing mill to cost \$5,000.

HALIFAX, N.S.—Tenders have been received by Andrew Grant, 242 Lower Water street, for the erection of a concrete building on Lower Water street.

HALIFAX, N.S.—Tenders have been received by N. C. Mitchell, Naval Store Office, H.M.C. dockyard, Halifax, for the construction of a concrete base for a steam wharf crane.

HAMILTON, ONT.—E. R. Gray, James and James Milne, City Engineers, are preparing plans for the waterworks addition to cost \$300,000. Contracts have been awarded for a military barracks to cost \$36,000.

LINDSAY, ONT.—Westinghouse, Church, Kerr & Co., of Montreal, have been awarded the contract for the erection of the new arsenal at Lindsay.

LOXDOON, ONT.—Architect A. M. Piper has prepared plans for garbage stables to cost \$11,000. R. G. Wilson & Son, 193 College St., has been awarded the contract for the erection of a cafe addition to cost \$5,000; Watt & Blackwell, Bank of Toronto Building, are the architects.

MERRITTON, ONT.—Purdy & Henderson, 10 Cathcart St., Montreal, have been awarded the contract for the erection of paper mills to cost \$200,000; J. G. Jennsen, New York City, is the engineer.

MONTREAL, QUE.—Tenders have been received by L. N. Senecal, secretary, office of the Board of the Commissioners, City Hall, Montreal, for the erection of the Church bridge and appurtenances.

OTTAWA, ONT.—William T. Joy, 134 Sparks St., Ottawa, and 86 High Park Ave., Toronto, has been awarded the contract for the erection of a restaurant to cost \$60,000. Geo. C. Crain, 255 Clemow St., has been awarded the contract for the erection of a machine shop to cost \$9,000, and also the contract for the erection of a finishing shop to cost \$4,000.

OTTAWA, ONT.—Tenders have been received by R. C. Desrochers, 1000 St. John St., Ottawa, for the construction of a timber wharf, with high, intermediate and low sections, and with warehouse and open shed, at Gagetown, N.B. Tenders have been received by R. C. Desrochers, Secretary, for the construction of a freight elevator and alterations to Postal Station A, Montreal, Quebec. Tenders have been received by R. C. Desrochers, Secretary, for the construction of protection works, being the improvements to and completion of the protection dyke at Laprairie, County of Laprairie, Quebec.

PARIS, ONT.—P. H. Secord and Sons, 133 Nelson St., Brantford, have started work on a dining-room to cost \$6,000.

PETROLEA, ONT.—J. & J. Kerr & Sons have been awarded the contract for the erection of a flax mill; R. W. Fawcett, 116½ Front St., Sarnia, is the architect.

PORT STANLEY, ONT.—Watt & Blackwell, Bank of Toronto Building, have received tenders for the erection of a restaurant to cost \$12,000, and for a bath house to cost \$10,000.

ST. JOHN, N.B.—Tenders have been received by J. W. Pugh, 100 St. John St., St. John, N.B., for the construction of elevator foundations at St. John, N.B.

ST. THOMAS, ONT.—Contracts have been awarded for the erection of knitting mills to cost \$50,000; J. T. Findlay, 386 Talbot St., is the architect.

SUDBURY, ONT.—The Day Construction Co. has started work on a cold storage building to cost \$15,000.

TORONTO, ONT.—Work will not be proceeded with until next spring on the nurses' home, Bond St., Rynes, Feldman and Watson, 195 Bond St., are the architects, the home will cost \$40,000. Contracts have been awarded for a stable on Queen St. West to cost \$10,000; Burke, Horwood and White, 229 Yonge St., are the architects. Architect S. L. Yolles, 67 Baldwin St., has prepared plans for a garage to cost \$25,000. Wells Bros. of Canada, 96 Gould St., have been awarded the contract for the erection of stock pens to cost \$15,000; Henschein & McLaren, 431 Dearborne St., Chicago, Ill., are the architects. Wells Bros. of Canada, Ltd., have also been awarded the contract for the erection of a wagon shed on Dalhousie St., to cost \$7,500; M. Max Dunning, Chicago, Ill., is the architect. Tenders have been called by S. T. Burgess, 435 Yonge St., for a heating plant for a three-storey building. R. H. Whiteway, 51 Woodycrest Ave., is calling for tenders for the drain work on one pair of residences to cost \$5,000. Tenders were called for plumbing, heating, electric wiring, roofing and kitchen equipment for the refreshment pavilion, opposite Keele St. subway to cost \$8,000, being erected by the Toronto Harbor Commissioners, 50 Bay St.; Chapman and McGriffin are the architects. Tenders are being called for by the City of Toronto, for the erection of a lavatory and waiting room at Sunnyside to cost \$10,000; tenders close Oct. 17, 1916. Wm. Vokes, 228 Rusholme Road, is excavating for a garage on Duke St. to cost \$10,000; tenders will be called for plumbing and heating.

VANCOUVER, B.C.—Ralph Simpson has commenced the erection of a new shingle mill at Arrowhead.

VANCOUVER, B.C.—Tenders have been received by J. G. Sullivan, chief engineer of the Canadian Pacific Railway Company, for the construction of a jetty pier.

VANCOUVER, B.C.—The Canadian Pacific Railway Co. have prepared plans for wharves at Vancouver to cost \$1,500,000. The City of Vancouver is spending \$5,000,000 on extension to wharves.

VANCOUVER, B.C.—Tenders have been received by M. H. Macleod, general manager of the Canadian Northern Railway Co., for the construction of freight offices and freight sheds at False Creek, Vancouver.

VRIDEN, MAN.—Tenders have been received by Architect E. Prain, Syndicate Block, Fort St., Winnipeg, Man., for the erection of a skating and curling rink at Virden.

WINNIPEG, MAN.—The congregation of the Bethel Mission have decided to erect a new building.

WINNIPEG, MAN.—Architect J. S. Metcalf has prepared plans for a concrete elevator to cost \$25,000. The Public Market Company Union Stock Yards are building a concrete addition with a brick veneer front at a cost of \$7,050.

PLANTS, FACTORIES AND WAREHOUSES.

ACTON, ONT.—Architect J. M. Jeffrey, 9A Wellington street east, has prepared plans for a factory, to cost \$15,000.

AYLMER, ONT.—Work has started on warerooms for E. Thayer, on Main street; cost \$5,000.

BELLEVILLE, ONT.—Mr. H. C. Long, of the Maple Tire Co., is calling for tenders for the erection of a warehouse, to cost \$60,000. The Maple Leaf Tire Co., Ltd., is erecting a factory on Town line and Union street, to cost \$40,000.

BRANTFORD, ONT.—P. A. Secord & Son, 133 Nelson street, have been awarded the contract for building a warehouse addition at a cost of \$15,000.

COCHRANE, ONT.—The Hudson Bay Company is contemplating erecting a warehouse on Fifth avenue, to cost \$30,000.

CHATHAM, ONT.—T. Kenny Co., 132 Christina street Sarnia, has started work on remodelling a warehouse at a cost of \$5,000.

CHATHAM, ONT.—Tenders are being called by Engineer W. G. McGeorge, of the Dolson Creek Mechanical Works, for a pumping plant; tenders closed October 7.

DUNDAS, ONT.—John Bertram & Sons, Limited, Hatt street, have started work on a factory addition, to cost \$30,000.

GALT, ONT.—The Galt Paper Box Co., King street, are excavating for a factory addition, to cost \$10,000.

HAMILTON, ONT.—George Mills, King street east, has been awarded the contract for erecting a factory addition at a cost of \$6,000. W. Yates, Jr., 18 Leeming street, has started work on the Bell Thread Company's factory addition; cost \$10,000. Architects McFhie & Darling, Bank of Hamilton Building, have prepared plans for a factory, to cost \$15,000; Geo. E. Mills has been awarded the contract and work has started. The Acme Stamping Co., Sydney street, have had plans prepared for a factory addition at a cost of \$15,000. H. G. Christman Co., Federal Life Building, have started work on a factory addition, to cost \$5,000. MacKay & Paulin, Bank of Hamilton Building, may be awarded the contract for erecting a warehouse on Dewey street, to cost \$75,000.

KITCHENER, ONT.—The Kimmel Felt Co., Ltd., Kitchener, Ont. are excavating for a factory, to cost \$40,000.

LISTOWEL, ONT.—J. W. Scott & Son, Listowel, have started work on warerooms.

LONDON, ONT.—George F. Whalen will build two new pulp plants, one at Quatsino Sound, and the other at Swanson Bay.

LONDON, ONT.—A. B. Green, York street, has prepared plans for an auto showroom, to cost \$5,000. C. S. Hyman & Co., Richmond street, are excavating for a warehouse on Richmond street, to cost \$6,000. The McClary Mfg. Co., Wellington street, have prepared plans for a factory addition, to cost \$35,000.

MONCTON, N.B.—Fred Ryan, contractor, of Fredericton, N.B., has been awarded the contract for erecting a smelting plant for the Bathurst Lumber Co.

MONTREAL, QUE.—Peter Lyall & Son are erecting a warehouse on Western avenue, in Notre Dame de Grace Ward, to cost \$20,000.

NEW WESTMINSTER, B.C.—The Saskatchewan Steel and Bridge Co. are looking for a site on which to build a new plant.

NIAGARA FALLS—The Perfection Tire and Motor Co., Madison, Iowa, is erecting a factory in Poplar Park, to cost \$65,000.

OTTAWA, ONT.—The Ottawa Car Mfg. Co., 311 Slater street, have prepared plans for a factory on Albert street, to cost \$250,000. Architects Jas. Holden & Graham, 147 Albert street, have prepared plans for a factory on Albert street, to cost \$30,000; work has started.

PORT ARTHUR, ONT.—The Thunder Bay Construction Co., Port Arthur, have been awarded the contract for erecting a starch factory, to cost \$60,000.

PORT COLBORNE, ONT.—The Foundation Co., Ltd., 224 St. James street, have been awarded the contract for erecting a nickel plant, to cost \$3,000,000.

RENFREW, ONT.—Architect John McNicol, Renfrew, has prepared plans for a factory addition, to cost \$10,000; tenders have been called.

SARNIA, ONT.—The Ontario Cannery, Sarnia, Ont., have prepared plans for a canning factory, to cost \$75,000.

SIMCOE, ONT.—Architect W. C. Tilley, 11 Temple Building, Brantford, has prepared plans for a factory, to cost \$12,000; the factory is ready for the roof.

ST. JOHN, N.B.—Tenders are being called for the erection of a wharf, warehouse and shed, at Gagetown, N.B.

ST. THOMAS, ONT.—The Canadian Woodware Co., Gravel road, have started work on a factory, to cost \$20,000.

TILLSONBURG, ONT.—The Maple Leaf Tool Co., Tillsonburg, are preparing plans for an addition to their factory, to cost \$10,000.

THREE RIVERS, QUE.—D. A. Gordon, M.P., will erect a sugar beet refinery at Three Rivers.

TORONTO, ONT.—Architect R. S. Hambleton, 41 Sussex avenue, has prepared plans for a factory addition at a cost of \$8,000. Architect Henry Simpson, 79 Spadina avenue, has prepared plans for a factory, to cost \$30,000. R. G. Kirby, 537 Yonge street, has been awarded the contract for erecting a bread factory on Dovercourt road, to cost \$20,000. Architects Ross & MacDonald, 908 Royal Bank Building, have prepared plans for the hydro buildings on Caer Howell and Murray streets; tenders have been called. J. V. Gray Construction Co., Confederation Life Building, are excavating for three factory buildings on P. O. Road, to cost \$20,000. The Canadian Mfg. Co., 35 Fraser avenue, is erecting a new munition plant on Fraser avenue, to cost \$25,000; F. S. Mallory, 65 Adelaide street east, is the architect. The Massey-Harris Co., King street west, has started work on a factory addition, to cost \$5,000. C. A. Scott, 575 Logan avenue, has started work on a factory addition on Geary avenue, to cost \$12,000. Tenders have been called by Architects Curry & Sparling, 105 Bond street, for the erection of a factory, to cost \$8,000. The F. W. Woolworth, Ltd., 4 Queen street west, have started work on a warehouse on George street, to cost \$40,000; S. L. Yolles, 67 Baldwin street, is the architect.

TORONTO, ONT.—Tenders have been called for a factory addition, to cost \$5,000. Wells Bros., 96 Gould street, have started work on a warehouse on Dalhousie street, to cost \$75,000. The Dominion Building Products, Limited, have started work on a brick plant, to cost \$30,000. The Sheet

Metal Products Co., 122 River street, have prepared plans for a factory addition, to cost \$6,000; Brown & Cooper have been awarded the contract. Architect E. J. Smith, 30 Shannon street, has prepared plans for a factory addition, to cost \$6,000. The Toronto General Repair and Construction Co., 40 Camden street, have started work on a factory addition on Morrow avenue, to cost \$7,000. Mr. J. G. Kent, Confederation Life Building, is erecting a warehouse on Queen street west, to cost \$40,000.

WELLAND, ONT.—Ernest Platts, Pelham, Ontario, is having plans prepared for a warehouse and offices on North Main street, to cost \$12,000.

WINNIPEG, MAN.—The Niagara fruit growers will erect a cold storage plant in Winnipeg; work will start this fall.

PUBLIC BUILDINGS AND STATIONS.

ASHCROFT, B.C.—Tenders have been called for the erection of public building at Ashcroft, B.C.

BRANTFORD, ONT.—The Lake Erie and Northern Railway have started work on a new station, to cost \$25,000.

DELHI, ONT.—The Grand Trunk Railway, Delhi, Ontario, have prepared plans for a new station, to cost \$6,000.

FREDERICTON, N.B.—A new \$3,000 pumping station will be erected at the Experimental Farm; the building will be of concrete.

HALIFAX, N.S.—John J. Grant, of New Glasgow, has been awarded the contract for a new library building.

HAMILTON, ONT.—A new radial station is to be built on the site now occupied by the Murray Street School, to cost \$100,000. Architect E. T. Sifton, engineer, City Hall, is preparing plans for a new hydro station.

KIRKLAND LAKE, ONT.—The North Bay Light, Heat and Power Co., 17 Main street west, North Bay, have started work on a transformer station, to cost \$20,000.

LETHBRIDGE, ALTA.—Tenders have been called by J. M. Cameron, general superintendent, Canadian Pacific Railway, for the construction of two stations at Manyberries.

MONTREAL, QUE.—Architect Kenneth G. Rea is preparing plans for the new city hall, the cost of which is to exceed \$200,000.

OAKVILLE, ONT.—Architect Wm. Connery, 72 Queen street west, Toronto, has prepared plans for a new fire hall, to cost \$10,000.

OTTAWA, ONT.—Tenders have been received by J. W. Pugsley, Secretary Department of Railways and Canals, for the erection of a station building at Manouan, Que.

ST. JOHN, N.B.—Tenders have been called by the St. John Railway Company for the erection of a pumping station.

TORONTO, ONT.—The Hydro-Electric, 226 Yonge street, is about to start work on a sub-station on Jefferson avenue, to cost \$20,000. Contracts have been awarded for the new Hydro sub-station at Duncan and Nelson streets; the cost will be \$90,000.

WINNIPEG, MAN.—The Manitoba Bridge and Iron Works have been awarded the contract for the steel work on the dome of the new capitol.

RESIDENCES, STORES AND FLATS.

ALTON, ONT.—Architect J. M. Jeffrey, 9A Wellington street east, Toronto, prepared the plans for Andrew Dods' new residence, to cost \$30,000.

ARNPRIOR, ONT.—Mr. Paul Kittner, Elgin street, is having plans prepared for a residence on Elgin street, to cost \$6,000.

AYLMER, ONT.—H. Z. Balem is erecting several houses. The Aylmer Commercial Co., Ltd., has prepared plans for a variety store, to cost \$5,000.

BRANDON, MAN.—An apartment house will be built on the corner of Twelfth and Princess streets next spring.

BRANTFORD, ONT.—R. S. Mason, Toronto, has commenced work on stores and office alterations, to cost \$5,000.

CHARLOTTETOWN, N.B.—Mr. T. B. Riley, Queen street, is erecting a three-story store.

CHARLOTTETOWN, N.B.—John Power has been awarded the contract for building a new double tenement house on Euston street east.

COLDWATER, ONT.—Nicholson Bros. are having plans prepared for a store, to cost \$10,000.

CONISTON, ONT.—The La Berge Lumber Co., Sudbury, have been awarded the contract for erecting a boarding house, to cost \$14,000.

COPPER CLIFF, ONT.—George R. Craig, 2 Park W., has prepared plans for a residence, to cost \$7,000; La Berge Lumber Co., Sudbury, have been awarded the contract. Architect H. E. Jones, Copper Cliff, has prepared plans for G. E. Silvester's residence, to cost \$6,000.

CREIGHTON, ONT.—Architect Martin Hassett, Sudbury, has prepared plans for a store and residence, to cost \$12,000.

FENELON FALLS, ONT.—Alex. McLeod, 57 Ben Lomond avenue, Toronto, has started work on erecting stores and apartments, to cost \$16,000.

HALIFAX, N.S.—Tenders have been received for the erection of a brick building on the premises of the Maritime Home for Girls.

HAMILTON, ONT.—Architect W. H. Hunkin, Lister Building, is preparing plans for an apartment house on York street, to cost \$8,000. J. M. Farewell, 88 St. Clair avenue, is erecting a residence on Proctor boulevard, to cost \$5,000. Begg & Co., 38 North James street, have commenced work on store alterations, to cost \$10,000. H. E. Welton, 46 Arthur avenue, is having plans prepared for a store on King street east, to cost \$10,000. Work has started on Mrs. T. W. Brennen's apartments on Tisdale avenue, S. B. Coon & Son, architects; cost \$20,000.

LONDON, ONT.—Dr. Hadley Williams, 498 Queens avenue, is erecting a residence; J. M. Moore is the architect; the cost is \$10,000. Morsan & Sons, London, have commenced work on a residence on Broughdale avenue, to cost \$5,000.

OSHAWA, ONT.—Architects Ellis & Ellis, Manning Chambers, Toronto, have prepared plans for a residence for W. J.

Burns, to cost \$8,000; W. J. Trick & Co. have been awarded the contract. Architect Darling & Pearson, 2 Leader lane, Toronto, have prepared plans for a residence for R. S. McLaughlin, to cost \$75,000; Dickie Construction Co., Limited, Ryrie Building, Toronto, have been awarded the contract.

OTTAWA, ONT.—Chas. Joyce, 383 Somerset, is erecting a store and apartments on Spadina and Somerset, at a cost of \$12,000. C. A. Bowman, 16 Monk street, is building a residence in Rockcliffe Park; Milson & Burgess are the architects; the cost is \$7,000. H. Boylan has commenced work on alterations to apartments; the cost is \$10,200, and W. H. George, Castle Building, is the architect. A. E. Thomas, 53 Queen street, is erecting a residence on Sunnyside avenue, to cost \$5,500. M. P. Davis is building a residence on Laurier street; J. W. H. Watts, Central Chambers, is the architect; the cost is estimated at \$45,000. A. E. Paquette is erecting stores and apartments at the corner of St. Patrick and Chapel streets; the estimated cost is \$12,000. Work has been held up on the stores and offices being erected for McKinley & Northwood, on Rideau street; J. A. Ewart, Union Bank Building, is the architect; the building will cost \$10,000 when completed.

PARRY SOUND, ONT.—Wm. Beatty Co., Ltd., have commenced work on a new store; Jas. Thompson, 43 Victoria street, Toronto, is the architect; the cost is estimated at \$10,000.

PERDUE, SASK.—Work has started on a store at the corner of Celtic and Oceanic streets.

PORT STANLEY, ONT.—D. A. Cattnach, Hillcrest, Port Stanley, will erect several summer cottages, estimated to cost about \$10,000.

RENFREWS, ONT.—Architect B. Evan Parry, Renfrew, has prepared plans for a store and apartments on Raglan street for John Mitchell, to cost \$20,000; G. T. Moore, North Bay, Ont., has been awarded the contract.

SARNIA, ONT.—Architect A. M. Coleman, corner of Cornwall and Mitton streets, has prepared plans for a residence for W. H. Stewart on London road, to cost \$12,000.

SUDBURY, ONT.—McWilliam & Morguay are having plans prepared for a store and warehouse on Elm street, to cost \$14,000. D. F. Hennessey is erecting a residence, to cost \$5,000. Work has started on a store and residence for Mr. German; Martin Hassett is the architect; the cost is estimated at \$5,000.

TORONTO, ONT.—J. W. Butchart, 1 St. Ives avenue, will erect a residence for E. O. Burnett, in Lawrence Park, to cost about \$6,000. Architect J. C. Ure, 116 Westmount avenue, has prepared plans for several residences on Millerson avenue, for E. T. Miller & Sons. Work has started on a residence for J. J. Allen, on Roxboro drive; Hynes, Feldman & Watson, 105 Bond street, are the architects; the cost will be about \$12,000. J. M. Skelton, Room 36, 33 Richmond street west, is erecting a residence at the corner of Heatn and Alvin streets. Architect D. C. Cotton, 54 Adelaide street east, has prepared plans for a residence for A. A. Kennedy, on Glen road, to cost \$6,000. Architect W. Bredin Galbraith, Traders Bank Building, is preparing plans for a residence for W. R. Levack, on Gothic avenue, to cost \$10,000. Geo. E. Case, 56 Oakwood avenue, is excavating for two residences on Glennoir avenue, to cost \$6,000. J. M. Walkey, 326 Shaw street, is erecting a residence on Davenport road, to cost \$5,000. Purton & Chennells, 155 Ellesworth avenue, have prepared plans for four detached residences on Humewood avenue, to cost \$16,000. G. S. Petric, 493 Dupont street, is excavating for a duplex residence on Westmount avenue, to cost \$8,000. T. Prest, 129 Roehampton avenue, will erect a duplex residence on Keele street, to cost \$7,000. Architects S. B. Coon & Son, Ryrie Building, have prepared plans for a residence on East Roxboro street, to cost \$15,000. Brown Brass and Copper Rolling Mills, New Toronto, are erecting a boarding house at a cost of \$14,000; Henry Simpson, 79 Spadina avenue, is the architect. A. A. Thompson, 88 Warren road, is erecting a residence on St. Clair west; Edwards & Edwards, 18 Toronto street, are the architects; the cost will be \$12,000. Work will start on a new residence for Mr. E. L. MacLean in Rosedale; Burke, Horwood & White, 229 Yonge street, are the architects; the cost will be \$15,000. Architect W. Bredin Galbraith, Traders Bank Building, is preparing plans for a residence in the High Park district, to cost \$6,000. Architect W. Bredin Galbraith, Traders Bank Building, is calling for tenders for a residence on Indian road, to cost \$6,000. A. R. Doherty, 56 St. Andrews Gardens, has commenced work on a new residence on St. Andrews avenue, to cost \$7,000. J. W. Butchart, 1 St. Ives avenue, has commenced work on a store and residence at the corner of Dundas and Bloor streets; the cost will be \$6,000. Architect J. Varcoe, 11 Oakmount road, has prepared plans for an apartment house on Ashworth avenue, to cost \$15,000. Architect C. S. Cobb, 71 Bay street, prepared the plans for C. S. Blackwell's residence on Dunvegan road, which will cost \$30,000. J. J. Vaughan, 32 Summerhill Gardens, is excavating for an apartment house, to cost \$12,000. W. J. & C. W. Callow, 6 Sword street, have prepared plans for one pair of semi-detached residences, to cost \$5,000. H. H. Williams & Co., 38 King street east, have taken out the excavation for a store and warehouse on Yonge street, to cost \$30,000; C. J. Gibson, 51 Yonge street, is the architect. Architect C. M. Willmott, 104 Stibbard avenue, has prepared plans for a residence on Stibbard avenue, to cost \$5,000. Gagnon & Cummings, 2359 Queen street east, are excavating for an apartment house on Queen street east, to cost \$9,000. J. W. Butchart, Lawrence Park, has commenced work on two residences, to cost \$12,000. Wells Bros., of Canada, Ltd., 96 Gould street, were awarded the contract for the erection of a home on Bleeker street for the Robt. Simpson Co., Ltd., to cost \$100,000. A. A. Mitchem, 502 Palmerston boulevard, is contemplating the erection of a pair of duplex residences, to cost \$14,000.

WINDSOR, ONT.—D. W. McGregor is erecting a residence on Victoria avenue; J. C. Pennington, La Belle Building, is the architect; the cost will be about \$10,000. Work has commenced on a store on Ouellette street for Geo. Muir; J. R. Sculland, La Belle Building, is the architect; the cost is estimated at \$20,000.

SCHOOLS, COLLEGES AND CHURCHES.

ANDERSON TOWNSHIP, ONT.—Architect A. C. Maillouy, Amherstburg, has prepared plans for a public school, to cost \$5,000; Joseph Dufour, 132 Aylmer avenue, and John Trombley, 131 Caron avenue, Windsor, have been awarded the contract.

AUBIGNY, MAN.—Work has started on a new school, to cost \$2,500.

BEAMSVILLE, ONT.—Tenders have been received by A. E. Hoshal, chairman Building Committee, for the erection of a High school, to cost \$20,000; W. W. Lachance, Village Inn, Grimsby, Ont., is the architect.

BELTON, ONT.—Architect John Wilson, Collingwood, Ont., has prepared plans for a school, to cost \$20,000.

BIRCHCLIFFE, ONT.—Architect Wm. Fraser, 34 Victoria street, has prepared plans for a school addition, to cost \$30,000.

BRANTFORD, ONT.—John McGraw & Son, Temple Building, have started work on the excavation for a school, to cost \$20,000.

BRUCE MINES, ONT.—A. R. Wood, 136 Pilgrim street, Sault Ste. Marie, has been awarded the contract for the erection of a school, to cost \$30,000; Thomas R. Wilks, 612 Queen street, Sault Ste. Marie, is the architect.

COLINTON, ALTA.—Tenders have been received for the erection of a school house.

EAST SELKIRK, MAN.—Tenders have been received by E. C. Goulding, secretary-treasurer Happy Thought S.D., No. 1,452, for the erection and completion of a four-room stone school building.

EDMONTON, ALTA.—Tenders have been received by Lac La Biche School Board for the erection of a frame school.

GALT, ONT.—Architect J. Evans, 30 Water street, Galt, has prepared plans for a school addition, to cost \$12,000.

GUELPH, ONT.—R. D. McNair, Campbellton, has been awarded the contract for the erection of new school.

HAMILTON, ONT.—Architect Stewart Witton, King and Hughson streets, has prepared plans for a school, to cost \$40,000. Architect F. W. Warren, Bank of Hamilton Building, has prepared plans for a church, to cost \$9,000; work has commenced. The Park Baptist Church, King street west, is having plans prepared for a church on King street west, to cost \$10,000.

KEMPTVILLE, ONT.—Hon. J. S. Duff, Minister of Agriculture, Toronto, is having plans prepared for an agricultural school building, to cost \$100,000.

KITCHENER, ONT.—Architect A. W. Holmes, 10 Bloor street east, Toronto, has prepared plans for a church, to cost \$45,000.

LOUISEVILLE, QUE.—Architect Pierre Levesque has prepared plans for a church, to cost \$173,000; Joseph Couture, Levis, Que., has been awarded the contract.

MEDICINE HAT, ALTA.—Tenders have been received for the erection of a two-storey four-room brick school building, in the village of Empress, Province of Alberta.

MIMICO, ONT.—Work has started on an addition to the Industrial School, to cost \$5,000.

NORTH COATICOOK, QUE.—The excavation is well under way for the new Roman Catholic church which will be built on the corner of Riverdale and Glen streets.

PEMBROKE, ONT.—Architect W. C. Keighley has prepared plans for a school, to cost \$53,000; H. P. Beck, 18 Woodlawn avenue, Ottawa, has been awarded the contract.

PORT CREDIT, ONT.—Architect D. C. Cotton, 54 Adelaide street east, has prepared plans for a school, to cost \$20,000; H. T. Darragh, 161 Close avenue, Toronto, has been awarded the contract.

QUEEN HILL, ONT.—La Berge Lumber Co., Sudbury, has been awarded the contract for the erection of a frame school, to cost \$4,000.

SIMCOE, ONT.—Architects Chapman & McGiffin, 95 King street east, Toronto, have prepared plans for two schools, to cost \$40,000.

SHERBROOKE, QUE.—Architect W. Gregoire has prepared plans for the St. Elie d'Orford Church.

ST. CATHARINES, ONT.—The School Board has prepared plans for a school addition, to cost \$20,000.

ST. JOHN, N.B.—Architect A. Sincennes, Moncton, is preparing plans for a college, to cost \$200,000.

ST. JOHN, N.B.—Architect F. Neil Brodie has prepared plans for a school to be built on Bentley street; the contracts have been awarded.

ST. THOMAS, ONT.—The Anglican Church is having plans prepared for a church, to cost \$10,000.

SUDBURY, ONT.—Architect Victor L. Morgan, Empire Building, has prepared plans for a school, to cost \$28,000; Harry Evans, 272 College street, has been awarded the contract.

SWANSEA, ONT.—Architects Jeffry & Watson, 9A Wellington street east, Toronto, have prepared plans for a school, to cost \$30,000.

TIMMINS, ONT.—Architects Ellis & Ellis, Manning Chambers, Toronto, have prepared plans for a school, to cost \$25,000; P. H. Secord & Son, Brantford, have been awarded the contract.

TORONTO, ONT.—Architect A. Post has prepared plans for a school addition, to cost \$7,000; Wickett Bros., Ltd., 35 Deer Park Crescent, have been awarded the contract for the masonry work. Tenders have been received by Architects Curry & Sparling, 105 Bond street, for the erection of a Masonic temple, to cost \$175,000.

TWEED, ONT.—Ellis & Ellis, Manning Chambers, Toronto, are receiving tenders for the erection of a school, to cost \$25,000.

VICTORIA, B.C.—Tenders have been received by J. E. Griffith, Deputy Minister of Public Works, for the erection of the county line school. Tenders have also been received for the erection of a school in the Esquimalt electoral district.

WINNIPEG, MAN.—Tenders have been received by Wm. Lawton, secretary-treasurer, School Board, for the erection of Wentworth School.

MAY ADD FIVE STORIES.

The new Paris building at the northwest corner of Portage avenue and Garry street, Winnipeg, Man., will probably be altered, and an additional five stories added. This is one of the handsomest structures in Winnipeg. L. Haundrat, head of the holding company in Paris, France, discussed the matter with his agents, Messrs. Bingham and Drabonnet, of Winnipeg, a few days ago, and a member of this firm stated that nothing definite had been decided on, but he did not deny that the matter was under serious consideration.

PORT HOPE SANITARY MANUFACTURING CO.

Considerable satisfaction is expressed in business circles from the fact that the Standard Ideal Co., of Port Hope, which has been in liquidation for some months, has been purchased by a strong company, which will carry on the business in a progressive manner. The new company has been incorporated under the name of the Port Hope Sanitary Manufacturing Company, with head office at 1010 Royal Bank Building, Toronto. The new company is capitalized at \$1,250,000. The directors include L. M. Wood, president; R. J. Cluff, president of the



FRED ARMSTRONG

General Manager, Port Hope Sanitary Manufacturing Co.

British and Colonial Press.

Cluff Manufacturing Co., vice-president; W. J. Cluff, president Canada Pipe and Steel Co.; W. D. Ross, vice-president Nova Scotia Steel Co.; M. L. Davies, vice-president Standard Chemical Co., directors, with Fred Armstrong as managing director and general manager. With such a strong board, and in such efficient management, a bright future for this company is assured. Mr. Fred Armstrong has resigned from active connection with Fred Armstrong Co., Ltd., which will in future be managed by Mr. Wm. Armstrong.

TECHNICAL SOCIETIES.

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CANADIAN INSTITUTE.—198 College St., Toronto. President, J. B. Tyrrell; Secretary, Mr. J. Patterson.

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SOCIETY OF CHEMICAL INDUSTRY.—Wallace P. Cohoe, Chairman; Alfred Burton, Toronto, Secretary.

TECHNICAL SOCIETY OF PETERBOROUGH.—Bank of Commerce Building, Peterborough. President, M. C. Mills, P.O. Box 395, Peterborough, Ont.

TORONTO BUILDERS' EXCHANGE.—President, S. R. Hughes; Secretary, A. E. Flower.

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CONTRACTORS and SUB-CONTRACTORS

As Supplied by The Architects of Building
Featured in This Issue

Provincial Hospital for the Insane, Whitby, Ont.:

Architect, James Govan.
Assistant Architect, A. B. C. Nicol.
Engineers, McMullen, Riley & Durley.
Brick, Provincial Government Clay Plant.
Brow Oil Tank, Jencks Machine Co.
Boilers, Goldie & McCulloch Co., Ltd.
Boiler Feed Pump, Bowden Machine Co., Ltd.
Carpets and Rugs, Robert Simpson Co., Ltd.
Casements and Window Construction, also doors and window trim, Provincial Reformatory, Guelph.
Concrete Chimney, General Concrete Construction Co.
Concrete Work, Provincial Government.
Crane, John T. Hepburn, Ltd.
Coal Handling Apparatus, Canadian Link Belt Co., Ltd.
Cement, Canada Cement Co., Ltd., National Portland Cement Co., Ltd.
Electric Fixtures, McDonald & Willson, Ltd., Geo. J. Beattie, W. E. Dillon Co., Ltd.
Electric Wiring, Electrical Fittings Co., Ltd., Northern Electric Co., Ltd.
Electrical Distribution System, Northern Electric Co., Ltd.
Expanded Metal, Steel and Radiation, Ltd.
Fire Doors, A. B. Ormsby Co., Ltd., and W. E. Dillon Co., Ltd.
Fire Hose, Dunlop Tire and Rubber Goods Co., Ltd.
Feed Water Heater, Canadian Griseom Russell Co., Ltd.
Ferro Dovetail, Pedlar People, Ltd.
Flooring, Provincial Clay Plant Tile.
Fittings, Taylor Forbes, R. Bigley Mfg. Co., Ltd., Fred Armstrong Co., Ltd.
Furniture, Ontario Reformatory, Guelph, Ont.
Glass, Pilkington Bros., Ltd., Consolidated Plate Glass Co., Ltd.
Hoists and Dumbwaiters, Rodolfsen Elevator Works, Ltd.
Hardware, Belleville Hardware Co., Ltd.
Heat Regulating System, Johnston Temperature Regulator Co. of Canada.
Heating System, C. A. Dunham Co., Ltd.
Interior Fittings, Cabinets and Wood Work, Ontario Reformatory, Guelph.
Inter-Phone System, Northern Electric Co., Ltd.
Kitchen Utensils and Equipment, Gurney Foundry Co., Ltd.
Linoleum, Robert Simpson Co., Ltd.
Metal Lath, Pedlar People, Ltd., Galt Art Metal Co., Ltd., Steel & Radiation, Ltd.
Paints, Martin Senour Co., Ltd.
Packing, Garlock Packing Co., Ltd.
Plumbing, Fred Armstrong Co., Ltd.
Pipe, Page & Hersey, R. Bigley Mfg. Co., Ltd.
Pipe Conduit, Ric-Wil Underground Pipe Covering Co.
Pipe Covering, Armstrong Cork Co., Ltd., H. W. Johns-Manville Co., Philip Carey.
Power Machinery, John Inglis, Ltd., Smart Turner Co., Ltd., Storey Pump and Equipment Co., Ltd.
Refrigerators, John Hillock & Co., Ltd.
Refrigeration Equipment, Madison Cooper Gravity Brine System Refrigeration Insulation, Robinson Bros. Cork Co., Ltd.
Reinforcements, Barnes & Peckover, Pedlar People, Ltd.
Radiators, Gurney Foundry Co., Ltd., Steel & Radiation, Dominion Radiator Co., Ltd., Taylor Forbes, Ltd.
Radiator Valves, Dole.
Roofing, Provincial Government Clay Plant Tile.
Screens, Watson, Ltd.
Structural Iron and Steel, Hamilton Bridge Co., Ltd., Dominion Bridge Co., Ltd.
Tile Wall, C. W. Beal.
The Floor, Provincial Government Clay Plant.
Terracotta, Provincial Clay Plant.

Varnish, Martin Senour Co., Ltd., James Langmuir & Co., Ltd.
Ventilating Duct System, W. E. Dillon Co., Ltd.
Ventilating Fans, Canadian Sirocco, Ltd., Canadian Buffalo Forge Co., Ltd.
Contractors—General. All work carried on by Assistant Provincial Secretary.

CIRCULATION REPRESENTATIVE

We have an opening for a good live travelling Circulation Representative to call on the Architects, Engineers and Contractors throughout Canada. Salary and Commission. Address CIRCULATION MANAGER, "CONSTRUCTION."

NEW C.N.R. TERMINAL AT MONTREAL

Work will be commenced next month on the new terminal station of the C. N. R. at Montreal, and, according to Sir Donald Mann, vice-president of the company, trains will be running through the terminal about the first of May next year.

NEW THEATRE FOR VANCOUVER.

The contract for the new Pantages Theatre on Hastings street, Vancouver, B.C., has been awarded to Skene and Christie, a local firm of contractors. The cost of the terra-cotta work alone is estimated at \$100,000. The entire cost of the new theatre will be in the neighborhood of \$300,000.

ACTIVITY IN WEST.

Several small buildings and warehouses are now in course of erection in Winnipeg. The Strand Theatre is making alterations at a cost of \$10,000. The Queen's Hotel is spending \$20,000 in alterations to its premises. The Ashdown Company is erecting a stable, warehouse and garage on James street at a cost of \$25,000.

NEW INDUSTRY FOR CANADA.

Arrangements are now being made to establish a soda industry at Amherstburg, Ont. A suitable site has been selected near the limestone quarries, Anderson township, by the Bova Process Company, of Syracuse, N. Y., and an issue of \$300,000 stock has been made to provide funds for building and equipping of the new plant.

NEW HOMES FOR SOLDIERS.

Capt. Symons, architect of the Military Hospital Commission, is now at work on the plans for alterations to the Elmhurst Convalescent Home, and the Mowat Memorial Military hospital at Kingston, Ont. Capt. Symons is well known to the architects of Canada as a most able and efficient designer. He designed two of the Queen's University buildings, which are a standing tribute to his ability.

WINTER QUARTERS FOR SOLDIERS.

Many of the battalions which have been summering at Camp Borden are now preparing for their winter quarters. At Hamilton a contract has just been awarded by the city for the erection of bunk houses and other buildings to house the soldiers over the winter. These buildings are now in course of erection, and will cost over \$50,000. Niagara Falls is also falling in line, and has commenced active building operations on several bunk houses for the 176th Battalion; the estimated cost is about \$8,000. Several large schools in Toronto have been turned over to the soldiers for the winter months, and the necessary alterations are now in progress. The Exhibition authorities have turned over several of their buildings to the soldiers, and they are now being fitted up as winter quarters.

Catalogues, Etc.

Kawneer Store Fronts.—Boosting Business is the title to an interesting and attractive booklet that has just been published by the Kawneer Manufacturing Co. It shows in an illustrated and descriptive way how the demand for serviceable and attractive store fronts has been met and how many advantages, both structural and commercial have been incorporated in these fronts.

The McAlear System.—This book contains in detail a complete description of the McAlear System and appliances and is also an authoritative text book on the Science of Steam Heating for all classes of buildings. The many phases of vacuum and vapor heating are well covered. The Arthur S. Leitch Co., Kent Building, Toronto, are Canadian representatives and from whom this book may be obtained.

Stanley Garage Hardware is the title of a booklet just published by the Stanley Works at New Britain, Conn., illustrating and describing a new line of builders' hardware, especially designed for garage use. The line includes garage door holders, garage hinges, garage door bolts, and garage door latches and pulls. Valuable information for architects and suggestions designed to help in specifying garage hardware are contained in this booklet, a copy of which may be had on request.

Kieley & Mueller Specialties.—A catalogue superseding all previous issues has been published. It gives a comprehensive description of the Kieley line, setting forth by statements, cuts and illustrations the different specialties and the services for which they are suitable. It invites the attention and consideration of all architects, engineers and contractors as to the values and advantages of Kieley specialties. The Canadian representatives, Arthur S. Leitch Company, Toronto, will forward this catalogue upon request.

Protecting and Decorating Brick and Concrete Buildings.—The Martin-Senour Co., Ltd., producers of paints and varnishes, have issued an illustrated and very descriptive book on their Concre-tone. Owing to the attention that cement is claiming as a building material, the protection of the surface is important. What Concre-tone will do, and how to use it, is amply described in this book. A color card is enclosed with the book, giving the colors that may be had for interior, exterior and floor dressing. Copies may be had from Martin-Senour Co., Montreal.



November, 1916

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GRAPHIC ARTS BLDG., TORONTO, CANADA

MONTREAL

BRANCH OFFICES

NEW YORK



DETAILED VIEW IN DINING ROOM, HOTEL PALLISER, CALGARY, ALTA.

E. & W. S. MAXWELL, ARCHITECTS.

The Smaller Branch Bank Building

By Philip J. Turner, F.R.I.B.A.,

Architect, of Montreal, and Lecturer, Department of Architecture, McGill University.

THE excellent system of our Canadian banking institutions is recognized as having played a great part in the steady progress and strong financial position of the Dominion at the present time. By encouraging the people to deposit their savings, however small, by loaning money on all sound enterprises, and discouraging anything of the nature of what may be termed wild-cat schemes, the banks by adopting a conservative and strong policy have had a steady effect on the people in periods of great prosperity, as also in times of financial depression.

The business of the banks has only been possible by the building up of a great number of branch offices all over the Dominion. These now amount to a grand total of 3,170 (with 22 additional in Newfoundland), representing in round figures probably one office to every 2,600 inhabitants. One realizes the growth of these institutions in comparing these figures

with those of ten years ago. In 1906 the number of branches amounted to 1,565, or half as many as at the present time, and at the beginning of this century the number stood at 619 only for the whole Dominion. The enterprise of the 22 chartered banks of the Dominion is

shown whenever and wherever an opportunity for obtaining good business offers, by the opening of a branch office amongst a prosperous community, be it a thrifty settlement of farmers, a manufacturing district, or a military camp.

In a growing town which may be passing through little more than its pioneer stage, the name of one of the chartered banks of Canada, displayed on a building, however small or insignificant, in its first branch, gives at once an impression of

solidity to the district, and also impresses with a feeling of confidence the hard-working community in whose centre office has been placed.



DETAIL OF FRONT ENTRANCE, THE MOLSONS BANK, ST. LAWRENCE AND ONTARIO STREETS, MONTREAL.
TURNER & CARLESS, ARCHITECTS.



ONTARIO STREET ELEVATION, THE MOLSONS BANK, ST. LAWRENCE AND ONTARIO STREETS, MONTREAL, QUE.
TURNER & CARLESS, ARCHITECTS.

The Canadian banking system is different from that of the United States in that the administrative work is carried out from one central head office, having a large number of branch offices scattered all over the Dominion. Across the border are found a much larger number of main offices, but under different executives, and with no branch offices, the whole work of each bank being generally concentrated in the one building. This different method in the carrying on of business gives the plans of the offices of the two countries a decided type of their own.

The buildings in which modern banks are housed take their inspiration for the most part from classic architecture.

Although ingenuity has been exhausted in trying other so-called types, with few exceptions, Renaissance is the influence from which we in Canada have not yet found it possible to emancipate ourselves to any degree.

Our chartered banks which have branch offices running into the hundreds have adopted the policy, as a rule, of erecting buildings of the

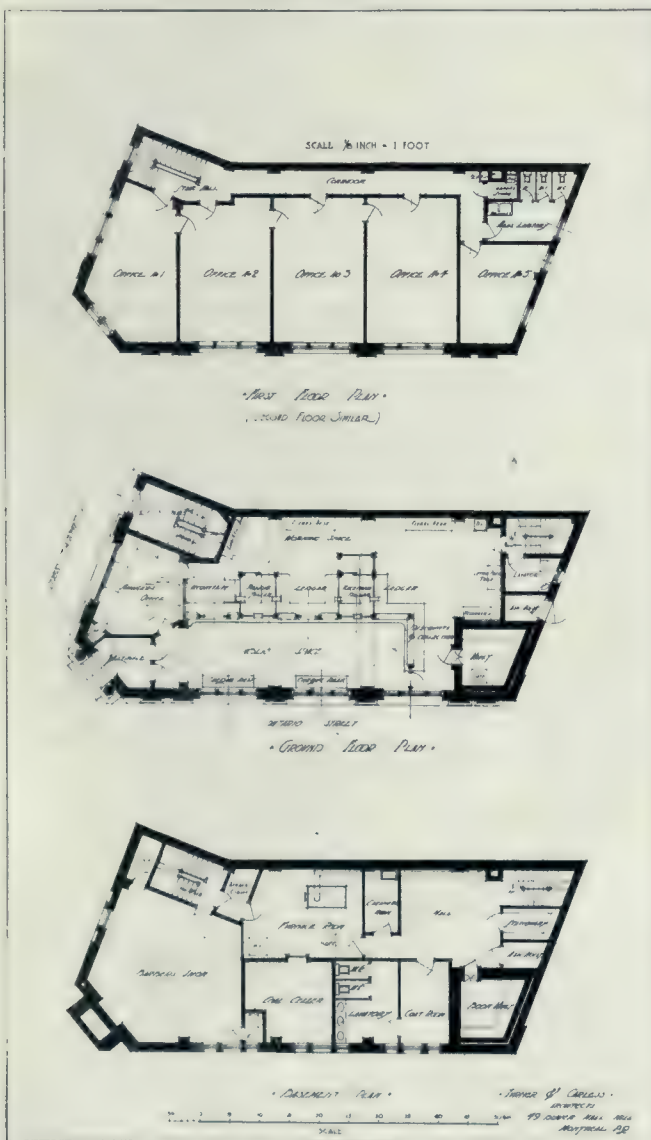
very best type, and in our more important cities have spent large sums of money on their properties. Probably no institutions in the Dominion in consequence have encouraged the building trade to a greater extent, or set a better standard of architecture.

A few of the larger banks naturally find that the building of so many offices locks up a great deal of capital, and have formed, in consequence, separate real estate companies for the exclusive purpose of erecting buildings for the use of the bank; the bank on its part paying as rent the interest on the bonds of the company, and providing a sinking fund for the paying off of the bonds when they fall due. Whatever the method of paying for the buildings, and the former method is the exception rather than the rule, the modern banking directorate, being business men of recognized ability, naturally realize that it is a foolish policy, and poor business as well, to spend large sums of money on small offices in our smaller or younger towns, especially when it cannot be ascertained with any certainty if

the business of the future will insure the bank making such an office a permanent one. The business of such localities does not justify unnecessary expense, and the problem before the architect, therefore, is to design an office of first-class construction, and at the same time keeping the cost at a low or reasonable figure.

After the question of general external appearance has been disposed of, the most important matter of planning and general conception of the problem presents a baffling variety of solutions, especially in the States, where no one bank seems to be planned in its details like any other.

The design of a banking office is an important factor to its success, and the general effect must be imposing, and at the same time of dignified simplicity. It should give the depositor the impression that it is a safe place in which to leave his money and valuables. The moral effect of a dignified structure which leaves no doubt of its purpose is a fact well recognized in business, and banking is no exception to the rule. The name of the bank should be always displayed in bold letters on the front of the building. The letters should either be cut in stone on the main frieze, or when made of



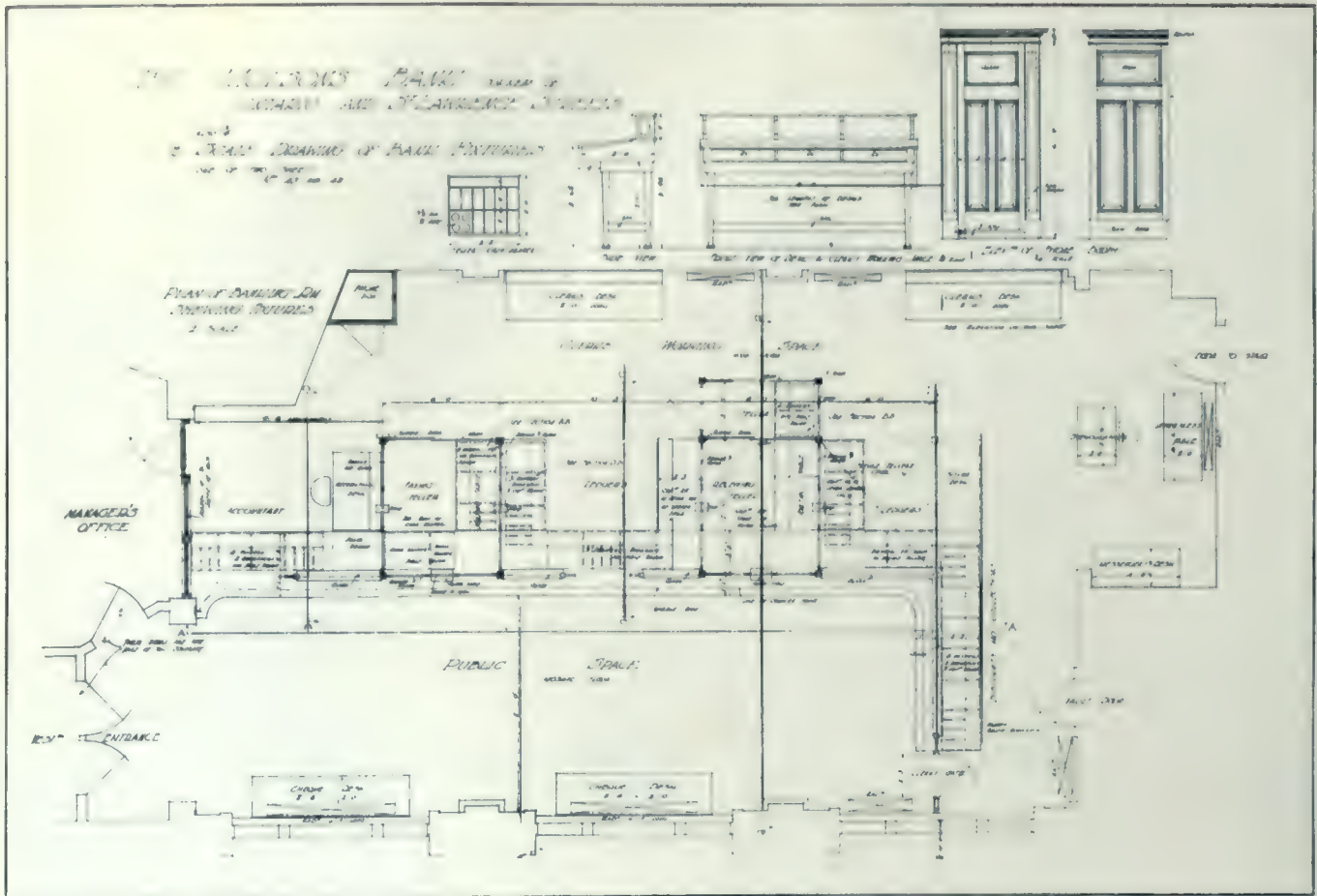
ST. LAWRENCE STREET ELEVATION, THE MOLSONS BANK, MONTREAL.

bronze or other permanent material, should be affixed on some prominent position. Provision should also be made for suitable places near the entrance on which to display the customary brass or bronze tablets of the bank.

Most progress in bank design has undoubtedly been made in what may be called the machinery of the banking business, the special equipment of the building. In a banking room matters of prime importance are the compactness, convenient accessibility of its furniture, and the system of handling the documents and cash. In the conduct of business the utmost simplicity and method must be observed.

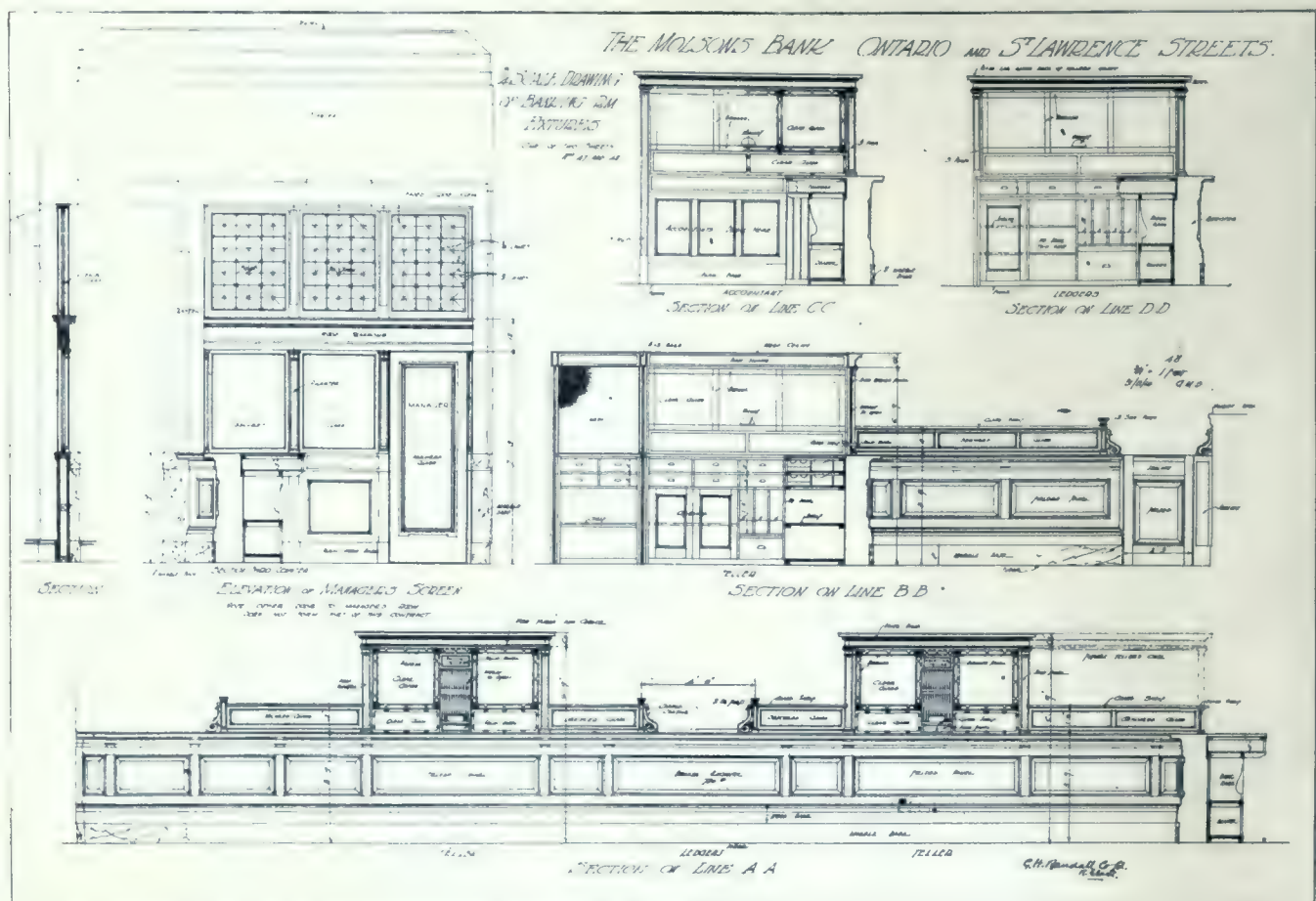
Bearing these general matters in mind, the following details may be mentioned.

Natural Lighting.—Good light is one of the most important requirements in a satisfactory office, and it is desirable that the officers of the bank should have the preference over the public in this respect. For this reason it is best, when it can be arranged, to plan the office so that the light from the windows falls on the backs of the staff when standing at their desks and in the faces of the customers. Windows should be kept high up above the floor, so that desks can be placed under them, and the lower sashes as a rule are made not to open, for better protection, and for the avoidance of papers being scattered with the wind.



Artificial Lighting.—As a general rule electric light brackets about eight feet six inches to nine feet above the floor are to be preferred to ceiling lights in the banking room. In either

case such lighting is only sufficient for general illumination, and to obtain efficient lighting for the staff each desk should be provided with an individual light.



Entrance.—The entrance to the office should naturally be imposing and on a large scale. The floor of the office should be kept conveniently close to the sidewalk, so that a flight of steps at the entrance may be avoided. When a building is placed at the junction of two streets, the main entrance must be placed on the principal street. If the two streets are of equal importance, an entrance on the corner will probably be demanded. Entrances on the angle, however, as a rule do not provide an economical plan. On narrow corner sites a centre entrance seldom provides the best plan, and a better result may be obtained by placing the entrance to one side.

more attractive than solid doors; they also give strangers an opportunity at once to recognize the building as a bank, and also at night give additional security to the office.

Manager's Office.—This should be always placed near the entrance, especially in the country office, where it is part of the manager's business to interest himself in, and to make himself friendly with his customers. On a corner site of the smaller type it is well to place the office on the external angle of the building, and to keep the windows reasonably low, so that the manager can have a view of both streets. A mistake is often made in giving the manager too



INTERIOR OF BANKING ROOM FROM ENTRANCE, THE MOLSONS BANK, MONTREAL, QUE.

TURNER & CARLESS, ARCHITECTS.

An example of this is seen in the Port Arthur office. From the point of view of design a more pleasing facade could have been obtained if the entrance had been placed in the centre, but being to one side the better plan was evolved. The office on St. Lawrence and Ontario streets shows the entrance on the corner of the site, both streets being of equal importance, the inner doors are situated to one side of the vestibule to obtain the best use of the floor space inside. Preference is given to the entrance doors being designed with full length glass panels, protected by metal grilles on the outside. Such doors are

small an office. A room ten feet square, or about twelve by ten, should be the minimum. This private office should also be closed in at the top, whether the screen to it is carried up to the banking room ceiling or not.

The conversations a manager has with his customers should not be overheard, either by the staff or the public, in the office. The manager's office should always be directly connected with the staff's working space behind the counter, and so placed in reference to the public space that he can overlook everything that is going on.

Vault.—The vault should be placed, if pos-

sible, where the door can be seen from the street, and also convenient to the bank tellers. It is best not to place it directly against a party wall or adjoining a dark lane or yard, for fear it might be tampered with by any badly disposed person. Whereas vaults in our large cities are very elaborately and expensively constructed, the smaller ones in the country are not as a rule steel lined, the cash being kept in burglar-proof safes inside the vault. All vault walls should be built with strong reinforcements of some kind. A good method is to build the walls of reinforced concrete about sixteen inches thick, with iron bars placed vertically and

above the door of the ground floor vault in the ceiling is placed the observation and funnel-shaped shooting outlet, with a thick plate glass cover on the floor above. The vault not necessarily being more than eight feet high, the space over can be used as a cupboard, or a convenient place for concentrating the drain and water pipes, and forming access to same. In the St. Lawrence street branch the bank messenger's rooms form a mezzanine floor over the vault and recess adjoining.

Floors in Public Space.—Whilst tile, marble or mosaic should be used for the better class office, hardwood, on account of cost, is used as



INTERIOR OF BANKING ROOM, LOOKING TOWARDS ENTRANCE, THE MOLSONS BANK, MONTREAL, QUE.

TURNER & CARLESS, ARCHITECTS.

horizontally at about nine-inch spacings, or if of brick, heavy hoop iron should be laid in the horizontal joints every three courses in height. The floors and ceilings should be also reinforced in a similar manner, and very strongly built to stand the strain of falling walls on them in the case of fire. The vault must be made thoroughly waterproof, and the inside walls afterwards lined with terra cotta and plastered. The foundation walls usually go to form a book vault in the basement for old ledgers and vouchers not in daily use. This should be easy of access from the banking room. Immediately

a rule for the cheaper offices. This, however, is by no means an ideal material, as it is hard to keep clean. A first-class composition floor, laid direct on the rough flooring, offers a satisfactory alternative to hardwood.

Staff Lavatories.—These as a rule are best placed in the basement, all space on the ground floor being required for the business of the office or possible extensions. In planning of all buildings, especially in new districts and where the building does not occupy the whole site, it is always wise to plan the office so that it can be easily enlarged at any future time if the town



GENERAL VIEW, THE MOLSONS BANK, ST. LAWRENCE AND ONTARIO STREETS, MONTREAL, QUE.

and business grows, without serious expense or any radical changes. The building at Drummondville was so planned, for example, so that it could be easily enlarged by taking down the back wall without affecting the rest of the layout of the building to any serious extent.

Office Fittings.—These require a great deal of study, many details being made to suit the special requirements of individual banks. The fittings themselves are usually made by firms who are specialists in this kind of work. The style of fittings have changed very considerably during the last few years. Formerly it was the practice to have between the bank ledgers and tellers, a mass of grille work for the whole length of the counter, and to the height of the cages, with a large number of wickets. Now the preference is given to the enclosing only of the tellers' cages with

as little metal work as possible on the counter front, consistent with security. The rest of the staff have no grille work in front of them, but a low screen about twelve inches high is placed on the top of the counter which protects the ledger from being read by the customers. The glass in these screens should be obscured, but the glass in the tellers' cages should all be clear plate glass. On the top of this low screen it is customary to fix a plate glass shelf (upper side polished and under side obscured), or wood shelf which not only further screens the ledgers from the view of customers, but also is convenient for handing over the depositor's pass books.

Twenty years ago all counter fittings were built of a uniform height of seven feet for their whole length, with turned columns supporting a heavy cornice. To-day everything above the counter top should be kept light in construction, so as to give, as far as possible, an unobstructed view of the banking room. This result has been obtained satisfac-



THE MOLSONS BANK, NORWICH, ONT.

TURNER & CARLESS, ARCHITECTS.



THE MOLSONS BANK, NORWICH, ONT.

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torily in the St. Lawrence and Ontario street office. (See illustration.)

The tendency to-day is to leave the accountant's counter, which is flat, entirely open; that is, without having any railing built on it. This refers more particularly to the city offices.

In the country, where a certain amount of privacy is desired, the low rail is introduced in the accountant's section, but an opening in this railing should be provided about three feet wide, through which documents can be passed when customers' signatures are required.

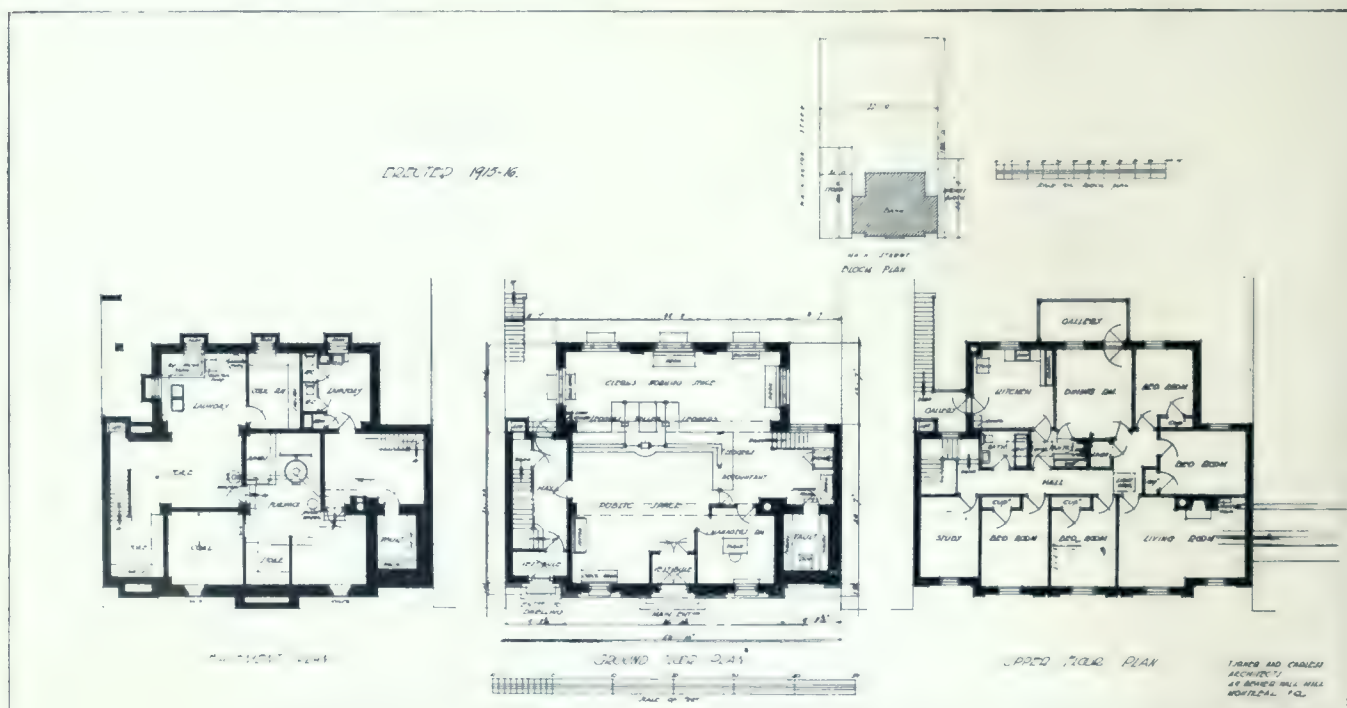
The accountant's position should always be placed next to the manager's office. On the back of the counter front, provision should be made for running a horizontal grooved moulding to contain the electric wires. It is desirable also

that all posts or columns should be built hollow, to allow space for wiring. With reference to the desks behind the counter it was the custom until some years ago to build these desks in solidly as part of the fixtures proper, and to introduce as many cupboards and drawers as could be obtained in a given space. Now-a-days practically all furniture is movable and cupboards have been practically done away with, as they served no good purpose, and generally became a receptacle for litter. A marble base is a

very desirable addition to a counter front, as it protects the wood at a point where deterioration is most apt to set in from the contact of water during the process of washing the floors.

The front edge of the counter top should have a good projection, both for the purpose of preventing customers from looking over the screen on to the ledgers, and also to protect the counter front itself from being damaged.

The tellers' cages must be of sufficient size to give the tellers enough working space without being cramped. A compartment six feet wide by seven feet deep is a useful size, though several are only five feet six inches in width. Whether desks are put on only one or both sides of cages, a clear working space of three feet in width should be allowed. In some of-



THE MOLSONS BANK, NORWICH, ONT.

TURNER & CARLESS, ARCHITECTS.

files, as in the St. Lawrence and Ontario streets branch, an additional compartment is placed next to the paying teller's cage for an assistant during the rush hours to help in the sorting of cheques and other special purposes. The top of the teller's desk is often covered with plate glass. The grille work is usually made of bronze, of steel with a bronze finish, or of black iron. In designing this metal work care must be taken that no horizontal rail is placed in such a position as to interfere with the teller's clear vision. The teller should be able to have an unobstructed view of his customers at all times. It

is very important that all openings in the lower part of the grille work be protected with plate glass behind, so as to prevent anybody from putting a stick through and extracting paper money when lying on the desks.

The grille in the centre of the front should be fitted with a telescopic wicket, or one hung on hinges, so as to be opened in case a parcel has to be passed through.

The top of the cages are constructed with round wire mesh, not larger than one and one-



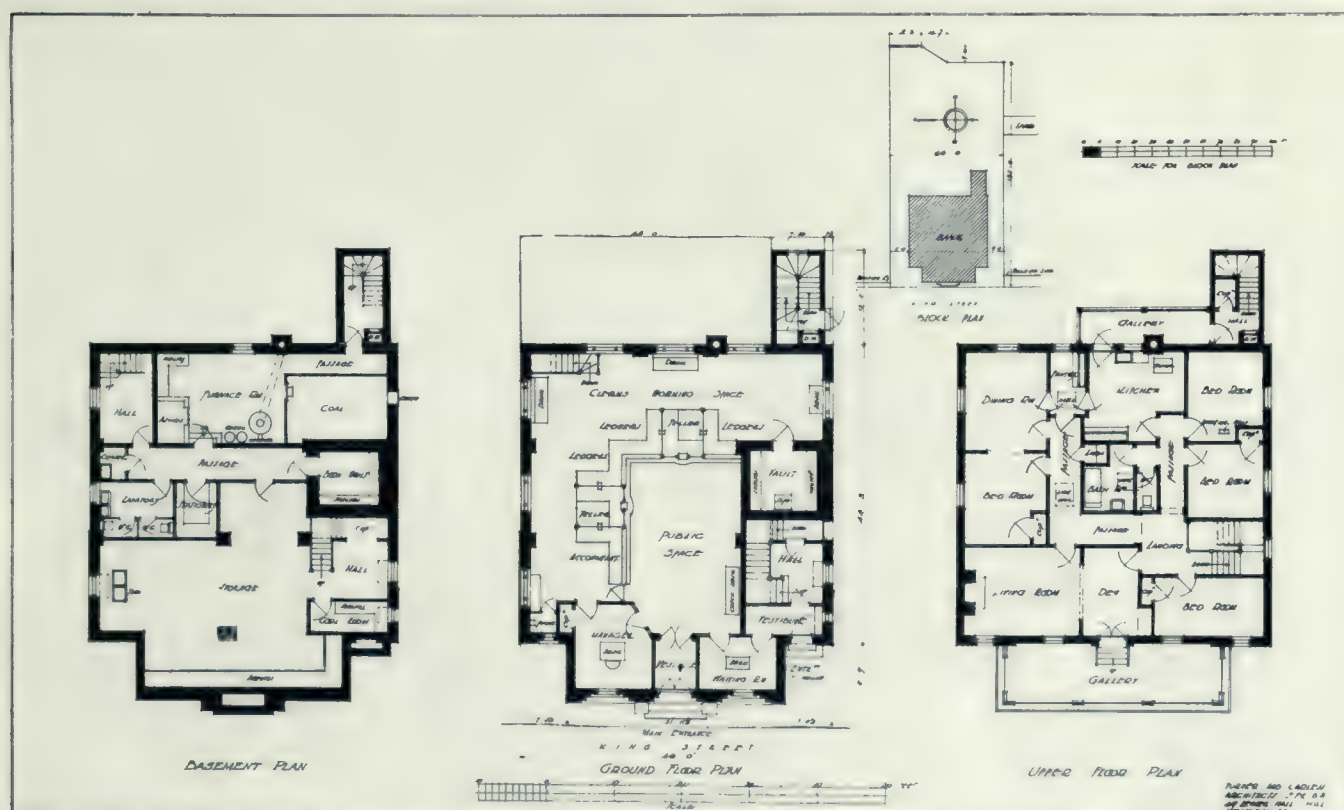
THE MOLSONS BANK, SOREL, QUE.

TURNER & CARLESS, ARCHITECTS.

half inch in diameter, and in the smaller offices the sides are made of steel ribbon, bronze plated, one-quarter inch wide, with the mesh not exceeding one-half inch.

The wicket door in counter, forming the entrance for the clerks, should in all offices, where possible, be placed close to the manager or accountant, so that the staff passing in and out can be under the direct surveillance of the heads of the office.

In small offices the fittings are best planned



THE MOLSONS BANK, SOREL, QUE.

TURNER & CARLESS, ARCHITECTS.



THE MOLSONS BANK, SOREL, QUE.

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to occupy only two sides of the public space. Three sides necessitates an unnecessary large staff and difficulties for the manager in superintending.

It will be readily understood that the fittings and furniture of a bank form a considerable item of cost in the expense of a new office.

It is therefore essential that they should be of the highest grade of construction, and important that the very best layout is obtained from the start. Some banks when opening temporary offices have adopted fixtures in the form of specially made standard units, the latter being set up side by side to form a complete counter. These units have the advantage that they can be taken down and used elsewhere without any waste from cutting when a more permanent office building is being established and special fixtures are to be installed.

Additional Descriptive Notes to Illustrations

The Molsons Bank, Norwich.—This building

has just been completed. The facade is treated with Indiana limestone pilasters and a light shade clay ironspot vitrified brick, laid with a fine joint. The woodwork is all painted white, except the entrance doors, which are of quartered white oak. The name of the bank is displayed in large bronze letters, standing out three-quarters of an inch from the face of the main frieze.

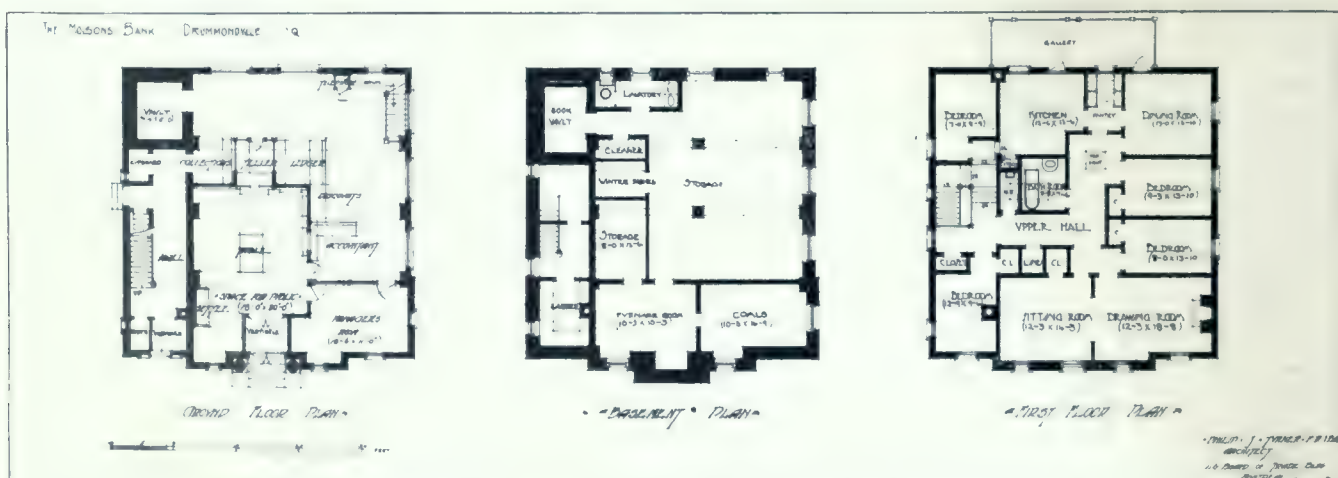
The height of the banking room is fourteen feet, with the principal lighting at the back, which gives the best results for the staff.

The upper flat forms the manager's residence, the woodwork being of chestnut, with the exception of the four bedrooms, which are of pine.

A hoist is provided to the basement; also a linen chute to the laundry. The laundry tubs, lavatory basins and sinks are all provided with hot and cold water, and an additional service of soft water. The latter is stored in a large tank in the basement, and raised by an automatic electric pump and pressure tank. The dining-room is panelled, and a large gallery approached from it can be enclosed in the winter. The cost of the building complete, exclusive of banking room fittings, is equivalent to twenty-one cents a foot cube.

Sorel.—The design of this somewhat unusual front was governed by the desire to obtain a gallery to the manager's residence which would overlook the fine large square of the town.

The facade is treated in two shades of clay ironspot bricks, a brownish-red for the rustication, and a light buff for the rest. The banking room is excellently lighted, with the windows in



all cases to the backs of the staff when working at the counter. The manager's room and waiting room are not so high as the main office, forming on plan the projection on the facade. The waiting room is so planned that it can be used for that purpose, for either the office or the residence when the office is closed.

The vestibule is tiled and the public space is covered with a red composition floor material with black border.

The first floor allows an excellent seven room residence, and in the basement is the usual office staff lavatory, book vault, cleaner's store, stationery store, furnace room, etc., with a large store, laundry, and cool room for the residence. The building has just been completed at a cost of twenty-two and a half cents a cubic foot, exclusive of banking room fittings.

Drummondville.—This building was erected



THE MOLSONS BANK, DRUMMONDVILLE, QUE.

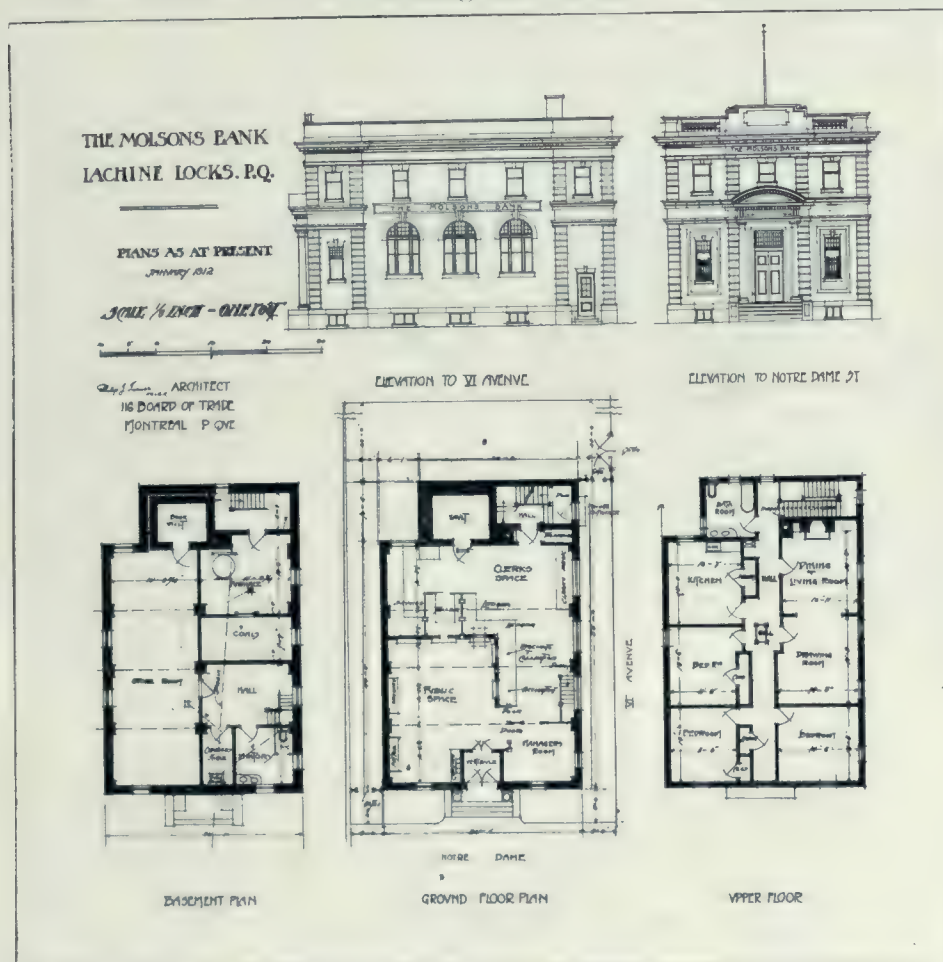
PHILIP J. TURNER, F.R.I.B.A., ARCHITECT.

in 1912. Light buff facing bricks have been used in the elevations with Roman stone facings. The cost was twenty-five cents a cubic foot. It is planned to allow for easy enlargement to the banking room at the back. A mistake often made in country offices is to give an undue amount of room to the public to the detriment of the staff.

In this plan and other examples shown, this common error has been avoided.

Lachine.—Erected in 1912 at a cost of twenty-one cents a cubic foot, exclusive of banking room fixtures. Light buff pressed bricks and Roman stone have been used in the elevations.

The upper floor was designed for the use of the members of the staff. The banking room is a typical and good layout for a small office, with (1) the staff back to the light, (2) manager's office near entrance and at corner of two streets, and controlling public space and office staff, (3) door to clerks' space placed next man-



ager's office and also next accountant, and (4) vault door convenient for teller and in view of the whole office.

Port Arthur, Ont.—Elevations of Indiana limestone with light pressed brick facings above. A good layout for office on a corner site, of little breadth and where the main street is on the narrow side, giving the best use of floor space in the interior. Upper floor used as offices with strong room divided into steel compartments for the use of the different tenants, separate lavatories for both sexes on each

mination to the banking room at the opposite end. The ground floor is 19 feet high, which gives sufficient height for a vault nine feet high and messenger's rooms over. Two of the three openings in end wall between banking room and mezzanine give the bank's messenger an opportunity for watching the office when closed, the third opening acts as a ventilating panel. The building is of fireproof construction throughout, with a reinforced concrete skeleton frame and terra cotta partitions and furrings. The walls above the base are of Indiana limestone, with



THE MOLSONS BANK, LACHINE, QUE.

PHILIP J. TURNER, F.R.I.B.A., ARCHITECT.

floor. The top floor is partly occupied by the staff.

St. Lawrence and Ontario Street.—An awkward shaped site, with the problem of having to place the entrance on the corner and that to the upper floors offices on the narrow side of the lot. A mezzanine floor, containing three rooms, for the bank messenger, being placed in line with the front of the vault, the banking room is given a square end on this face. The screen to the manager's office also forms a right-angle ter-

the base itself of Queenston limestone, the stairs to the offices have marble treads and cast iron strings, railings, newel posts and carriages and oak handrail.

The vestibule has a marble mosaic floor and Missisquoi dark and light green marble dado. The floor of the banking room consists of six inch light grey vitrified tiles, with narrow white borders to each square of four tiles. The woodwork of the office is all of quartered white oak with marble base to counter front, and

cheque desks. The grille work to the cages is all of bronze.

The foundations of the building are carried on reinforced concrete piles. The total cost of the building complete, including foundations, but not banking room fittings, is on a unit of forty-two cents a cubic foot. The whole of the fittings, furniture and electric light fixtures were designed by the architect.

Canada's Fire Loss

The fire loss of Canada has reached enormous proportions. The drain upon her finan-

being developed, trade openings are being sought and established. Prior to the war Canada found herself handicapped in any scheme of trade expansion by the lower cost of production in Europe. It therefore follows that, with the realization by European countries of their commercial possibilities, this trade handicap will be greatly accentuated.

On the basis of averages, and from the data available as to the cost of insurance and upkeep of fire departments, the following comparisons may be deduced:

For the past three years the average rate for fire insurance in Canada has been one dollar and eighteen cents per one hundred dollars of insur-



THE MOLSON'S BANK, PORT ARTHUR, ONT.

TURNER & CARLESS, ARCHITECTS.

cial resources constitutes an economic loss which no country can afford and still meet competing nations on an equal footing.

The war has had far-reaching effects upon commerce. European countries, in greater or less degree, are realizing their latent powers, production is being speeded up, resources are

being developed, trade openings are being sought and established. Prior to the war Canada found herself handicapped in any scheme of trade expansion by the lower cost of production in Europe. It therefore follows that, with the realization by European countries of their commercial possibilities, this trade handicap will be greatly accentuated.

A Canadian labor employer with one hundred



CLERK'S WORKING SPACE, LOOKING TOWARDS MANAGER'S OFFICE, THE MOLSONS BANK, PORT ARTHUR, ONT.

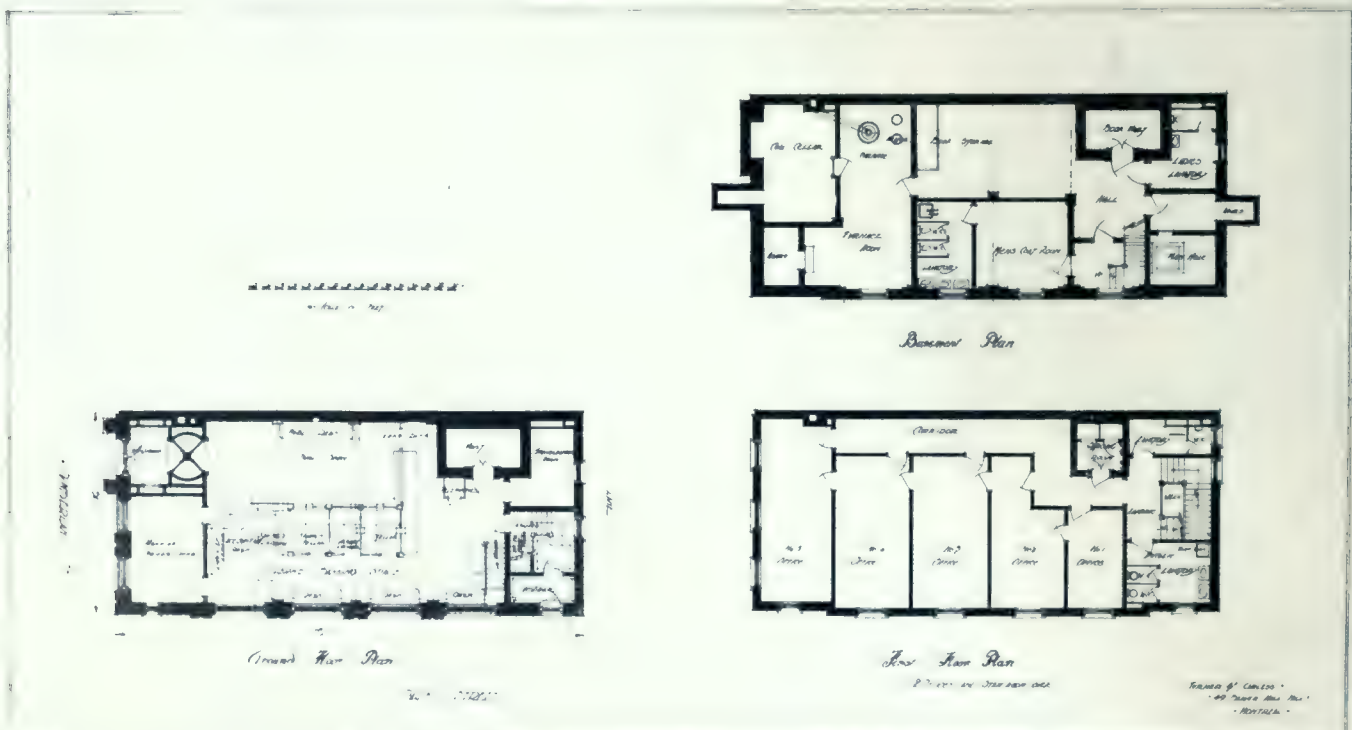
employees, carrying an insurance of fifty thousand dollars on plant and buildings, and, assuming that two thousand dollars insurance is carried or paid for by each employee on furniture and dwelling—or a total of two hundred and fifty thousand dollars—would, on the foregoing basis, have to provide in wages and overhead charges two thousand nine hundred and fifty dollars. His competitor in Sweden would only require one thousand dollars, in Austria seven hundred and fifty dollars, in England five hundred and seventy-five dollars, in Germany five hundred and fifty dollars, in France five hun-

dred and twenty-five dollars, in Spain and Italy four hundred and seventy-five dollars.

For upkeep of fire departments Canada is heavily taxed in comparison with competing countries. In 1914, Paris, France, with a population of two million, eight hundred and forty-six thousand nine hundred and eighty-six, had a total fire department expenditure of approximately six hundred and fifty-six thousand four hundred and seventy-nine dollars, or twenty-three cents per head. Toronto, for the same year, with a population of four hundred and seventy thousand one hundred and forty-four, spent six hundred and

seventy-five thousand one hundred and forty-six dollars on her fire department, equal to one decimal forty-three dollars per head.

The Toronto manufacturer—and this is only an example for all Canada—has to provide for himself and family and for each employee and his family one decimal forty-three dollars to cover fire department costs, as against the twenty-three cents his Paris competitor must provide; or, with an average of five to a family, for his one hundred employees, he would have to pay in salaries and wages seven hundred and twenty-two dollars and fifteen cents as against



THE MOLSONS BANK, PORT ARTHUR, ONT.

TURNER & CARLESS, ARCHITECTS.



A DETAIL—THE SIDE ENTRANCE, THE MOLSONS BANK, PORT ARTHUR, ONT.

one hundred and sixteen dollars and fifteen cents by his European competitor.

For insurance and upkeep of fire department the Toronto employer of one hundred hands, as representative of Canadian industry, must pay three thousand six hundred and seventy-two dollars as against six hundred and forty-one dollars in Paris, a handicap equal to thirty dollars per employee.

The Census Report of 1911 gives five hundred and fifteen thousand two hundred and three as the number of employees engaged in manufacturing in Canada; consequently at thirty dollars per head, there is a handicap of fifteen million four hundred and fifty-six thousand and ninety dollars against Canadian manufacturers in the cost of fire insurance and municipal fire departments.

The salaries and wages paid to these five hundred and fifteen thousand two hundred and three employees amounted to two hundred and forty-one million eight thousand four hundred and sixteen dollars, an average of four hundred and sixty-seven dollars and eighty cents, or approximately nine dollars per week. The foregoing handicap of thirty dollars per employee represents the wages for three decimal three weeks of each employee.

In 1910 the products of Canadian manufacturers were valued at one billion one hundred and sixty-five million nine hundred and seventy-five thousand six hundred and thirty-nine dollars. This charge for insurance and municipal

fire protection therefore represents an added tax of one decimal three per cent. upon Canada's entire output of manufactures.

The fact that much the larger portion of this amount is buried in the pay-roll can be accepted as the reason why our employers have given so little attention to the question. The charge must be met, however, whether by direct or indirect means.

Employers complain of the rising cost of manufacturing; employees complain of the rising cost of living and demand increased wages. In view of the foregoing, employers should seriously consider reduction of the burden imposed by the enormous destruction of our created resources by fire—that their earnings may not be reduced by these charges, and thus remove one of our heavy handicaps before Canadian employers and employees meet world competition under the new trade conditions which will develop after the war.

Farm Home Conveniences

At the last annual meeting of the Commission of Conservation a report of a survey conducted on 400 farms during 1915 was presented. Some interesting data were secured respecting conditions in many rural homes.

Keeping the young people on the farm is one of Canada's national problems. Many causes have been suggested for the yearning for the city. The conveniences of the city home constitute one of the chief attractions. Notwithstanding this, however, very few farmers have introduced these conveniences into their homes.

Of the 400 farmers visited, 53 per cent. have young people in their families. With this large percentage of young people it is a regrettable fact that only two farmers out of every hundred have bathrooms in their homes. Only 6.2 per cent. have water closets, only 2.5 per cent. have a complete service, and only 2.2 per cent. have electric light. In these 400 homes, only 16.5 per cent. have the water piped to the house, and but 17.5 per cent. have furnaces in the home. These conditions are entirely within the control of the farmers, 86.7 per cent. of whom are the owners of farms averaging 126.5 acres.

In contrast with the foregoing, the conveniences which have been supplied by the government and public utility companies and of which the farmer has availed himself stand out prominently. The Post Office Department has carried to 76 per cent. of these 400 farmers rural free mail delivery, allowing 77 per cent. of them to be supplied with daily newspapers, while 58.2 per cent. have the convenience of a telephone.

Only 2.5 per cent. have complete sanitary service in their homes, while 5 per cent. have automobiles, and 31.5 per cent. have either automobile or horse and buggy for the young people.



HOTEL PALLISER, CALGARY, ALTA.

E. & W. S. MAXWELL, ARCHITECTS.

Hotel Palliser, Calgary, Alberta

Owned and Operated by the Canadian Pacific Railway Company.

THE Hotel Palliser, situated in the gateway to the Rocky Mountains, was erected to fill a long felt need for the class of accommodation that has made the Canadian Pacific Railway hotels a by-word for comfort and good living. Situated in the heart of the city, adjoining the railway station, it offers conveniences to its patrons that more than offset the advantages that might have been obtained by selecting a more distant and picturesque site.

The hotel caters to the tourist whose objective is the unsurpassed scenery of the Rockies, the business man, and residents desiring an environment of refinement and the best of service.

Owing to the nature of the site, a picturesque solution of the problem, such as is evidenced in many of the company's hotels of the chateau type, was considered inadvisable.

The existing structure is one of eight stories and a basement, so designed that five additional stories may be added, terminated by a steep mansard roof. The facade facing Ninth avenue has three projecting wings and two U-shaped courts. The track elevation is without break, and no interior courts exist.

The exterior perspective shows a clean-cut structure, quite simple and modern in its

straightforward expression of the interior. The details of a more elaborate nature recall the work of the Louis XVI. period. The ground floor plan shows two main axes, one leading from the main entrance to the elevator lobby, and the other from the station entrance (so called because of its proximity to the adjoining station) to the dining room.

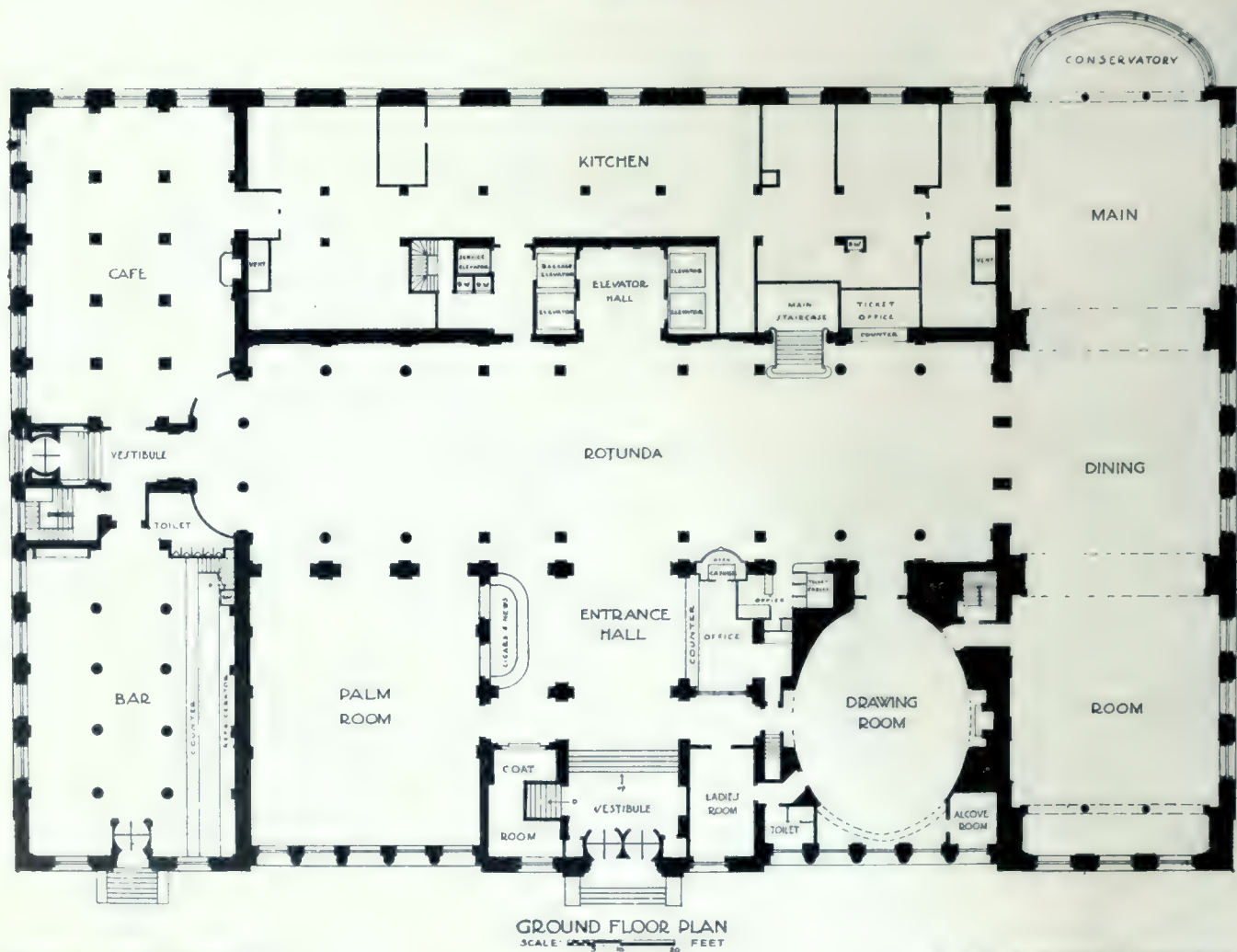
On entering one is received in the entrance hall, finished in Bottichino marble. To the right is the office, and conveniently adjoining is the ladies' room, off which is the retiring room, with toilet conveniences. Over the entrance are offices, including that of the manager. The entrance hall, rotunda and palm room open into one another. The same sense of style is evident, but the treatment of composition and use of materials vary. The entrance hall is of Bottichino marble, including the ceiling treatment. The floor is laid out in simple patterns with grey Tennessee marble, the base of the piers and columns being of green marble, above which is fine honed Bottichino marble of a pleasing warm tone. The office, seen to the right of the illustration, has quartered oak panelling, and a bronze treatment of pilasters and grille work above the counter line. The coat room adjoins



DETAILED VIEW, SHOWING MAIN ENTRANCE, HOTEL PALLISER, CALGARY, ALTA.

E. & W. S. MAXWELL, ARCHITECTS.

CONSTRUCTION



the hall to the left of the vestibule, and on the right is the ladies' room.

The top-lighted rotunda extends from the cafe and the station entrance end of the building, to the dining room. Above the dining room triple entrances is a musicians' gallery. The rotunda is one hundred and forty feet by forty feet, the main feature of the composition being a row of columns and pilasters on either side. The ceiling is designed so as to form a triple composition in the length of the room. The walls have an oak dado, set on a green marble base, the large wall panels over, being hung with tapestry.



THE BALL ROOM, FIRST FLOOR, HOTEL PALLISER, CALGARY, ALTA.

The pilasters and columns are of Botticino marble, and the ceiling of plaster. Apple green rugs (set on the grey Tennessee marble floor) and the tapestry panels harmonize with the soft antique color of the oak panelling.

The white oval drawing room, thirty-four feet by forty-six feet, has a shallow domed ceiling, and is rather Adams in design and detail. The rug, in which rose and black predominate, the reproduction of eighteenth century English furniture, the decorative accessories, such as gilded mirrors, paintings of beautiful women by Miss Gertrude Des Claves, and the well



ENTRANCE HALL, SEEN FROM THE VESTIBULE, HOTEL PALLISER, CALGARY, ALTA.

E. & W. S. MAXWELL, ARCHITECTS.

carried out chimney-piece, with its interesting chased steel grate and fender, all combine harmoniously to form a suitable setting for the fair sex.

The electric lighting scheme consists of table lamps and gilt wall candelabra of Adams design. The use of silk shades produces a becoming illumination that can be rendered more brilliant by using the linolite indirect system installed in the cornice.

The dining room, thirty-nine feet by one hundred and twenty-five feet, has an alcove at one end and a palm conservatory at the other. The room forms a triple composition in its length, and it is possible, during a quiet season, to reduce the size of the room by screens, without affecting the architectural appearance. The design is frankly Louis XVI. in its development and detail. The walls and ceilings are painted white, and the curtains and other decorative notes are a soft golden color. The wall brackets are gilt with polychrome decoration, and the main lighting is by semi-indirect bowls of etched glass.

The cafe is forty feet by fifty-seven feet, treated in a Mediaeval manner. The floor is of

waxed heatherbloom tiles, about six inches square, the coloring varying from soft red to leaf brown, the general effect being antique.

The constructional features, such as the vaulted ceiling at the rear, and the piers, are in Caen stone. The piers and the walls have a quarter-cut oak dado, antique in color, but not too dark. The plaster walls are sand finished, toned with oil stains. The ceiling of oak finished beams is frankly constructional in appearance; stone corbels receiving the main beams.

Leaded glass windows of heraldic character, electric fixtures of wrought iron treated with polychrome coloring, shield shape ventilator grilles, treated heraldically in color, all combine to maintain the spirit of the "Moyen-Age." The chimney piece is the main feature of the room, and has an interesting use of "Scotch scenes" or fire bricks arranged in patterns that show a reasonable use of the material. The massive carved lintel is supported by sandstone from near Winnipeg, showing a small fossil formation and a warm buff color. The coat of arms over the shelf is in stone, decorated in tempera color, and metals.



THE ROTUNDA, LOOKING TOWARDS THE STATION ENTRANCE END, HOTEL PALLISER, CALGARY, ALTA.



THE DINING ROOM, HOTEL PALLISER, CALGARY, ALTA.



SITTING ROOM, FIRST FLOOR, NEAR THE BALL ROOM, HOTEL PALLISER, CALGARY, ALTA.

The barroom, forty feet by fifty-seven feet, is also quite Mediæval in its appearance. The walls are of sanded and stained plaster, with a dado of oak; the piers of sandstone to dado height. The beamed ceiling, supported by arches, is rather unusual, but not an innovation. The treatment of the bays at the bar counter wall is frankly different from the "sitting out" portion, where tables and chairs are invitingly arranged. The large panels, over the rear bar, are destined to receive painted decorations, but now that Alberta has gone dry, it is difficult to prophesy. The floor is similar to that in the cafe.

The kitchen in the rear of the ground floor, between the cafe and dining room, contains the most modern equipment available, and, owing to its position, quick, efficient service is possible. A mezzanine story contains a staff dining room, and extends over a portion of the kitchen.

In the basement is the refrigeration plant for cooling the drinking water and making ice; the ventilating machinery that takes care of the main rooms, supplying fresh

washed and filtered air and exhausting the foul air; and a large storage tank for water (placed just outside the building to the east).

The power plant that takes care of the station, laundry building and hotel, is situated across the tracks, and is connected with the hotel by a tunnel.

The bakery is in the rear of the basement, also the stewards' department, with store room.

The station connects with the hotel by means of a large tunnel, thus permitting guests' luggage to be handled expeditiously and conveniently. The bar cellar and wine storage room are under

the bar towards the centre of the building. The barber shop, accessible from the street as well as from the main corridor, is under the barroom. It has terrazzo floors, tile walls, and bath and dressing rooms adjoining. A large men's toilet room, adjoining the staircase from the ground floor hall, contains urinals and wash basins, the water closets being in a separate adjoining room.

To the north and west are a series of sample rooms, well lighted from areas on the street



THE BALL ROOM, LOOKING TOWARDS THE ENTRANCE, HOTEL PALLISER, CALGARY, ALTA.

fronts, and in the rear under the dining room, are locker and recreation rooms, as well as lavatories provided for male and female help.

The first floor has thirty-four bedrooms, and, in addition, a suite of rooms devoted to entertaining, the main feature being the ballroom, forty-eight feet by sixty feet, directly over the entrance hall. This room is, on occasions, used for large banquets. Serving rooms with electric dumb waiters and service elevator adjoin it, and near by, are several private dining rooms.

The ballroom extends through two stories, and has a musicians' gallery over the entrance. The treatment of walls and ceiling is in tones of white paint. The walls have a pilaster treatment with a large coved ceiling over the entablature. The oval panels over the windows are destined to receive painted decorations in the Louis XVI. style to conform with the rest of the room.

Adjoining the ballroom are a series of ante rooms, sitting out rooms, and a large foyer, which is between the elevators and the ballroom. The electric fixtures in this room, and the rooms so far described, call for special mention, and were made by The E. F. Caldwell Co.

The typical floor plan of the hotel shows four Otis Fensom elevators centrally located. The bedrooms are disposed in the rear portion and the three projecting wings. An abundance of air is available for the bedrooms and bathrooms, which, in all cases, have windows opening on to street fronts or courts, which are forty-four feet wide. All staircases are enclosed



THE DRAWING ROOM, HOTEL PALLISER, CALGARY, ALTA.

by wired glass doors, and interior fire escape staircases exist in each wing, as well as in the main portion.

There are three hundred and fifteen guests' bedrooms in the hotel. This includes sitting rooms, which can be used, if desired, as bedrooms. There are two hundred and forty-nine guests' bathrooms. The rooms have table lamps and telephones on the bedside tables; two lights for the bureau; a light over the bathroom door (which has a large mirror), and wall brackets where necessary. The bathrooms have tiled walls, vitreous tile floors, recessed mirror-doored medicine cabinets, solid porcelain basins and bathtubs, and a window in each room. The pipes are in ducts accessible at each floor. Ice cold drinking water is supplied to each basin.

Electric "maid-signal" devices are installed, indicating by a lighted electric lamp over the door the room in which the maid is at work, and indicating also in the office of the hotel. In addition to the guests' telephones, there is a private interphone system for the use of the hotel staff.

On the top floor in the east wing, there are six bedrooms for the chef and other male help, and ten rooms for the housekeeper and female help, the latter being disposed in large rooms that accommodate as many as six beds.

On the roof there is a sun parlor, thirty feet by sixty-seven feet, reached by a staircase and the elevators. Adjoining is a well equipped service room, from which, refreshments of the



THE DRAWING ROOM MANTEL, HOTEL PALLISER, CALGARY, ALTA.



GENERAL VIEW OF GENTLEMEN'S CAFE, HOTEL PALLISER, CALGARY, ALTA.

lighter variety are dispensed. A portion of the roof forms a terrace, where tables and palms add to the invitingness of an unsurpassed view of the distant Rocky Mountains.

The columns and beams of the hotel are of steel, the floor construction of concrete, and the partition work of plaster blocks. The exterior for a height of two stories is of Indiana limestone, then large sized Columbus brick to match the stone for six stories, finished with a cornice of metal, which will be removed when the five stories are added, which the steel frame is designed to carry.

The pergolas on the front are entered from the ballroom, and are of wood. Flower boxes are provided, the intention being to grow vines over the roof beams, and flowers in the boxes.

The contractors were Peter Lyall & Sons Construction Company, and their work has been well executed.

Excessive Water Consumption

The excessive water consumption in Canadian cities constitutes a very serious problem. The average daily consumption in the Dominion is one hundred and eleven gallons per capita; in individual provinces it reaches as high as one hundred and forty-three gallons per capita, and in certain centres of fairly large size attains a maximum of two hundred and ninety-two gallons. There is no doubt that these figures can easily be lowered. The consumption in Great Britain is below twenty-five gallons in several cases, and the highest rate is only seventy gallons per capita.

That the more extensive use of meters would remedy conditions to a great extent is shown by two of our prairie provinces, Manitoba and Saskatchewan, where meters are more widely used than elsewhere, and where the average consumption falls to fifty gallons and fifty-five gallons, respectively—less than half the average for the remaining provinces. Nor would the introduction of meters mean an increased cost to consumers. The average estimated cost of water for Canada is ten and nine-tenths cents per thousand gallons, the only provinces materially exceeding this being the two prairie provinces, where meter rates have already been widely adopted. The rates charged on the meter basis could be adjusted to meet different local conditions, so that the amount paid by each consumer would be practically the same as at present, but all wastes would be avoided. Many Canadian municipalities have both flat and meter rates in force, the consumer having the choice between the two, but as a rule the meter rates are so ridiculously high for the average consumer that there is in reality no choice. For instance, although the estimated cost for Canada is ten and nine-tenths cents per thousand gallons, numerous cities and towns charge thirty cents and over, with several charging even over one dollar per thousand gallons. Our excessive consumption is not due to the liberal and beneficial use of water, but to the careless waste by a few consumers in each community. Meters will not effect former but will effectively check the latter.



VIEW IN THE CAFE, HOTEL PALLISER, CALGARY, ALTA.

CONSTRUCTION

A JOURNAL FOR THE ARCHITECTURAL
ENGINEERING AND CONTRACTING
INTERESTS OF CANADA



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CONTRIBUTIONS. The Editor will be glad to consider contributions dealing with matters of general interest to the readers of this Journal. When payment is desired, this fact should be stated. We are always glad to receive the loan of photographs and plans of interesting Canadian work. The originals will be carefully preserved and returned.

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FRASER S. KEITH - - - EDITOR AND MANAGER

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Definite Specifying

Commenting on the custom of many architects avoiding making a definite specification the literature of one manufacturer dealing with this subject is enlightening. He evidently feels very strongly, as the following comments show: "The man who, desiring one article, device or equipment will placidly accept something else, is not an admirable or dignified figure. Knowledge he may have and discrimination, but his lack of courage stamps him as a spineless creature unworthy of responsibility, too weak to back his judgment with insistence—a mere temporizer with conditions—devoid of confidence in himself, and, therefore, undeserving of the confidence of others." . . . "Two of the greatest things to be accomplished in the building world are the elimination of substitution and the creation of an overpowering insistence upon conformity with specifications." . . . "To every act of substitution there are two parties, the one who offers the substitution and the one who accepts it; and so long as there are those who will invite and accept substitutions, so long will there be those who will offer them. The prime responsibility for correcting this evil lies, then, with those who are primarily responsible for its existence. And in the building world these are the architects who will not write

a definite specification and then stand back of it." . . . "Why does any manufacturer put on the market a cut-price article? Granting him what you will of humanitarian motive, he certainly does not intend to lose money, or to earn any less profit per dollar of investment than his higher-priced competitor. His primary object is to divert into his own pocket profits that are going to his competitor."

The above opinion is doubtless shared by a great majority of reputable manufacturers, who are as a class advocates of a definite specification. There is no reason to believe that reputable manufacturers are given to taking advantage of a definite specification, while the loophole left where the words "or equal" are inserted often give rise to dispute, annoyance and dissatisfaction.

Generally speaking, there are distinct advantages to be gained by specifying definitely the material, equipment, or apparatus desired, and then insisting on having it unless there are good reasons why that particular article or material cannot be secured.

Educating The Public

Every architect will admit that there is much to be done in the way of educating, not only the general public, but all firms and persons interested in building operations, with a view of obtaining a greater appreciation of the work of architects, both as individuals and collectively. Too often, in fact invariably, when a building is erected the name of the architect is forgotten by those familiar with the building, or who have occasion to make use of it. The accepted reluctance on the part of architects to using any form of advertising when a building is under construction may be the underlying cause.

It is a notable fact that in newspaper descriptions of buildings, for instance, at the laying of a cornerstone, the architect's name is very often not mentioned. In such cases it is an illustration of self-effacement being carried to an extreme limit, mitigating against the profession generally. When one considers the amount of thought and training necessary for the creation of an important structure, it is hard to understand why the name of the man whose creative genius and inspiration have developed a monument of brick or stone, or concrete or other material, is not in some way indelibly connected with the structure. A brick or a stone or a small plate could be easily attached or made part of the building bearing the architect's name. Many architects would object to this suggestion, but it would help to eliminate to some extent the lack of due publicity current at present. Professional etiquette may require certain restrictions regarding publicity, but carried to an extreme it works an injury on the profession.

Every newspaper description of a building

should mention the architect, and every illustration of a new building should carry the architect's name underneath. A circular from the Royal Institute of Canadian Architects to the editor of every publication in Canada would do much in this connection.

A suggestion which was carried out by the Iowa Chapter of the American Institute of Architects was the issuing of a circular for free distribution amongst those interested in building operations. It contains a brief outline of the vital elements in connection with building activities. It explains the architect's function and status of a professional man, and the consideration which should influence the owner in the selection of an architect. In such a circular advice should be given regarding the treatment clients should accord their architects, which could be done in a way towards influencing the owners against interference or the general tendency of making too many suggestions, aptly described in the following lines by J. G. Holland:

"Can you tell me why

Men with a taste for art in finest forms
Cherish the fancy that they may become,
Of art, art's masters? You shall see a man
Who never drew a line nor struck an arc
Direct an architect, and spoil his work,
Because, forsooth! he likes a tasteful house!
He likes a muffin, but he does not go
Into his kitchen to instruct his cook;
Nay, that were insult. He admires fine clothes,
But trusts his tailor. Only in those arts
Which issue from creative potencies
Does his conceit engage him."

To improve the conditions under which the architect works, and to establish a proper appreciation of the profession by public enlightenment and the method of doing so, or the procedure to be adopted, rests largely with the architects themselves. There is much that can, and should be done, in this direction.

Assisting The Returned Soldier

An appeal issued by Mr. A. R. Doble, President of the Khaki League of Canada, on behalf of returned soldiers, strikes a note that will find a sympathetic chord in the heart of every Canadian. The men who have fought, and are fighting our battles, deserve consideration to a superlative degree at the hands of those who did not go to the front. A debt is due them that money cannot pay, but that can be met in part by a due appreciation and a proper attitude towards them for their gallantry and self-sacrifice.

When you see in the papers that any of the boys are returning to your neighborhood, reads the appeal, get together with a few of your neighbors and give them a hearty reception. Don't treat them to alcoholic refreshments.

Many of the men are not in normal state, owing to what they have been through. While, under ordinary circumstances, a drink might do them no harm, under present conditions it might be a very bad thing for them. You will not wish to do an injury to those who have endured so much for you. Find out what jobs are vacant in your community. Make it a matter of pride for employers to give the first chance to a returned soldier. Encourage the men to get back to work. Loafing is bad for them, as it is for any of us. If you are an employer, give the returned soldiers a fair show. It may take a little time for them to get their bearings. Have patience with them, and encourage them—they have suffered so much for you. Be in a position to advise the returned soldier where to go in case of need. If you see one in any difficulty, try to help him out, or go with him where he can get proper attention. Help the men who have helped you.

Competition Re-Opened

The Australian Government has announced the resumption of the International architectural competition for the purpose of selecting the architect for the Parliament House and possibly incidentally an additional architect for other Government structures of the new federal capital city, Canberra. Only tentative outline sketch designs for the buildings are requested, and eight prizes are offered, aggregating £6,000, the first being £2,000, in addition to commission for service at the scale of the Royal Institute of British Architects. The designs may be submitted in either Melbourne or London by January 31, and will be judged by the following jury of architects, whose decision will be final: Messrs. George T. Poole (of Australia), Sir John J. Burnet (of London), Victor Laloux (of Paris), Louis H. Sullivan (of Chicago), and Eliel Saarinen (of Russia). The programme will be issued to any practising architect on application to the High Commissioner for Australia, 72 Victoria street, Westminster, London, or to the Works' Departments respectively of the British Dominions, or to the British Embassies at Madrid, Paris, Rome, Petrograd, Stockholm, or Washington, from which foreign offices, as well as the High Commissioner, supplemental texts in French or Esperanto may also be obtained when prepared.

The Australian Government has been freely criticized by members of the Royal Institute of British Architects for re-opening the competition during the period of the war. It is claimed that owing to the large number of architects being deprived of entering the competition since they are serving their country, it would be only fair to delay until the conclusion of the war, when an equal opportunity would be afforded to all.

Modern Practice in The Design of Bank Vaults

The Requirements of Small Banks.

No single problem in the entire field of vault design is more difficult of satisfactory solution than that of the country bank vault. The attempted answers, as evidenced by work installed, run from no vault at all, or merely a safe and too frequently a poor one at that, to vault construction so expensive as to appear unwarranted.

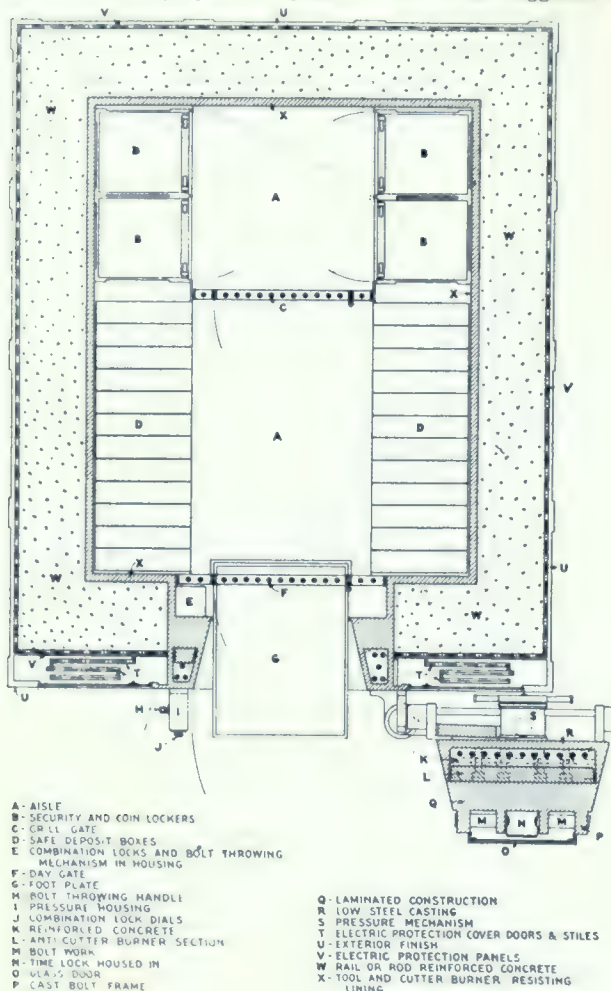
How much money a bank in the country or in a small city is justified in spending for the protection of such of its funds and securities, and the collateral of its customers, as it must keep on the premises, and how this expense should be distributed, is the question. This can only be settled after a careful consideration of many factors, including the character of the bank building, its immediate environment, the size of the town or city, character of the community, possibility of burglary or mob attack, and other similar conditions, a comprehensive digest of which will decide whether the outfit should include a vault, a safe, electric protection, watchman or burglar insurance, or all, and what should be the proportionate cost of each.

Many institutions depend almost wholly upon burglar insurance, many others upon insurance plus electric protection, the addition of which materially reduces the insurance premium. Others add a fairly good safe, although of course all have some sort of enclosed storage space usually dignified by that name, which is often a misnomer. The good safe still further cuts the insurance rate. A majority of country banks, however, have vaults varying in strength from an ordinary brick enclosure without a lining, and fitted with the cheapest kind of so-called fireproof doors, up to really good construction.

A practice unfortunately becoming too common is the use of showy bolt work, crane hinges, and pressure mechanism set upon ordinary cement filled, fireproof doors to produce the impression that such doors are really burglar proof. The public has no way of judging the strength of any safe or vault except by its outward appearance, and it is questionable advertising to dress a fireproof vault to appear as one of burglar proof construction.

Unfortunately for the peace of mind of the banker, who must limit his expenditure for safe and vault construction, the element of resistance against which he must build is identical with that which menaces the urban banker; for fire burns as hotly in the country as it does in the city, and the expert burglar will not confine his attentions to the largest banks. The same appliances and the same skill in their use may be brought to bear equally in any part of the country, and while the amount of moneys carried by the smaller and more remote institutions is not so attractive as that carried in the great vaults of the cities, yet the opportunities for attack and successful get-away are far greater, and this condition should not be lost sight of.

The accompanying outline plan and section are suggested as



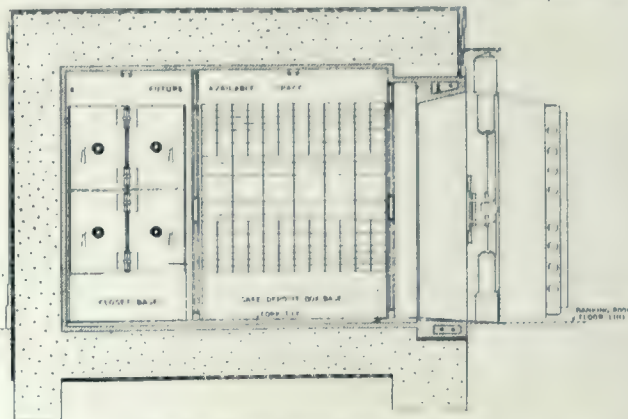
Plan of Typical Bank Vault of Effective Construction and Moderate Cost

representing a good type of fairly low cost, effective construction. The metal lining should be approximately two inches in thickness, built up of layers of various materials combining qualities resistant to shock, tearing effects of explosives and tools, cutting and drilling instruments, and to the oxy-acetylene cutter-burner. This lining should be surrounded, without air space, by a rod or rail reinforced concrete wall poured monolithically. This wall, in turn, should be covered on all six sides with the panels of an electric protection equipment, either central office or isolated alarm system, this in turn protected by an exterior finish, either of steel panels, marble, removable plaster sections, or wood, as may be determined by the architect.

The entrance should be protected by a single straight flange door approximately eighteen inches in thickness, having carefully ground joints and built up of composite construction, including a face casting carrying reinforced concrete and anti-cutter-burner section, and inner sections corresponding in principle to the general make-up of the lining, but very much heavier. These thicknesses may be reduced if the cost is prohibitive, although such a reduction is not desirable.

The vault should be set in such position as to permit free observation of all sides, top and bottom, and also to provide access to the electric protection panel work for inspection or repairs. An open foundation is the best, although, because of the difficulty of successfully attacking a vault from the bottom, the use of an enclosed foundation as a fireproof vault is not particularly objectionable.

Fireproof vaults are frequently built alongside of and abutting security vaults, which is unwise practice because of the ease with which the fireproof vault may be entered and the cover afforded for burglarious operations. Lowering platforms



Longitudinal Section through Typical Bank Vault

or tilting floor sections are not necessary if the splay of the bottom jamb is reduced to a minimum in which case an incline foot-plate may be installed even where trucks are to be rolled into the vaults, as the rise need not be more than two inches in two feet. The floor in front of the vault at the front edge of the foot-plate should be recessed to permit the plate to sink in flush. A substantial day gate is always desirable, which should be provided with a latch lock to be opened with a key from either side. The use of an inside knob for unlocking robs the gate of practically all of its security.

The accompanying drawings show an installation of safe deposit boxes in addition to the bank's lockers, and this practice cannot be too highly recommended. The revenue from even a small lot of boxes goes far toward paying the interest upon the cost of the vault. In addition to the convenience afforded the bank's customers and the advertising secured by bringing the vault work to the attention of the public, it is also a valuable factor in establishing closer relations between the bank and its customers.

The safe deposit boxes should be ample in size and the unit width should be not less than five and a half inches. This provides a double unit box of sufficient width to store securities laid crosswise, and the recently adopted outside depth of twenty-six inches—two inches greater than the older standard—is appreciated by box renters as it provides room for two lengths of securities in the tin box with a space in front for jewelry, etc.

It is a mistake to economize in connection with the safe deposit boxes by using cheap key locks. The lock has always been the weakest point in the safe deposit business, and the highest grade of interchangeable key locks should be selected mainly for their intrinsic value and partly for the advertising which they furnish.

It is customary to divide by grille work the sections of the vault which are used by the public and by the bank, and this is always to be advised. The construction of the bank lockers as shown is an improvement over the older designs in that the door opening is the full size of the interior of the locker, there being no return angle frames. This is not only a matter of convenience where loose storage is concerned, but permits the use of the entire closet where filing devices are used.

Small vaults are seldom provided with electric call buttons, but their use is recommended for obvious reasons. Floor tile of any character can be used, but cork has proven particularly satisfactory except for very large, public vaults where a more dignified material is to be preferred.

Electric protection has been mentioned, and is shown on the drawing as a part of the equipment. In explanation it may be stated positively that no vault can be built to-day, at a cost not prohibitive to the country bank, which will withstand an up-to-date burglarious attack of a day's duration. Consequently, some dependence must be placed upon other factors, and electric protection is one.

There are several different systems in operation, not all of equal value, and expert and unbiased opinion should be had

before making a selection. These statements must not be taken as a corroboration of the position so frequently advocated by salesmen of electric protection outfits, that a protective installation in connection with fireproof walls is all that is really necessary. All arguments in support of such a stand are fallacious, although often accepted by banks, as is evidenced by the existing great number of protected fireproof vaults used for bank and safe deposit purposes. In the last analysis, electric protection means simply a watchman, and full reliance must not be placed upon it. All banks should have some form of mechanical and structural protection. Electric protection is by no means infallible, although it is generally so represented. It has weak points like other human productions. Even if it were perfect, there is naturally nothing about it which provides a physical stop to a burglar or mob, and it would be quite practicable in many cases to ignore this protection, enter the vault, and make a get-away before the watchmen or public summoned by the alarm could interfere, to say nothing of the often proved possibility of standing off such interference with firearms and so extending the time for operating.

Electric protection performs one service, however, that makes it a necessary adjunct even to the very strongest vaults. It effectually protects against the unauthorized entering of the vault, out of business hours, by the officers or employees of the bank who may know the combinations of the locks and be in a position to trick the time locks or to see that they are not wound or are underwound at closing time, and, indeed, that is the only reason why it is in use on many of the heaviest vaults in the country—vaults that are more than burglar proof, that were built to resist organized mobs with all the machinery that they could command.

Lighting the vault would seem a simple matter, and one that would ordinarily call for no special thought, but, as with most similar subjects, there are right and wrong ways. The location of the lighting fixtures should be studied with reference to the interior equipment, especially if filing devices are to be used. They should usually be of low design, to lie close to the ceiling and permit the locker doors to be as high as possible and clear the fixtures in their swing; also to allow safe deposit boxes to run as near to the ceiling as practicable. Vault space is valuable, even that near the top which should be made conveniently available. It goes without saying that the light should be plentiful, soft, and evenly distributed. Where more than one circuit is used, fixtures should be so wired that the blowing of a fuse would not put out all of the lights in any fixture. If the vault is large or more than one story in height, and this statement refers to large fireproof as well as to security vaults, continuous burning night-lights are necessary to permit any one accidentally locked in to find the telephone and to assist those outside in effecting his release. It is sometimes desirable to install a low tension system of lighting, which would automatically be thrown on if the high tension system should be put out of commission, so that the vault would at no time be dark. The common method of carrying the current into the vault by means of a flexible cord with plug connection is not to be recommended; it is inconvenient, the door is often closed upon the cord and a fuse is blown, a delay is generally experienced in getting new cords, and it is a positive source of danger in connection with a large safe deposit vault where unauthorized interference would put the vault in darkness.

Properly installed and permanently located, lead covered wires may be built through the vault construction from the bottom upward without affecting its security. A switch may be located at a convenient point on the front of the vestibule; if the vault is large, this should be a momentary contact button with a pilot light, the button actuating an automatic switch.

Too frequently an architect is so limited by the bank's appropriation for the building that work even approximating the character above indicated is out of the question and he is constrained to build a fireproof vault and allow the bank to buy a so-called burglar-proof safe and place it inside the vault. This is quite common practice, but it cannot be too strongly condemned. No safe that would be purchased under such conditions is sufficiently strong to withstand burglarious attack for any considerable length of time, and to enclose it in a fireproof vault is simply to furnish protection to the burglar while he operates, not only giving him a concealed space, but also providing an effectual noise-proof chamber, which will eliminate, or at least deaden, the sound of explosions.

It is preferable to use a burglar-resisting safe, enclosed in a heavy, fireproof covering, and located in such a position as to be seen conveniently from the street. This safe should be set up from the floor so that the watchmen, police, and public could see under it, and mirrors should be provided and so arranged that the sides, back, and top can also be readily observed. This in conjunction with proper lighting effects and an electric protection cabinet is inexpensive and effective.

Some banks in carrying out this scheme have gone so far as to place their safe in the front window close to the sidewalk, and as even the ordinary safe requires an appreciable amount of time for a successful attack, the chances for detection are so great as to act as a deterrent, if not an actual guarantee, against any attempt.

Architects should caution their clients, however, against purchasing the ordinary commercial safe if it is to be used for protecting any large amount of money or securities, and should recommend one specially built upon plans drawn by a competent and unprejudiced designer in the interest of the bank.

A word regarding fireproof vaults. These are too frequently built of walls so thin that they will not withstand shock of falling bodies, although they may be fully fireproof aside from this factor. Walls of hard burned brick set in rich cement mortar are satisfactory provided, of course, that the roof supporting beams are fully protected. Concrete, either with or without reinforcement, except that the top should always be strengthened, are more common and are to be depended upon.

A wide choice is to be had from manufacturers' designs in the selection of doors. Where the fire risk is slight, outside single and inside folding doors of thin construction may serve; but if there is a possibility of any considerable fire, they should not be depended upon. A cement filled door, six or eight inches in thickness, should be used. Such doors have the advantage of requiring no inside doors and so conserve both space and convenience. Furthermore, if the vault is located in the basement and there is a water risk, door frames may be grouted solidly to the vault walls and the door joints packed with compressible waterproof packing, against which the door can be forced with a pressure handle; this will provide a waterproof vault, a quality which is lacking in the great majority of fireproof vaults.

The largest and strongest vaults in the United States and Canada have been built from engineers' designs, while comparatively few of the smaller vaults have received such specialized attention, though every argument favoring the employment of an engineer upon heavy work is equally potent where lighter construction is considered. Indeed, where the expense is to be kept to a minimum such service is even more necessary, as every dollar should be made to yield its utmost in the way of security, and this can only be accomplished when a full and complete knowledge of the subject forms the working basis.

In view of the splendid showing of good design and strict economy that has been made under such conditions within the last few years, the architect who insists upon specialized advice and acquaints himself with the merit of real vault construction, and as far as practicable with its details, makes no mistake. —Frederick S. Holmes, in "The Brickbuilder."

CONTRACTORS START WORK ON NICKEL PLANT.

Work has now commenced on the new nickel plant for the International Nickel Company. The Foundation Company, Ltd., of Montreal, have the general contract, and will probably supervise all the work for the various trades. It is estimated that approximately \$5,000,000 will be spent on the erection of this plant. It was not until the latter part of August that the public was aware of the location of this new industry. The contractors are now advertising extensively for laborers, and it is expected that a good start will be made before winter sets in.

BUILDING RECORD BEATS ALL YEARS.

According to the figures handed out by City Engineer Brian, of Windsor, more building was done in the past ten months than any one year in the history of Windsor. The figures for the month of October are: Seventy-one permits, totalling \$162,300, as compared with 19 permits, totalling \$41,080 for October last year, or an increase of 295 per cent. over last year. The best year in the history of Windsor was in 1913, when permits totalled \$1,149,000, but the total for the past ten months is \$1,250,880, and beats these figures by \$101,880. The total for the first ten months of last year was \$436,315, an increase for this year of \$814,566. The largest permit issued so far this year was for the Windsor Collegiate Institute, \$168,000.

NEW HOTEL WILL BE BUILT.

Recent reports confirm the information given in these columns two months ago concerning the new \$2,000,000 hotel to be erected on the site of the Yonge Street Arcade, Toronto. This hotel will form a link in the chain of hotels extending over the United States from coast to coast, and controlled and operated by the United Hotels Co. Frank A. Dudley, Niagara Falls, N.Y., is the president. We understand that Geo. B. Post & Sons, architects, of New York City, have been retained to prepare plans for this new hotel, which will have six hundred guest rooms with baths. The new hotel, both as regards design and equipment, will be thoroughly modern and planned from experience derived in the erection of America's leading hotels. The site is owned by the Dowercourt Land, Building and Savings Co., Ltd., of Toronto, of which Col. W. S. Dinnick is the president.

NEW GARAGES FOR WINNIPEG.

Winnipeg is fast becoming an automobile centre. Last month work was started on two new garages, one on Portage avenue for the Breen Motor Company, opposite the Boyd Building, which is expected to cost about \$35,000, and the other for the Willys-Overland Company, at the southwest corner of Portage avenue and Maryland, which is expected to cost about \$75,000. Both will be modern fireproof structures. The Willys-Overland garage will be reinforced concrete and brick. The Sutherland Construction Company, a local firm, will do the work, and it will be completed in about two months' time. The garage for the Breen Motor Company was designed by Arthur E. Cubbridge. The front will be built of Mississquoi light grey marble, with verde antique marble base and trimmings. The interior will be finished with mahogany trim, maple floors and sand-finished walls in a light grey color. These handsome structures will be an addition to Portage avenue.

BIG BOOM IN OTTAWA.

Despite the high cost of material and labor, building operations will be commenced in many directions this fall in Ottawa at an expenditure of about \$500,000. A four-storey brick building, suitable for manufacturing purposes, will be built on the site of the old Ferguson property, Albert street, where once the Grand Opera House stood. An apartment house will be erected at the corner of Laurier and Bank, to cost \$30,000.

The International Motor Company will enlarge their building at a cost of \$20,000. The Holland Chambers will be changed into an apartment house by the mortgagee at a cost of \$20,000. It is rumored that Hugh Carson intends to build a large factory with an outlay in the neighborhood of \$60,000. The C. H. Cochrane Company, spice manufacturers, have purchased a site on Breeze Hill avenue, and will erect a building to cost about \$20,000. The owners of property at 334 Laurier avenue, which was recently damaged by fire, will change the building into apartments at a cost of about \$15,000. Donald Fraser will erect an apartment house at 165 and 167 Laurier avenue, which is expected to cost about \$20,000. The Rolla L. Crain Co. will erect a large factory, costing about \$25,000 or more. The Bayswater Knights of Columbus will build on Spadina avenue. This building will be up-to-date in every particular, and is expected to cost about \$40,000. McKenzie Bros., undertakers, are building an addition to their parlors at a cost of about \$15,000. The Beach Motor Company has selected a site and will erect a garage to cost about \$30,000.

The Haynes Motor Company, of Albert street, will also erect a building devoted to the assembling of cars. The total cost will be around \$40,000.

A new public school is now in course of erection in Overbrook, at the corner of King Edward avenue and Quill street. It will be finished by January 1st, and will cost \$8,000.

CONSTRUCTION NEWS

Information of Special Interest to Architects, Contractors, and Manufacturers.
Construction Building Reports will Give You Up-to-date Information Every
Day on all New Buildings About to be Erected or in Course of Erection.

BUSINESS BUILDINGS.

CHATHAM, ONT.—The Dominion Sugar Co., Ltd., will erect an office building in connection with their \$1,000,000 plant.

CREIGHTON, ONT.—The Canadian Copper Co., Copper Cliff, Ont., are erecting an office building, to cost \$75,000.

DUNDAS, ONT.—E. G. M. Cape & Co., Ltd., 10 Cathcart street, Montreal, have been awarded the contract for the erection of an office building and factory, to cost \$39,000.

HAGERSVILLE, ONT.—Architect Gordon Hutton, Bank of Hamilton Building, has prepared plans for a bank for the Bank of Hamilton, to cost \$10,000.

HAMILTON, ONT.—Architects Prack and Perrine, Lumsden Building, Toronto, are preparing plans for an office building for the Canadian Westinghouse Co., Ltd., to cost \$150,000.

NIAGARA FALLS, ONT.—Work has started on a bank building for the Royal Bank of Canada, to cost \$40,000; C. M. Borter, Main street, is the architect.

OTTAWA, ONT.—MacKenzie Bros., 511 Bank street, have started work on an office building, to cost \$15,000.

OTTAWA, ONT.—W. G. Adamson, 126 Sparks street, is erecting a business block at the corner of Bank and Laurier streets, to cost \$65,000.

PORT ARTHUR, ONT.—Edwin G. Penniman, Graham and Horne block, has been awarded the contract for the erection of a business block, to cost \$80,000.

TORONTO, ONT.—Architect J. M. Lyle, 19 Avondale road, has prepared plans for an office building, to cost \$7,000; Jackson-Lewis, Bell Telephone Building, have been awarded the contract.

TORONTO, ONT.—Work has been started on an office building for the Brown Brass and Copper Rolling Mills at New Toronto, which is to cost \$40,000; Henry Simpson, 79 Spadina avenue, is the architect.

VANCOUVER, B.C.—The Royal Bank of Canada have received a permit for alterations to the old Boulder Hotel on Cordova street, which is to be made into a branch bank, the cost will be \$10,000. The Bell Telephone Co. will erect an exchange on Clarke street.

WALKERVILLE, ONT.—The Bell Telephone Co., Montreal, has prepared plans for a telephone exchange, to cost \$20,000.

WINDSOR, ONT.—Architects Walker and McPhail, Tuson Building, have prepared plans for a power and office building, to cost \$100,000. The Bell Telephone Co., Montreal, are erecting a telephone exchange on Goyeau street, to cost \$18,000; W. Carmichael is the architect.

CIVIL ENGINEERING.

MONTREAL, QUE.—T. O. Sullivan has been awarded the contract for the erection of a bridge over the aqueduct canal at Lasalle road.

OTTAWA, ONT.—R. C. Desrochers, secretary of public works, has received tenders for the erection of a steel bridge (two spans) over sluice ways in St. Charles River, at Quebec, P.Q.

SAULT STE. MARIE, ONT.—The new Ontario Dock Bridge at Sault Ste. Marie, was blown down, value \$50,000.

SWAN RIVER, MAN.—Joseph Armstrong, secretary-treasurer of the rural municipality of Swan River, has received tenders for the erection and completion of a steel bridge with concrete abutments, over the Rolling River.

WOODSTOCK, ONT.—Wm. Forbes, county superintendent, has received tenders for the erection of a steel bridge on the 16th line, one and a half miles north of Bond's Corners.

CLUBS, HOSPITALS, THEATRES AND HOTELS.

BYRON, ONT.—Architects Watt and Blackwell, Bank of Toronto Chambers, London, have prepared plans for an addition to the London Health Association's sanatorium at Byron, Ontario.

DELHI, Ont.—The Grand Trunk Railway, Montreal, has started work on a station building to cost \$6,000.

GUELPH, ONT.—Architects Colvill Booth & Co., Union Bank Building, have prepared plans for theatre alterations to cost \$10,000.

HAMILTON, ONT.—The city of Hamilton is buying \$50,000 worth of hospital equipment.

HAMILTON, ONT.—Engineer E. R. Gray, City Hall, has prepared plans for an addition to the waterworks, to cost \$400,000; also for the erection of a pump house, to cost \$125,000.

INGERSOLL, ONT.—R. G. Wilson & Son, 193 College street, London, have been awarded the contract for the erection of an hospital addition to cost \$10,000; W. G. Murray, Dominion Savings Building, London, is the architect.

KINGSTON, ONT.—Work has started on alterations to the Mowat Memorial Hospital, which will cost \$10,000.

KITCHENER, ONT.—Work will commence in the spring on the erection of a new hospital on Queen's crescent to cost \$60,000.

LONDON, ONT.—The London Health Association will prepare plans for an hospital to cost \$50,000.

OAKVILLE, ONT.—Architect Wm. Connery, 72 Queen street west, announces that tenders are being taken at Oakville for the erection of a fire hall to cost \$10,000.

PALMERSTON, ONT.—The Dominion Government, Ottawa, has received tenders for post office fittings.

PORT COLBORNE, ONT.—The Grand Trunk Railway Co., Montreal, will erect a station building to cost \$15,000.

SAULT STE. MARIE, ONT.—L. R. Allcock, 169 Spring street, has been awarded the contract for the erection of a picture theatre to cost \$20,000; T. R. Wilks, 612 Queen street east, is the architect.

STRATFORD, ONT.—The city of Stratford contemplate the erection of an hospital to cost \$30,000.

TORONTO, ONT.—Baines & Peckover, 68 Esplanade street east, have been awarded the contract for the erection of a hydro sub-station to cost \$75,000.

TORONTO, ONT.—The following sub-contracts have been awarded on the Union Station: Steel, Canadian Bridge Co., Ltd., Walkerville; iron bases, Canada Iron Foundries, St. Thomas; cut stone, Geo. Oakley & Son, Ltd., Toronto; mason and terra cotta, James A. Wickett, Ltd., Toronto; Gustavina work, R. Gustavino Co., Boston, Mass.; drainage system, Bennett & Wright Co., Ltd., Toronto; concrete fireproofing, Crescent Concrete Paving Co., Toronto; hollow tile fireproofing, Dominion Fireproofing Co., Toronto; integral waterproofing, water-proofed with "Toxement" furnished by Dartnell, Ltd., Montreal; membrane waterproofing, Carmichael Waterproofing Co., Toronto. The Toronto Terminal Architects, 1 Belmont street, Montreal, Ross & MacDonald, Hugh G. Jones, John M. Lyle (associate), are the architects.

UNION-ON-LAKE, ONT.—Henry Foster, John street, Leamington, has been awarded the contract for the erection of an hospital for the Canadian Tubercular Society to cost \$31,000; J. C. Pennington, La Belle Building, Windsor, is the architect.

VANCOUVER, B.C.—The Canadian Pacific Railway has prepared plans for a new clubhouse for the Shaughnessy Heights Golf House to cost \$20,000.

WINDSOR, ONT.—Work has started on a club house on Gogean street to cost \$10,000; G. Jacques & Co., Windsor, are the architects.

FIRE LOSSES.

AYLMER, ONT.—The business buildings on Talbot street were destroyed by fire; loss \$50,000.

CAMP BORDEN, ONT.—The mess room, reading room, kitchen, sleeping apartments and officers' bunk houses were destroyed by fire; loss \$15,000.

KINGSTON, ONT.—George Boyd's garage was destroyed by fire; loss \$10,000.

LINDSAY, ONT.—The Telephone Exchange of the Canadian Machine Telephone Co. was destroyed by fire; loss \$26,000. The warehouse of Flavell's, Ltd., was destroyed by fire; loss \$60,000.

LONDON, ONT.—W. A. Jenkins Mfg. Co.'s stock food plant was destroyed by fire; loss \$30,000.

PORT STANLEY, ONT.—The warehouse of the Port Stanley Fish Company was destroyed by fire; loss \$6,000.

SIDNEY TWP., ONT.—Frankford's cheese factory was destroyed by fire; loss \$8,000.

ST. JOHN, N.B.—St. Stephen's lumber mill was destroyed by fire; loss \$100,000.

TOFIELD, ALTA.—The Toffield public and high school was destroyed by fire; loss \$9,000.

TORONTO, ONT.—The factory of the McAlpine Tobacco Co., 2 McAlpine avenue, was destroyed by fire; loss \$5,500.

VANCOUVER, B.C.—J. M. Dale's store was destroyed by fire; loss \$40,000.

VANCOUVER, B.C.—The business section of Port Hammond was destroyed by fire; loss \$75,000.

VICTORIA, B.C.—The mill of the Victoria Shingle Co., David street, was destroyed by fire; loss \$9,000.

WATERFORD, ONT.—The building of Col. I. E. York was destroyed by fire; loss \$20,000.

WELLAND, ONT.—The machine shop, blacksmith shop and storehouse on Section 2 of the Welland Canal was destroyed by fire; loss \$40,000.

MISCELLANEOUS.

BELLEVILLE, ONT.—Thomas Manley, Belleville, has been awarded the contract for the erection of a garage addition for The McLaughlin Carriage Co., Ltd., on Coleman street, to cost \$6,000.

CAMBORO, ONT.—Judge Wolfe, New York City, will erect a compressor building to cost \$40,000; E. F. Diener, Dunnville, Ont., is looking after the plans.

CONISTON, ONT.—The Canadian Asbestos Co., 44 Youville square, Montreal, have been awarded the contract for a new roof on the smelter of the Mond Nickel Co., Ltd., the cost will be \$20,000.

CREIGHTON, ONT.—Work has started on a shaft house for the Canadian Copper Co., Copper Cliff, to cost \$200,000.

DEAN LAKE, ONT.—The Sudbury Copper Co., Sudbury, Ontario, have prepared plans for an oil flotation mill, to cost \$25,000.

ERINDALE, ONT.—S. Price & Sons, 255 Queen street east, contemplate the erection of a dairy building, to cost \$5,000.

GOLDEN LAKE, ONT.—Work has started on the erection of a dam and dredge in the lake for the town of Renfrew; J. K. Rochester, mayor.

HARROW, ONT.—G. Howie, Harrow, Ont., has prepared plans for a stock barn to cost \$5,000.

HAMILTON, ONT.—Architects Lindsay & Wardell, Federal Life Building, have prepared plans for steps and promenade in the Holy Sepulchre Cemetery, to cost \$14,000.

HAMILTON, ONT.—Architect E. B. Patterson, 143 Wentworth street north, is preparing plans for a garage for Thomas Ramsay, 15 Market square, to cost \$15,000.

HAMILTON, ONT.—W. R. Rollo, 13 Spring street, secretary of the Trades and Labor Council, announces that land has been purchased for a labor temple on Catharine street north, to cost \$75,000.

HAMILTON, ONT.—E. R. Gray, City Engineer, has prepared plans for a military barracks on King street east, to cost \$45,000; Kent, Garvin Co., 10 Catharine street, have been awarded the hardware contract; Patterson, Tilley Co., Brennen & Sons, Consumers Lumber Co., Cole Lumber Co., Barton Lumber Co., Alliance Lumber Co., and D. Atchinson Co., have been awarded the lumber contract. Architect E. R. Gray, City Engineer, has prepared plans for a pump house to cost \$125,000. Albert A. Lees, 47½ Main street east, has prepared plans for a garage to cost \$10,000.

KIRKLAND LAKE, ONT.—The Lake Shore Mines, Ltd., Kirkland Lake, have prepared plans for mining buildings to cost \$150,000.

LONDON, ONT.—Hyatt Brothers, 288 Egerton street, have started work on The McLaughlin Co.'s garage and automobile show-rooms, which will cost \$10,000.

NEW TORONTO, ONT.—The Brown Brass Rolling Mills are erecting a garage to cost \$10,000; Henry Simpson, 79 Spadina avenue, is the architect.

NIAGARA FALLS SOUTH, ONT.—B. A. Cook, Ferry street, Niagara Falls South, has been awarded the contract for the erection of a laundry at 633 Ferry street, to cost \$18,000.

OTTAWA, ONT.—The Beach Motor Co., 186 Albert street, Ottawa, contemplate the erection of a garage to cost \$30,000. The Haynes Motor Co., Albert street, have prepared plans for an automobile factory to cost \$50,000.

PARIS, ONT.—P. H. Secord & Sons, 133 Nelson street, Brantford, are erecting a dining room for Penmans, Ltd., to cost \$6,000.

PORT COLBORNE, ONT.—The Dominion Bridge Co., Ltd., have been awarded the steel contract on the international Nickel Co.'s plant, which will cost \$3,000,000.

FORT WILLIAM, ONT.—M. Sellers & Son, Fort William, will erect a grain elevator to cost \$130,000.

SARNIA, ONT.—The Imperial Oil Co., Church and Court streets, Toronto, will erect an oil refinery to cost \$200,000.

SUDBURY, ONT.—Work has started on James Burns' garage on Elgin street to cost \$12,000.

TORONTO, ONT.—T. A. Rowan, 59 Victoria street, is excavating for a garage on Yonge street, near Bloor, to cost \$8,000.

TORONTO, ONT.—Architect G. W. Gouinlock, Temple Building, has prepared plans for an addition to the betting sheds of the Ontario Jockey Club to cost \$12,000. The Imperial Munitions Board, Lumsden Building, has prepared plans for a storage building to cost \$6,000.

TORONTO, ONT.—Wm. Thompson, 62 Woodlawn avenue, has started work on his garage on Pears avenue to cost \$13,000. A. W. & J. H. Shuter, 115 Davenport road, are erecting a garage to cost \$6,000. Wells Brothers of Canada, Ltd., 96 Gould street, have been awarded the contract for the erection of wagon sheds and stables for the Robert Simpson Co., Ltd., to cost \$75,000. Architect S. H. Penlington, 47 King street west, has prepared plans for a laundry boiler room and chimney for the Taber Laundry Co., to cost \$6,000. Witchall & Son, 156 St. Helens avenue, have been awarded the mason contract for the art museum on the north-east corner of Grange and Beverly streets; Darling & Pearson, 2 Leader lane, are the architects. The Corrugated Bar Co., Buffalo, N.Y., have been awarded the reinforced steel contract, and Reid & Brown, 63 Esplanade street, have been awarded the structural steel contract for the Wm. Davies plant at the corner of Front and Cypress streets.

VANCOUVER, B.C.—MacDonald, Nettleton & Bruce, Vancouver, has been awarded the contract for the erection of freight sheds and office for the Canadian Northern Railway Co.; Messrs. Pratt & Ross, Vancouver, are the architects.

WELLAND, ONT.—Ryan & Gardner, Welland, have been awarded the contract for the erection of a garage and automobile waterrooms to cost \$10,000.

WINDSOR, ONT.—T. C. Ray, secretary of the Board of Trade, is preparing plans for a power building on McDougall avenue.

WINNIPEG, MAN.—R. D. Waugh, Chairman of Commissioners, 901 Boyd Building, has received tenders for the erection of a frame engine shed.

WINNIPEG, MAN.—Work has commenced on Breen Motor Company's garage on Portage avenue to cost \$35,000. Work has commenced on Willys-Overland garage on Portage avenue to cost \$60,000.

PLANTS, FACTORIES AND WAREHOUSES.

ACTON, ONT.—Architect J. M. Jeffery, 708 C.P.R. Building, Toronto, has prepared plans for a factory, to cost \$15,000.

AMHERSTBURG, ONT.—The Salval Process Co., Syracuse, N.Y., contemplate the erection of a factory, to cost \$60,000.

BRANTFORD, ONT.—A. J. Cromar, 448 Colborne street, has been awarded the contract for the erection of a factory, to cost \$20,000.

BRANTFORD, ONT.—P. H. Secord & Sons, 133 Nelson street, have been awarded the contract for the erection of a warehouse addition, to cost \$15,000.

DUNDAS, ONT.—E. G. M. Cape & Co., Ltd., 10 Cathcart street, Montreal, have been awarded the contract for the erection of a factory and office building, to cost \$80,000.

FORD CITY, ONT.—Wells & Gray, Bank of Commerce Building, Windsor, are erecting a factory, to cost \$100,000.

GALT, ONT.—P. H. Secord & Sons, Brantford, have been awarded the contract for the erection of a factory, to cost \$15,000.

GALT, ONT.—Architect J. Evans, 30 North Water street, Galt, has prepared plans for a factory for the Galt Brass Co., to cost \$50,000.

GALT, ONT.—P. H. Secord & Sons, 133 Nelson street, Brantford, have been awarded the contract for the erection of a fac-

tory on Water street north, to cost \$15,000. The Dodge Metal Hose Co. of Canada, Ltd., have prepared plans for a factory on Beverley street, to cost \$50,000.

HAMILTON, ONT.—Geo. E. Mills, 614 King street east, has been awarded the contract for the erection of a factory for the Chapman-Holton Co., May street, to cost \$15,000.

HAMILTON, ONT.—Architects McPhie & Kelly, Bank of Hamilton Building, have prepared plans for a factory and warehouse on Glendale avenue, to cost \$15,000; Geo. E. Mills, King street east, has been awarded the contract.

HAMILTON, ONT.—Architects Prack & Perrine, Lumsden Building, Toronto, have revised plans for the Dominion Steel Castings factory on Depew street, to cost \$75,000. The Acme Stamping and Tool Works, Sydney street, have called for tenders for the erection of a factory addition, to cost \$15,000.

HAMILTON, ONT.—Architects Prack & Perrine, Lumsden Building, Toronto, have prepared plans for a factory on Depew street, to cost \$75,000. H. G. Christman, Bank of Hamilton Building, has been awarded the contract for the erection of a storeroom on King William street, to cost \$5,000. Geo. E. Mills, 641 King street east, has been awarded the contract for the erection of a factory on Glendale avenue, to cost \$15,000; McPhie & Darling, Bank of Hamilton Building, are the architects. Architects Stewart & Witton, 7 Hughson street south, have prepared plans for a factory addition on Elgin street, to cost \$10,000. Architects Prack & Perrine, Lumsden Building, Toronto, have prepared plans for a factory, to cost \$200,000.

BELLEVILLE, ONT.—A. E. Allen, Bank of Commerce Chambers, has been awarded the contract for the erection of a factory to cost \$15,000; J. W. Evans, 237 Bleecker street, is the architect.

HIGH FALLS, ONT.—Work has started on the Canadian Cooper Co.'s power house, to cost \$100,000.

KITCHENER, ONT.—The Canadian Buffalo Forge Co., Ltd., have prepared plans for a factory in Woodside Park, to cost \$100,000.

LONDON, ONT.—W. A. Jenkins, King and Ridout streets, will make repairs to their factory at a cost of \$15,000.

LONDON, ONT.—The McClary Mfg. Co. are erecting a galvanizing plant, to cost \$40,000; J. M. Moore, 415 Richmond street, is the architect; J. Moran & Sons, 927 Maitland street, has the contract.

LONDON, ONT.—Architect W. G. Murray, Dominion Savings Building, has prepared plans for a factory addition, to cost \$6,000. J. Moran, 927 Maitland street, has been awarded the contract for the erection of a factory addition on King street, to cost \$40,000; J. M. Moore, 415 Richmond street, is the architect. John Hayman & Son, 432 Wellington street, have been awarded the contract for erection of a factory addition, to cost \$12,000.

NIAGARA FALLS, ONT.—The Nesbitt Billing Co. are preparing plans for a pickle factory, to cost \$15,000. The Perfection Tire and Motor Co., Madison, Iowa, will erect a factory in Poplar Park, to cost \$65,000.

OTTAWA, ONT.—J. F. Lozano & Co., international brokers, San Antonio, Texas, contemplate the erection of a factory, to cost \$100,000.

PEMBROKE, ONT.—W. Markus Co., Ltd., Pembroke, have been awarded the contract for the erection of woollen mills for the Pembroke Woollen Mills Co., Ltd.

PORT ARTHUR, ONT.—A. G. McIntyre, World Building, New York City, is preparing plans for a pulp mill, to cost \$1,000,000.

PORT COLBORNE, ONT.—The Foundation Co., Ltd., 224 St. James street, Montreal, have commenced work on a nickel plant on the lake front, to cost \$3,000,000.

ST. THOMAS, ONT.—The Canadian Woodenware Co. are preparing plans for a modern up-to-date factory.

ST. THOMAS, ONT.—Bingham & Co., Aylmer, have prepared plans for a store, warehouse and shipping depot, to cost \$10,000.

TEESWATER, ONT.—The Orangeville Lime and Cement Co. will erect a factory, to cost \$75,000.

TORONTO, ONT.—Architects Bond & Smith, 15 Wilton avenue, have prepared plans for a factory addition for Booth-Coulter Co., to cost \$5,000.

TORONTO, ONT.—John V. Gray Construction Co., Confederation Life Building, have been awarded the contract for the erection of a factory addition for the Canadian Fairbanks-Morse Co., on Bloor street, to cost \$10,000. The Toronto Laundry Machine Co., corner Dundas street and Sorauren avenue, have prepared plans for an additional storey to their factory, to cost \$6,000. Architect Ellis & Ellis, Manning Chambers, have prepared plans for a factory for Mathews Bros., to cost \$30,000.

TORONTO, ONT.—Architects Prack & Perrine, Lumsden Building, have prepared plans for an addition to the Russell Motor Car Company's munition plant; Deakin Construction Co. Ltd., have been awarded the contract. Architects Prack & Perrine, Lumsden Building, have prepared plans for a warehouse on Carlaw avenue, to cost \$365,000; H. G. Christman & Co. have been awarded the contract. R. G. Kirby, 537 Yonge street, has been awarded the contract for the erection of a bread factory on Dovercourt road, to cost \$20,000. Architect Wm. G. Burns, 74 Indian Grove, has prepared plans for a brick bakery, to cost \$7,000.

TORONTO, ONT.—Architect F. R. Berry, 1107 College street, has prepared plans for an addition to a factory on Atlantic avenue, to cost \$10,000. P. W. Ellis Co., Wellington street east, have prepared plans for a factory addition on Prescott street, to cost \$8,000. C. A. Scott, 575 Logan avenue, is erecting an addition to J. S. A. Whealey's factory, to cost \$12,000. The Dominion Government, Ottawa, will erect an aviation plant in Toronto, to cost \$1,000,000. Work has started on an addition to the Wm. Neilson Co.'s factory on Gladstone avenue, to cost \$7,000; Sproatt & Rolph, 36 North street, are the architects. J. D. Young & Son, 835 College street, have been awarded the carpentering contract; Gordon Bros., 1 Delisle street, the masonry contract.

VANCOUVER, B.C.—The New England Fish Co. will erect a storage warehouse on Gore avenue, to cost \$17,000.

WAHNAPEETCI, ONT.—Pearson Engineering Corporation, New York, have been awarded the contract for the erection of the Hydro-Electric power plant and dam, to cost \$1,250,000.

WALKERVILLE, ONT.—The Canadian Bridge Co., Ltd., have been awarded the contract for the erection of a factory, to cost \$15,000.

WESTON, ONT.—L. E. Dowling, 167 Yonge street, has been awarded the contract for the erection of a factory at Weston for the American La France Fire Engine Co., to cost \$6,000.

PUBLIC BUILDINGS AND STATIONS.

HALIFAX, N.S.—H. W. Johnston, acting city engineer, has received tenders for the construction of a public convenience station.

OTTAWA, ONT.—R. C. Desrochers, secretary of public works, will receive tenders up to November 13, 1916, for the construction of a shed and covered passage at Postal Station "A," Montreal, Quebec.

VICTORIA, B.C.—The city of Victoria will erect a municipal building on Garbally road.

SCHOOLS, COLLEGES AND CHURCHES.

FREDERICTON, N.B.—An addition will be made to the Charlotte Street School.

HAILEYBURY, ONT.—The Canadian Bridge Co., Walkerville, Ont., were awarded the steel contract for the School of Mines. Ritchie Cut Stone Co., 191 Grant avenue, Hamilton, were awarded the cut stone contract. The Trussed Concrete Steel Co., Walkerville, Ont., were awarded the reinforcing and steel sash.

HAMILTON, ONT.—The Separate School Board will erect a school at the corner of Pearl and Nelson streets, to cost \$60,000. The Ruthenian Church contemplate the erection of a church, to cost \$30,000.

HAMILTON, ONT.—The Roumanian Orthodox Church contemplate the erection of a new edifice on Barton street west, to cost \$30,000. The Separate School Board contemplate the erection of a school on Viewpoint avenue, to cost \$30,000; Lindsay Wardell, Federal Life Building, is the architect. R. H. Foster, Building Superintendent, Board of Education, City Hall, is preparing plans for a school in the northwest section, to cost \$100,000. Architect F. W. Warren, Bank of Hamilton Building, has prepared plans for a church on Mount Hamilton, to cost \$9,000. Architect Gordon Hutton, Bank of Hamilton Building, has prepared plans for a school addition, to cost \$40,000. Architects Stewart & Witton, King and Hughson streets, have prepared plans for a school, to cost \$40,000; work will commence in the spring.

BEETON, ONT.—Architect John Wilson, Collingwood, has prepared plans for a school, to cost \$15,000.

LENNOXVILLE, QUE.—Work has started on the new million dollar school at Lennoxville, Que.

MCGREGOR, ONT.—G. Jacques & Co., 5 Sandwich street west, Windsor, have prepared plans for a school, to cost \$10,000.

MCGREGOR, ONT.—Architects G. Jacques & Co., 5 Sandwich street west, have called for tenders for the erection of a school, to cost \$40,000.

MONTREAL, QUE.—Durocher & Archambault have been awarded the contract for the erection of an addition to the St. Eusebe School.

OWEN SOUND, ONT.—The Jewish congregation, McLaughlin Building, Third avenue east, will erect a new synagogue, to cost \$5,000.

PETERBORO, ONT.—Architect W. Blackwell has prepared plans for a new Methodist church.

PORT CREDIT, ONT.—A. T. Darragh, 161 Close avenue, Toronto, has commenced work on a school, to cost \$20,000; D. C. Cotton, 54 Adelaide street east, Toronto, is the architect.

SIMCOE, ONT.—R. Gunton has been awarded the contract for the erection of a school, to cost \$20,000; Chapman & McGiffon, 95 King street east, Toronto, are the architects.

ST. JOHN, N.B.—The ratepayers of Coldbrook have decided to erect a new school at Glen Falls, to cost \$8,500.

ST. THOMAS, ONT.—The St. John's English Church has prepared plans for a church, to cost \$10,000.

SWANSEA, ONT.—Architect J. M. Jeffrey, 708 C.P.R. Building, Toronto, has prepared plans for a church, to cost \$30,000.

TRENTON, ONT.—The School Board are contemplating the erection of a school, to cost \$40,000.

TWEED, ONT.—Architects Ellis & Ellis, Manning Chambers, Toronto, are preparing new plans for a school, to cost \$25,000. Former plans proved too costly.

VICTORIA, B.C.—J. E. Griffith, Deputy Minister of Public Works, has received tenders for the erection and completion of the Silverton School.

WALKERVILLE, ONT.—St. Mary's Anglican Church are erecting a church house on the corner of Niagara and Monmouth road, to cost \$40,000.

WELLAND, ONT.—Telford & Morse were awarded the contract for the erection of a school, to cost \$5,000; T. L. Nichols is the architect.

WINDSOR, ONT.—The School Board contemplate the erection of a new school, to cost \$40,000.

RESIDENCES, STORES AND FLATS.

AMHERSTBURG, ONT.—Architect J. C. Pennington, La Belle Building, Windsor, Ontario, is preparing plans for a residence in Walkerville for Walter Chater, 15 Kildare road, to cost \$6,000.

BRANTFORD, ONT.—Architect Fred C. Bodley, Temple Building, has prepared plans for a residence on Erie avenue.

CHATHAM, ONT.—Thos. McKay, Gray street, has been awarded the contract for the erection of a residence, to cost \$7,000; S. G. Kinsey, 5th street, Chatham, is the architect.

CORNWALL, ONT.—Architects Hutchinson, Wood and Miller, Royal Insurance Building, Montreal, have prepared plans for a residence on Augustus street, to cost \$8,000.

HAMILTON, ONT.—Ronnberg and Beck, 54 Fairholt avenue south, have prepared plans for a bungalow, to cost \$6,000.

HAMILTON, ONT.—Architect F. W. Warren, Bank of Hamilton Building, has prepared plans for a residence on Ontario street, to cost \$5,000; work will not start until spring. R. Spicer, 279 Bay street south, has been awarded the contract for the erection of Mr. T. A. Woolley's residence on Proctor boulevard, to cost \$8,000. Architect W. H. Hunkins, Lister block, has prepared plans for an apartment house for Harvey Levitt, Beamsville, Ont. J. A. Jones has been awarded the contract for the erection of a residence on Rosemont, to cost \$6,000.

LINDSAY, ONT.—W. Wallace is erecting a store on Wellington street, to cost \$6,000.

LONDON, ONT.—Architects Watt and Blackwell, Bank of Toronto Building, have prepared plans for a residence on Craig street, to cost \$7,500.

LONDON, ONT.—The walls are up on A. H. McKnight's apartments on Queen's avenue, to cost \$10,000; Watt and Blackwell, Bank of Toronto Building, are the architects.

NIAGARA FALLS, ONT.—Architects Green and Wicks, 110 Franklin street, N.Y., prepared the plans for Dr. Harvey Grant's residence and garage on Park Hill street, which will cost \$50,000. W. G. Adamson, 126 Sparks street, has been awarded the contract for the erection of a store and apartments on Laurier street, to cost \$36,500; Millson and Burgess are the architects. A. W. Davidson, 69 Grosvenor street, is erecting a residence on Clemow avenue, to cost \$6,000. Architect W. H. George, Castle Building, Queen street, has prepared plans for alterations and additions to apartments on Laurier avenue, to cost \$11,000.

OAKVILLE, ONT.—Architects Munro and Meade, 34 Hughson street south, Hamilton, are preparing plans for a residence for W. F. Eaton, Ravenscliffe avenue, Hamilton, to cost \$30,000.

QUEBEC, QUE.—Wilfrid Brochu is erecting a residence on Aberdeen street, to cost \$8,000.

STONEY CREEK, ONT.—Architect E. Patterson, 143 Wentworth street, has prepared plans for Wm. Nash's residence, to cost \$7,000.

STRATFORD, ONT.—Architect Jas. S. Russell, Gordon block, has prepared plans for store and office alterations, to cost \$10,000. Architect J. S. Russell, 21 Downie street, has prepared plans for store and office alterations, to cost \$5,000.

TORONTO, ONT.—Brown and McKnight, 789½ Concord avenue, have started work on an apartment house on Dundas street, to cost \$12,000.

TORONTO, ONT.—A. W. Pike, 49 Hepbourne avenue, will erect an apartment, to cost \$15,000. Architect C. J. Gibson, 51 Yonge street, has prepared plans for a store and warehouse, to cost \$30,000; C. W. Woods, 613 Manning avenue, has been awarded the mason contract; W. R. McGiffin Co., Ltd., 54 Roncesvalles avenue, have been awarded the carpenter contract. W. P. Levack, 519 Roxton road, has prepared plans for an apartment house, to cost \$10,000. Work has started on a residence for Dr. H. McDonald, 357 Runnymede road, to cost \$6,000. W. A. Wilson, 22 Beech avenue, has started work on a duplex residence, to cost \$6,000; P. H. Finney, 79 Adelaide street east, is the architect. J. W. Butchart, 1 St. Ives avenue, Lawrence Park, has been awarded the contract for the erection of a store and residence for G. R. Hume, 1243 Dundas street, to cost \$6,000. Sheppard & Abbott, 78 Harbord street, have been awarded the plumbing and heating contract for a residence for E. L. MacLean, 98 Walmer road, to cost \$15,000; Taylor and Nesbitt, 18 Havelock street, have been awarded the plastering contract; Burke, Horwood and White, 229 Yonge street, are the architects.

TORONTO, ONT.—Arthur Jutchins, Mimico P.O., has started work on two duplex residences for Wm. A. Hutchins, to cost \$10,000; E. Gagnon and Cummings, 2359 Queen street east, are erecting an apartment house on Queen street, to cost \$9,000. J. W. Butchart, 1 St. Ives avenue, Lawrence Park, has been awarded the contract for the erection of a store and residence, to cost \$6,000. J. T. and H. Hutson, 43 Victoria street, have prepared plans for an apartment house on Isabella street, to cost \$35,000. J. Richards, 1 Lonsdale road, has been awarded the contract for the erection of apartments, to cost \$30,000; the walls are up. Architects Burke, Horwood and White, 229 Yonge street, have prepared plans for a residence in Rosedale, to cost \$15,000. Architect Thos. Hancock, 836 Dovercourt road, has prepared plans for a residence to cost \$5,000. Architects Edwards and Edwards, 18 Toronto street, have prepared plans for a residence, to cost \$12,000. J. W. Butchart, 1 St. Ives avenue, has prepared plans for two residences, to cost \$12,000. J. Skelton, room 36, 33 Richmond street west, has started work on a residence, to cost \$5,000. J. H. Dawlish, 231 Sheldrake boulevard, has commenced work on a residence, to cost \$5,000. Architect C. J. Gibson, 51 Yonge street, has prepared plans for a store and warehouse, to cost \$30,000. W. P. Levack, 519 Roxton road, has prepared plans for stores and apartments to cost \$15,000. A. A. Mitchell, 502 Palmerston boulevard, contemplates the erection of a duplex residence, to cost \$14,000.

WATERLOO, ONT.—The Waterloo County Children's Aid Society are erecting a detention home, to cost \$15,000.

OVER HALF A MILLION AHEAD OF LAST YEAR.

The building permits in Winnipeg up to the end of September are over half a million dollars ahead of last year, the figures being \$2,195,300, while for the corresponding period last year they were \$1,721,900. Every indication points to increased building activity.

TO GIVE CONTRACTS TO LOCAL FIRMS.

The Pacific Great Eastern Railway Company will spend about \$200,000 in the near future on machine shops, repair shops and a roundhouse at Squamish, B.C. The officials of the company state that so far as possible the contracts will be given to local firms.

MILLION DOLLAR SCHOOL.

Lieut. J. K. L. Ross, of Montreal, the well-known sportsman and owner of racing horses, has donated the sum of one million dollars for a new Bishop's College at Lennoxville, Que. The first sod was turned by Mrs. J. K. L. Ross last month, and active building operations have now begun. No expense will be spared in the erection of this building, and it is fully expected when completed to be the finest structure of its kind in America.

Barrett Specification Roofs

Guaranteed for 20 Years

Made in Canada

OUR new plan to guarantee Barrett Specification Roofs for 20 years seems to have met with instant welcome from architects, owners and roofing contractors.

During the first few weeks the plan was in operation several million feet of Barrett Specification Guaranteed Roofs were specified.

This means that the owners of these roofs are guaranteed against all roof repair and upkeep expense until 1936.

This new Guaranty Bond is issued on all Barrett Specification Roofs of 50 squares or more in all towns in Canada and in the United States of 25,000 population and over—and in smaller centers where our Inspection Service is available.

Our only requirements are that the roofing contractors be approved by us and that The Barrett Specification dated May 1, 1916, shall be strictly followed.

The Guaranty is arranged for as follows:

The owner or his architect orders the roofing con-

tractor to "construct a Barrett Specification Roof and get for him a 20 Year Guaranty Bond for the work."

The contractor notifies us that he wishes the 20 Year Bond and will construct the roof under the supervision of our Inspector.

Our Inspector on completion of the job certifies that the proper quantity of Specification Pitch and Felt has been used and that The Barrett Specification of May 1, 1916, has been strictly followed.

On our O.K. of the job, the U.S. Fidelity & Guaranty Company issues a regular 20 Year Guaranty Bond, by which the owner is relieved of all costs for repairs or maintenance to the roof during the next 20 years.

The Guaranty Bond costs the owner and roofing contractor nothing. The service is free in the interest of good workmanship and the good repute of our materials.

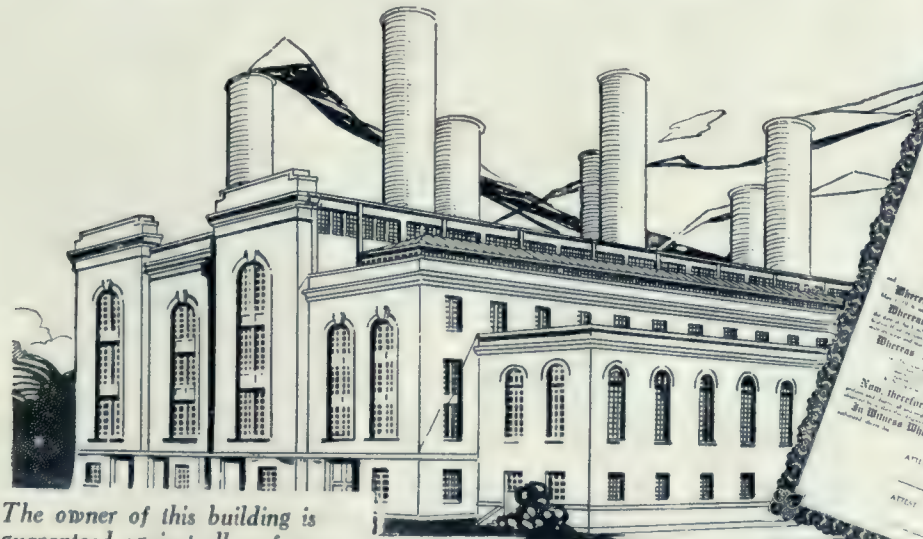
If you are interested in the proposition we shall be glad to send you further details.

THE PATERSON MANUFACTURING COMPANY, LIMITED

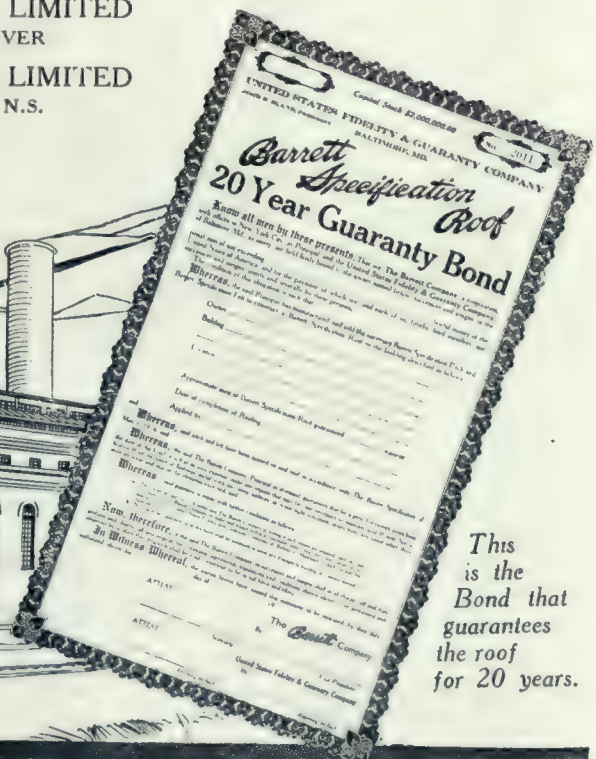
MONTREAL TORONTO WINNIPEG VANCOUVER

THE CARRITTE-PATERSON MANUFACTURING CO., LIMITED

ST. JOHN, N.B. HALIFAX, N.S. SYDNEY, N.S.



The owner of this building is guaranteed against all roof repairs and upkeep until 1936.



This is the Bond that guarantees the roof for 20 years.

CONTRACTORS and SUB-CONTRACTORS

As Supplied by The Architects of Buildings
Featured in This Issue

BUILDINGS—THE MOLSONS BANKS.

- A—The Molsons Bank, Port Arthur, Ont.
B—The Molsons Bank, St. Lawrence and Ontario streets, Montreal, P.Q.
C—The Molsons Bank, Sorel, P.Q.
D—The Molsons Bank, Norwich, Ont.
E—The Molsons Bank, Drummondville, P.Q.
F—The Molsons Bank, Lachine, P.Q.
Brick—
A—Claycraft Mining and Brick Co.
B—Kittanning Brick Co.
C—Interprovincial Brick Co., Ltd.
D—Interprovincial Brick Co., Ltd.
E—Milton Brick Co.
F—Milton Brick Co.
Boilers—Warden King, Ltd. A.B.C.D.E.F.
Concrete work—Wm. Wardwell, engineer
Electric fixtures—McDonald & Willson, Ltd. A.B.C.D.E.F.
Elevators and hoists—Gillis & Geoghegan.
Electric wiring and apparatus—
McDonald & Willson, Ltd. B.C.E.F.
E. S. Coppins, D.
Mahon Bros. A.
Expanded metal—Pedlar People.
Flooring—Mosaic Tile Co.
Furniture—
Canadian Office and School Furniture Co., Ltd. A.D.E.
G. H. Randall Co., Ltd. B.
The Globe Furniture Co., Ltd. C.F.
Glass—The Hobbs Manufacturing Co., Ltd.
Hardware—Yale and Towne.
Marble—
Mariotti Marble Co.
Smith Marble Co.
Ornamental iron—Estey Bros.
Plumbing fixtures—Port Hope Standard Sanitary Co., Ltd.
Plumbing—James Robertson Co., Ltd. A.B.C.D.E.F.
Radiators—Warden King, Ltd. A.B.C.D.E.F.
Stone—Indiana Limestone.
Structural steel—Dominion Bridge Co., Ltd.
Tile—Marbleoid Co.
Vaults—J. & J. Taylor, Ltd. A.B.C.D.E.F.
Revolving doors—Dominion Revolving Door Co.
Pile foundations—Raymond Concrete Pile Co.
Coal chutes—The Galt Stove and Furnace Co., Ltd.
Contractors, general—
A.—Seaman & Penniman, Fort William, Ont.
B.—J. H. Hutchison, Montreal.
C.—Loomis-Dakin, Ltd., Sherbrooke, Que.
D.—McKinney Lumber Co., Ltd., Woodstock, Ont.
E.—Louis Beaudry, Montreal, P.Q.
F.—Louis Beaudry, Montreal, P.Q.

HOTEL PALLISER, CALGARY, ALBERTA.

- Brick—Plain, Alberta Clay Products, Medicine Hat, Alberta; fancy, David McGill, agent, Montreal; enamelled, Waite-Fullerton Co., Ltd., Calgary.
Boilers—Installed by James Ballantyne Co.
Casements and window construction, also doors and window trim—P. Lyall & Sons Construction Co., Ltd.
Concrete work—P. Lyall & Sons Construction Co., Ltd.
Electric fixtures—E. F. Caldwell & Co., and the Robert Mitchell Company
Electric wiring and apparatus—Parker-Chase Electric Co., Calgary.
Elevators and hoists—Otis-Fensom Co.
Expanded metal—Pedlar People, Ltd.
Fire alarm system—Northern Electric Co., Ltd., Calgary.
Fire doors—McFarlane & Douglas, Ottawa.
Fire escapes—Canada Foundry Co., Toronto.
Flooring—Cement floors, Master Builders' finish.
Glass plate, Taylor Painting and Decorating Co., Winnipeg.
Man. light globes, E. F. Caldwell & Co. and R. Mitchell Co.
Hardware—Yale and Towne, James Walker Hardware Co.
Heat regulating system—James Ballantyne Co.
Inter-phones system—Northern Electric Co., Ltd.
Kitchen utensils—Duparquet, Moneuse & Co.
Laundry machinery—Gurney Foundry Co., Ltd.
Marble—P. Lyall & Sons Construction Co., Ltd.
Ornamental iron—Canada Foundry Co., Toronto.
Paints—Interior and exterior, Taylor Painting and Decorating Co., water-proof, Sherwin-Williams Co.
Plumbing—Bath fittings and sanitary fixtures, James Ballantyne Co.; faucets, Cluff Bros., Toronto.
Plaster work (ceiling)—P. Lyall & Sons Construction Co., Ltd.
Refrigeration equipment—Lindé Canadian Refrigerator Co.
Power machinery—Prime movers, motors, air compressors and pumps, James Ballantyne Co.

CATALOGUES, BOOKLETS, ETC.

Sterling Furnaces.—A booklet entitled "Every Room Heated" has been issued by the makers of these furnaces. It sets forth in a descriptive and illustrated manner the many advantages of the Sterling in heating and scientifically ventilating the modern home. Copies of this booklet may be had from Findlay Bros. & Co., Ltd., Carleton Place, Ont.

The Dominion Paving & Contracting Co., Ltd., makers of Perless Carbolic Wood Preservative, have issued a new pamphlet regarding the merits of their preservative. What it is, what it will do, and what it will save is gone into in an explanatory manner. This pamphlet is well worth the consideration of architects and engineers. A copy will be mailed by addressing the above company at 55 Gore Vale avenue, Toronto, Ont.

The Murphy Furnace.—This automatic smokeless furnace is elaborately described in the 25th edition of their illustrated catalogue. The installations of the improved Murphy Automatic Smokeless Furnace includes a great number of the prominent buildings of Canada. The operation, capacity, durability and mode of construction is dealt with in this edition. This cata-

logue will be mailed by addressing the Murphy Iron Works, Buffalo, N.Y.

Twyford's Sanitary Ware.—C. W. Beal, 60 Adelaide street east, Toronto, Ont., informs us that booklets and illustrations describing this ware can be had by addressing him. The history of this British firm of manufacturers proves interesting reading. The superior quality of Twyford's Sanitary Ware is recognized throughout the world, and although the war has made great inroads into the output of this firm, Mr. Beal is still in receipt of regular shipments.

Clark Vacuum Trap.—The automatic control of water and steam heating plants is given no end of consideration, through necessity, by those interested. New devices appear from time to time, but there are few that really stand up under a rigorous test. The superior regulating devices now being manufactured by W. E. Clark, Ltd., deserve mention and commendation. They are giving entire satisfaction wherever installed, and their output is being increased steadily. In their Booklets A and B this firm describes minutely and accurately the Clark Vacuum Trap and Temperature Booster, and they deserve the attention of the architect and engineer. By addressing W. E. Clark, Ltd., at 719 King street west, Toronto, Ont., these booklets may be had. It is timely to mention that the Clark specialties are distinctly Canadian, having been invented, patented and made in Canada.

The Dominion Fitter.—This is one of the most complete catalogues it has been our pleasure to review for some time. Attractively produced, and of such size as to prove convenient, it should find its way to every architect and engineer. The various lines illustrated in this catalogue have been produced with a view to meeting the demands of the heating business as they have been presented by architects, engineers and contractors. Several new products are catalogued for the first time and they have proved efficient after rigid tests. Care has been shown by simplifying the method required in specifying certain types, for the arrangement of the various lines are so grouped that the trade name need only appear in the specifications. Every item is listed in an alphabetical index. Published by the Dominion Radiator Company, Ltd., Toronto, Ont., who will supply a copy on request.

PERSONAL.

A change in the well-known engineering firm of MacMullen, Riley & Durely has occurred through the retirement of Mr. Durely, who is now connected with the Engineering Department of the Imperial Munition Board. Mr. H. H. Angus, whose name appears in the new organization, is well known in engineering circles in Toronto, and has been for some years practicing his profession in this city. The new firm of MacMullen, Riley & Angus will continue the design of heating, ventilating, plumbing and electrical equipment of buildings as carried on by them separately in the past, and will also specialize in the building, design and equipment of industrial plants.

CIRCULATION REPRESENTATIVE

We have an opening for a good live travelling Circulation Representative to call on the Architects, Engineers and Contractors throughout Canada. Salary and Commission. Address CIRCULATION MANAGER, "CONSTRUCTION."

LARGE CONTRACT TO BE AWARDED.

Tenders will shortly be called for excavating 300,000 cubic yards of earth on the site of the new Canadian Northern Railway station, which will be erected on Dorchester street, in Montreal. The contract will be a big one, the site being in the space bounded by Cathcart, Mansfield, Lagauchetiere and St. Monique streets.

BIG JUMP IN BUILDING IN TORONTO.

Building permits for 1915 in the City of Toronto totalled 466. The year's business amounted to \$5,155,631. So far this year 436 permits have been granted, totalling \$5,502,797, or an increase to the end of October of \$347,166. In October last year the month's business totalled \$413,756. This year permits for October totalled \$496,148, or an increase of \$82,392.

BUILDING A CITY.

Preliminary plans for the steel plant at Ojibway, Ont., are nearing completion, but actual building operations will probably not be commenced before next spring. The location of a civic centre has been practically settled, and municipal buildings will be erected in the spring. The plans have also been completed for a storm sewer, which will empty into either the Turkey Creek or the Detroit River.

NEW SCHOOL IN MONTREAL.

Architects Venne and Labelle, 706 St. Catherine street, Montreal, associated with Vandal and Gascon, 520 St. Lawrence boulevard, have completed the plans for a new school to be erected at the corner of Fullam and Amity streets. The estimated cost is \$160,000, and the contract has been awarded to J. A. Durocher and G. Archambault, 616 St. Denis street. The building will be of re-inforced concrete and Montreal lime stone, and will be thoroughly modern and up-to-date in every respect. Work will start this fall.

BUILDING STATISTICS FOR MONTREAL.

For the month ending October 31st 171 permits were granted in Montreal, totalling \$352,924. In October last year 214 permits were granted, totalling \$493,268, or \$140,344 less than the corresponding month last year. One thousand eight hundred and thirty-two permits were issued to the end of October last year, totalling \$5,005,526, as compared with 1,669 permits issued for the corresponding period this year, totalling \$4,139,934, or \$865,592 less than last year. It is not expected that the total this year will equal last year's total.



December, 1916

Vol. 9, No. 12

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H. GAGNIER, Limited, Publishers

GRAPHIC ARTS BLDG., TORONTO, CANADA

MONTREAL

BRANCH OFFICES

NEW YORK



CHURCH OF ST. FRANCIS OF ASSISI, TORONTO, ONT.
ARTHUR W. HOLMES, ARCHITECT.

Church of St. Francis of Assisi, Toronto, Ont.

THE new Church of St. Francis of Assisi, situated on the corner of Grace street and Mansfield avenue, Toronto, was built to take the place of the smaller brick church at the corner of Grace and Arthur streets, which was erected fifteen years ago by the present pastor, the Rev. W. McCann.

The new church was completed and dedicated by Archbishop McNeil in October, 1915.

The main entrances, facing west, consisting of three large portals, with double doors, lead into a spacious narthex, having marble mosaic floor and vaulted ceiling. From narthex, lead-

ft. wide. The width of church at transepts is 71 ft., and the total length of the church is 156 ft.

The ceilings are vaulted throughout, and are constructed of steel framework suspended from the steel roof trusses, and covered with metal furring and lath.

The wall and ceiling finish is in rough stucco, and the ornamental shafts, arches and groin ribs, corbels, string courses and niches, etc., of "staff."

The niches in the sanctuary contain statues of the four doctors of the church, and the main



NARTHEX, CHURCH OF ST. FRANCIS OF ASSISI, TORONTO, ONT.

ing to the nave, are three double swinging doors, corresponding to the main entrance doors. From the narthex is a similar double door, leading into tower, in which are stairways leading to the choir gallery, and also to basement. Two entrances facing Mansfield avenue, and two more on the north, enter on the street level to vestibules, with stairways leading to church, basement and sacristies. The choir gallery is immediately over the narthex.

The nave is 40 ft. wide; with a 6 ft. centre passage; the aisles, used for passages only, are 5



VIEW OF ENTRANCE FROM NAVE, CHURCH OF ST. FRANCIS OF ASSISI, TORONTO, ONT.

groin ribs at crossing of the transepts are supported by emblems of the four evangelists.

An ambulatory around the sanctuary forms communication between the clergy and boys' sacristies.

The tower is 21 ft. square, and 120 ft. high, with an open belfry.

The accommodation of the church is 900, and that of basement, which is used as a parish hall, is of similar capacity. The portion under the sanctuary is utilized for the heating apparatus.

Credit Valley stone is used throughout, with



VIEW OF NAVE, AISLE AND GALLERY, CHURCH OF ST. FRANCIS OF ASSISI, TORONTO, ONT.

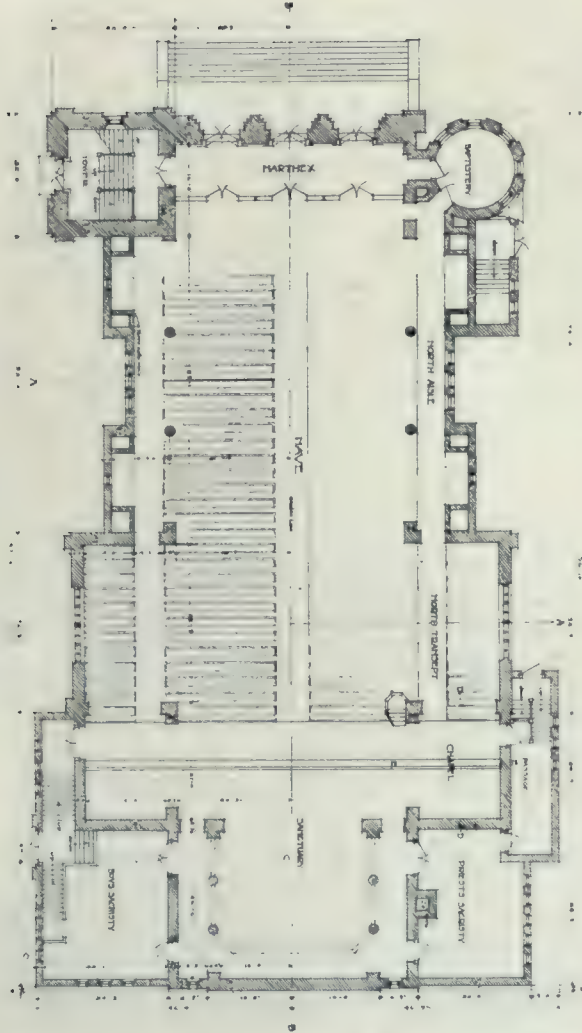
ARTHUR W. HOLMES, ARCHITECT.

Indiana limestone dressings and interior columns, and Roman stone for the window tracery and pinnacles and the niche and statue of St. Francis.

The caps of the interior columns are left rough for future carving.

Protection of Buildings Beyond Established Building Lines

To those who have given attention to the attitude of the courts regarding the question of encroachment of buildings upon streets or public property, it must have become apparent that



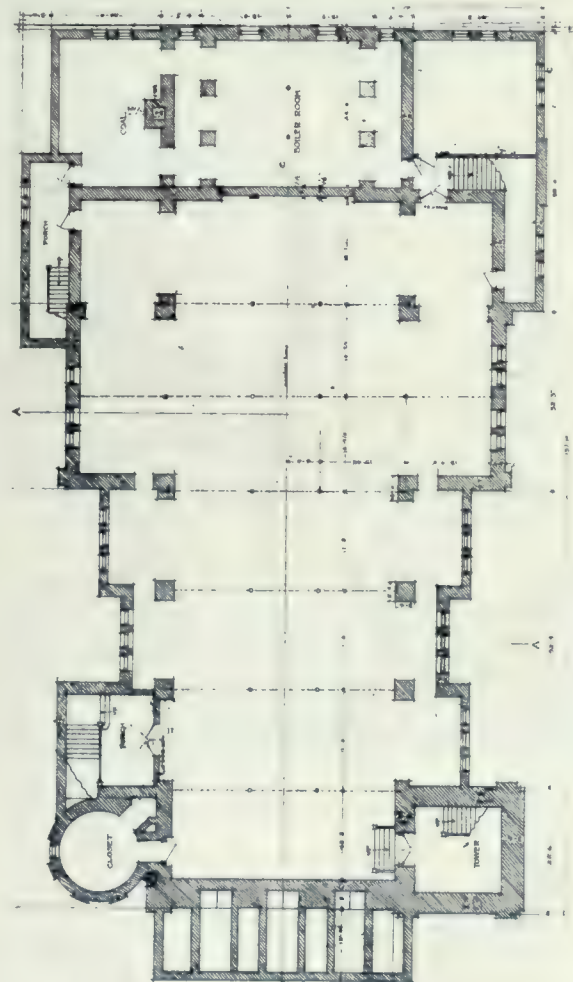
FLOOR PLAN, CHURCH OF ST. FRANCIS OF ASSISI, TORONTO, ONT.

such encroachments are now viewed as of much more serious moment than they were a score of years ago. In fact, it is probably not more than fifteen or twenty years since the city building which did not in some form or manner project beyond the established building line, was the exception. Architects were then in the habit of designing buildings with projecting porticos, bay windows, and even base courses, and these were permitted, in some cases by a lax enforcement of municipal laws, in almost every city of the country. There were, of course, instances where such practice involved the owners, and indirectly the architects, in difficulties that were, for the time at least, embarrassing, but usually an owner or architect confronted with objections on the part of the city was able to carry his point by calling attention to numerous other instances where equally flagrant violations of law had been permitted by the same or preceding administrations without molestation or hindrance of any active character, and demanding equal privileges.

Of course, such practices are always liable to be carried to a point where they cannot longer be tolerated, and this seems to have been the case with the street encroachment abuse. Some half dozen years since, the streets of New York

and certain other cities of the country became so congested with traffic that measures for relief seemed to be imperative, and the obvious method to pursue was that of reclaiming the entire street width from building line to building line, a considerable percentage of which was no longer available by reason of various projections beyond the building line, and countless obstructions which had been permitted to accumulate and increase from year to year. In the beginning, efforts to reclaim the streets for the purposes for which they were originally intended, met with much opposition, and instances where owners refused to remove projections previously allowed by the city and tolerated for years without legal action, were numerous, and the cause of much delay and litigation. Gradually, however, the requirements of the public service have been recognized by a majority of property owners, and, as a consequence, less opposition is shown to the widening of streets by the removal of projections each year, and new structures are now being designed and erected well within the property lines established.

The ingenuity of architects, apparently always equal to the requirements, has provided entrances and other features affording all necessary facilities without in any way encroaching beyond the building line, and, moreover, with-



BASEMENT PLAN, CHURCH OF ST. FRANCIS OF ASSISI, TORONTO, ONT.

out sacrifice of artistic appearance. The serious view which the courts now take of any encroachment beyond the building line is well illustrated by a decision of the Appellate Division of the Supreme Court of New York, involving title to a piece of realty in that city. It appears that contract for the sale of this property was made some years ago, and a deposit paid on account

of the purchase price, subject to the deliverance of a clear title. Upon search being made, it was discovered that there were balcony, bay window, stoop and portico encroachments beyond the building line, and the purchaser declined to take

case was then appealed, and, in reversing the decision, the Appellate Division held that the projection of bay window, stoop, portico and balcony constituted undeniable encroachments up-

on the street which must be removed on notice from the city; that the city has recently ordered the removal of long standing similar encroachments in wide residential and business

districts; that the plaintiff on the date set for performance could not deliver a good and marketable title, and that the rights of the city and its recent policies are such that the existence of



LONGITUDINAL SECTION B-B
CHURCH OF ST. FRANCIS OF ASSISI, TORONTO, ONT.



NAVE, CHURCH OF ST. FRANCIS OF ASSISI, TORONTO, ONT.

title unless these encroachments were removed. The sellers refused to make alterations and brought action against the buyer to carry out his contract. In the first trial of the case the referee decided in favor of the plaintiff. The



VIEW OF SANCTUARY, CHURCH OF ST. FRANCIS OF ASSISI, TORONTO, ONT.

the projections constitutes a cloud upon the title, since there is a present and continuing risk that the owners of the property may be subjected to action by the city and compelled to remove the projections.

Northern Congregational Church, Toronto

SITUATED on the corner of Glen road and East Roxborough street, the handsome stone building of the Northern Congregational Church, which was completed in the fall of 1914, stands opposite a park which marks the centre of North Rosedale, and into which converge a number of streets.

The site was selected after consultation with the Joint Committee on Co-operation of the Methodist, Presbyterian and Congregational churches of the city, a committee that had its origin in the feeling that closer co-operation

mented into grooves of the stone frames, mullions and tracery, receding mouldings to the large front windows and doorways, and carved capitals to the pillars, and carved bosses finishing the drip moulds of the main north windows and doorways.

Many handsome and costly memorial windows have been placed in this building by individual parties and families to the memory of those who were at one time connected with the church.

The interior of the main auditorium will seat in the neighborhood of nine hundred. It is of



NORTHERN CONGREGATIONAL CHURCH, TORONTO, ONT.

JOHN GEMMEL, ARCHITECT.

should exist between the three denominations negotiating for church union, in order to prevent overlapping, and to more fully cover the ground.

The architectural style of the new building, which has been admirably adapted to the shape of the lot by the architect, the late Mr. John Gemmel, is early English Gothic.

The exterior finish of all sides is random coursed Credit Valley Ashlar stone of grey color, with flushes of reddish brown in some stones. The trimmings of the doors, windows, plinths and buttresses, are rubbed cut stone. The window frames are stone, with leaded glass ce-

the usual style of a Gothic church, with nave, transepts, chancel, centre and side aisles, ceiling groined and walls finished in grey plaster, with woodwork of quarter-cut oak.

The main entrance to the auditorium, parlors, minister's vestry and the Sunday School, is from Roxborough street, through a wide corridor, trimmed in oak, with beamed ceiling and tiled floor.

There are two large, commodious parlors, with folding doors between, beamed ceilings, and hardwood trim throughout, fire place with suitable mantel.



AUDITORIUM, LOOKING FROM GALLERY, NORTHERN CONGREGATIONAL CHURCH, TORONTO, ONT.

JOHN GEMMEL, ARCHITECT.



PALLOR, NORTHERN CONGREGATIONAL CHURCH, TORONTO, ONT.

JOHN GEMMEL, ARCHITECT.

The minister's vestry is situated at the end of the main corridor, provided with suitable fire place and fitted with all the latest requirements.

The primary department is one of the most attractive rooms in the building, exceptionally well lighted, trimmed in Georgia pine, painted white and enamelled, with walls decorated in suitable colors to harmonize with the surroundings, and furnished with white enamel furniture.

The second floor, which is reached from the main corridor by a wide oak



SUPPER ROOM, NORTHERN CONGREGATIONAL CHURCH, TORONTO, ONT.

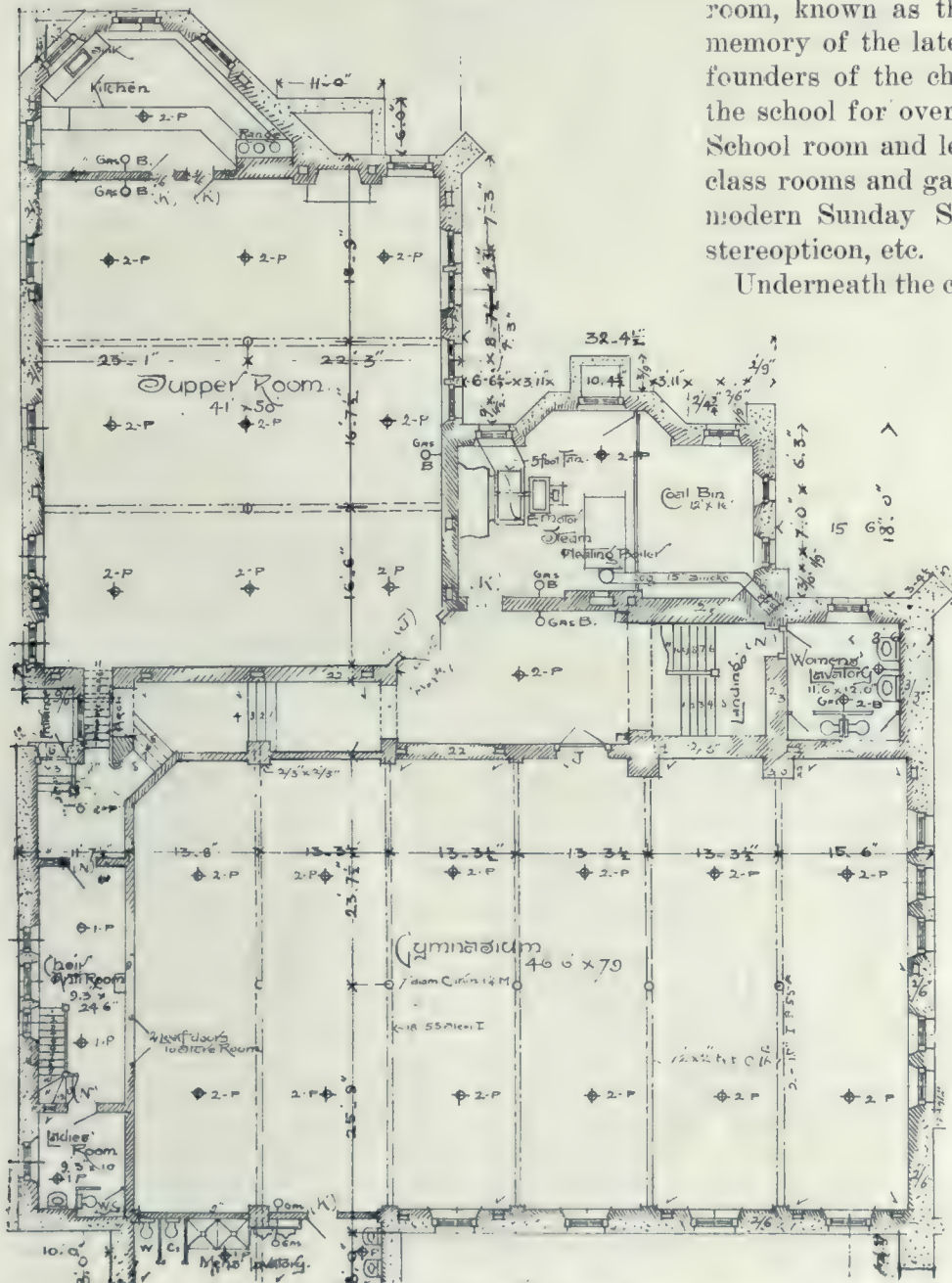
staircase, is the main Sunday School and lecture room, known as the Clark Memorial Hall, in memory of the late Henry J. Clark, one of the founders of the church, and superintendent of the school for over thirty years, which Sunday School room and lecture room is fitted up with class rooms and gallery, fully equipped with all modern Sunday School requirements, electric stereopticon, etc.

Underneath the chancel and connecting directly with the minister's vestry is a commodious choir room.

Special care has been taken in the construction and the arrangement of the basement to make it lofty and bright. It is reached by two wide main staircases, and one exterior staircase. One large room is used as a recreation room and bowling alley, and other indoor games, with large lavatories off, provided with shower baths, etc.

There is also a well-appointed supper room, with large fireplace, also a large, well-equipped kitchen, likewise large furnace room equipped with steam boiler and fan and exhaust fan, so that the air of the building can be constantly changed without having to open windows or doors, thus making the best possible ventilation.

The organ is built on each side of the chancel,



BASEMENT PLAN, NORTHERN CONGREGATIONAL CHURCH, TORONTO, ONT. JOHN GEMMEL, ARCHITECT.

Some of the Difficulties Besetting the Practice of Architecture

The practice of architecture is generally classed among the professions, and the architect is now ordinarily accorded an equal rank in modern social life with the lawyer and physician. Most of the products of the architect's professional activities have, however, always been regarded by educated people as works of art, and the architectural monuments of the past belong, in the largest sense, to what may perhaps be considered the most important phase of the fine arts.

It will be realized on a little reflection that architecture at its best possesses a dual importance, artistic and utilitarian, and that the architect plays a double role in the affairs of life; a role which adds greatly to the difficulties of his work, since it demands both artistic and business ability in its performance.

In the practice of the sister arts of painting and sculpture the finished product, which is after all the true objective of the artist, is within the possible attainment of the individual mind and hand. Painting requires only the skilful use of

canvas and oils, and the painter is able to see his conceptions take shape under his own hand without the intrusion of any foreign and possibly unsympathetic influence into his work. The sculptor, is equally able to translate his ideas into stone or marble, and even if he relies upon the help of a third party, it is only to perform a mechanical part of the work, and this element could be dispensed with at will. The client or person who will ultimately possess the work does not enter strongly as an influence into either of these arts, and if he is known and an influence at all, he is usually a person with some previous knowledge of or interest in artistic matters.

On the other hand architecture, by its very nature, demands not only that the architect depend wholly upon such artisans and workmen as may be available, to translate his ideas from the abstract to the concrete, but he is also dependent upon the client who furnishes occasion and fixes definite limits to the ideas.

The client of the architect may have no acquaintance whatever with architectural matters, and frequently employs the architect, not in the capacity of



PASTOR'S STUDY, NORTHERN CONGREGATIONAL CHURCH, TORONTO, ONT.



AUDITORIUM, LOOKING FROM PULPIT, NORTHERN CONGREGATIONAL CHURCH, TORONTO, ONT.



PRIMARY ROOM, NORTHERN CONGREGATIONAL CHURCH, TORONTO, ONT.



SUNDAY SCHOOL, NORTHERN CONGREGATIONAL CHURCH, TORONTO, ONT.



GYMNASIUM, NORTHERN CONGREGATIONAL CHURCH, TORONTO, ONT.

are usually and properly identical, but the architect is sometimes, in the case of uneducated clients, forced to, in a sense, serve two masters, and to seek a nice compromise between the duty and desire on one hand to create a beautiful building, and on the other the obligation that he owes to his client to meet his wishes and plan an intensely practical and economical structure, omitting all else. He is even forced in extreme cases almost to the point of insincerity to preserve the integrity of his design, by such expedients as drawing the attention of his client away from the cost of purely artistic features.

Regardless of the moral aspect of the questions involved in such a course, and without attempting to pass on matters that must be decided by each practitioner for himself, it is this dual nature of architecture that has given rise to many popular misconceptions that in themselves hamper and thwart the architect. The profession has always recognized the difficult role which its individual members are forced to play, and has endeavored by the maintenance of a high ethical standard to serve both the interests of the public and those of art with strict fidelity to both.

Only by a slow and gradual process of education can these two interests ever be made identical, and until that time the practice of architecture in its highest form will probably continue to consist largely of a liberal use of tact and discretion, accompanied by a highly-developed

artist, but rather that of director of building operations.

Within the legal and medical professions, the interests of the client and the professional man

sense of values that can effect a compromise between the practical and the artistic, without too great a sacrifice to either one of them.—*American Architect.*

St. Andrew's Presbyterian Church, Moose Jaw

WESTERN cities, on account of their rapid growth within the past five years, have undergone a development and improvement in all lines of civic life, and the increase in church membership, not merely in church attendance, is an unmistakable sign of the stable development of a community. In 1882, St. Andrew's Presbyterian Church, Moose Jaw, had a membership of 9; thirty years later it was 900, having in the meantime outgrown the confines of three buildings, and making necessary the construction of a building which might reasonably be expected to provide a church home against subsequent growth for some years. To-day the church membership is in excess of 1,200, and the members are housed in the most complete church edifice west of the city of Winnipeg.

The building is of pure Gothic construction, its high windows, great vertical height, narrow faced buttresses terminating in slender floriated pinnacles harmonizing completely with the main body of the church. Built throughout of Bedford stone, it has every appearance of dignity and delicate massiveness. The main doorway is approached by a broad stone staircase, having an easy rise, with a rest midway. The auditorium is almost square, 71 x 75 ft., the floor and gallery having a seating capacity of 1,200. The arches are of dark oak, massive in appearance, having a clerestory of 50 ft. above the auditorium.

Adopting the custom of older churches, the pulpit is entirely enclosed; constructed of delicately wrought oak, it is a replica of Old St. Andrew's, Toronto. The choir gallery, with its

complement of fifty-five voices, is in front of the pulpit, and around this is placed the elders' platform. The color scheme is quiet and dignified; the ceiling is a light buff, the walls a harmonizing green, while the pillars and structural portions are grey. The lighting is entirely indirect, all lights being cornice concealed. Behind the auditorium, on the ground floor, is the minister's study, the board room and quarters for the choir and deaconess. Beneath these rooms are the heating and ventilating plants, and adjoining in the basement is a large social hall, with a seating capacity for 600.

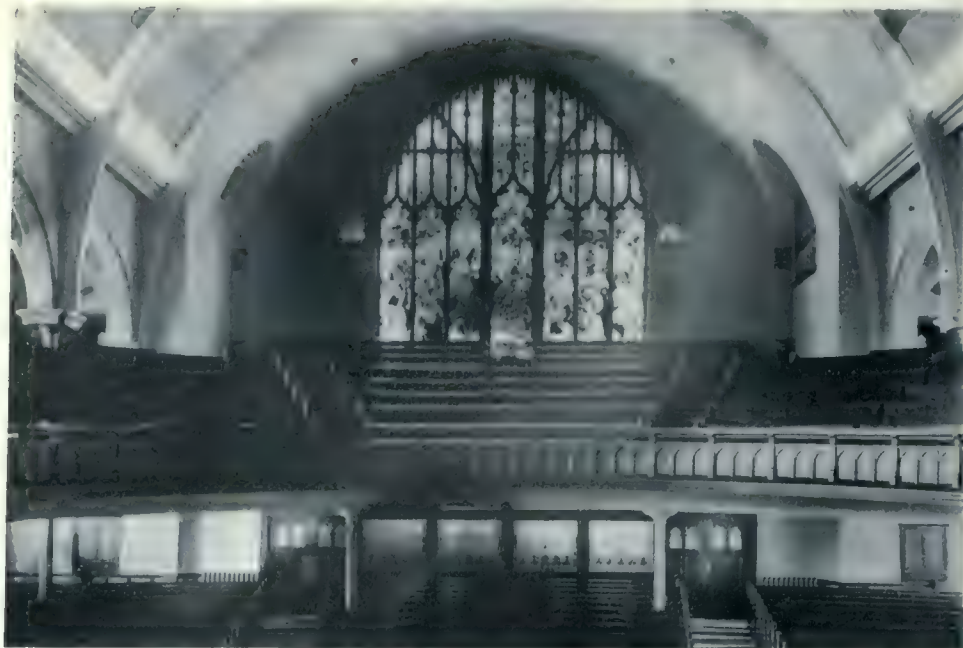
The organ, built by Casavant Bros., St. Hyacinthe, is the second largest in Canada, and installed at a cost of \$13,000. It consists of great, swell, choir, solo, echo and pedal organs, with fifty-two speaking stops and forty couplers. The pistons are adjustable, double acting and reversible. The chimes of the echo organ, placed in the south-west tower, are beautifully voiced. The



PULPIT, ST. ANDREW'S PRESBYTERIAN CHURCH, MOOSE JAW, SASK.

pipes are finished in brown, and cast in quarter-cut oak. There is electric action throughout, and sounds are instantaneous with mechanical effort. The organ is blown by a 5 h.p., and the echo organ by a 1 h.p. motor. All the work was done to the specifications, and under the direction of Luther Roberts, Mus. Bac., Tor., organist and director.

The glass and windows deserve special attention, more particularly that of the memorial window above the main entrance to the church. A product of the Lyon studio, of Toronto, it is, in its perpendicular style, one of the most artistic and aesthetic in Western Canada. Por-



GALLERY, ST. ANDREW'S PRESBYTERIAN CHURCH, MOOSE JAW, SASK.

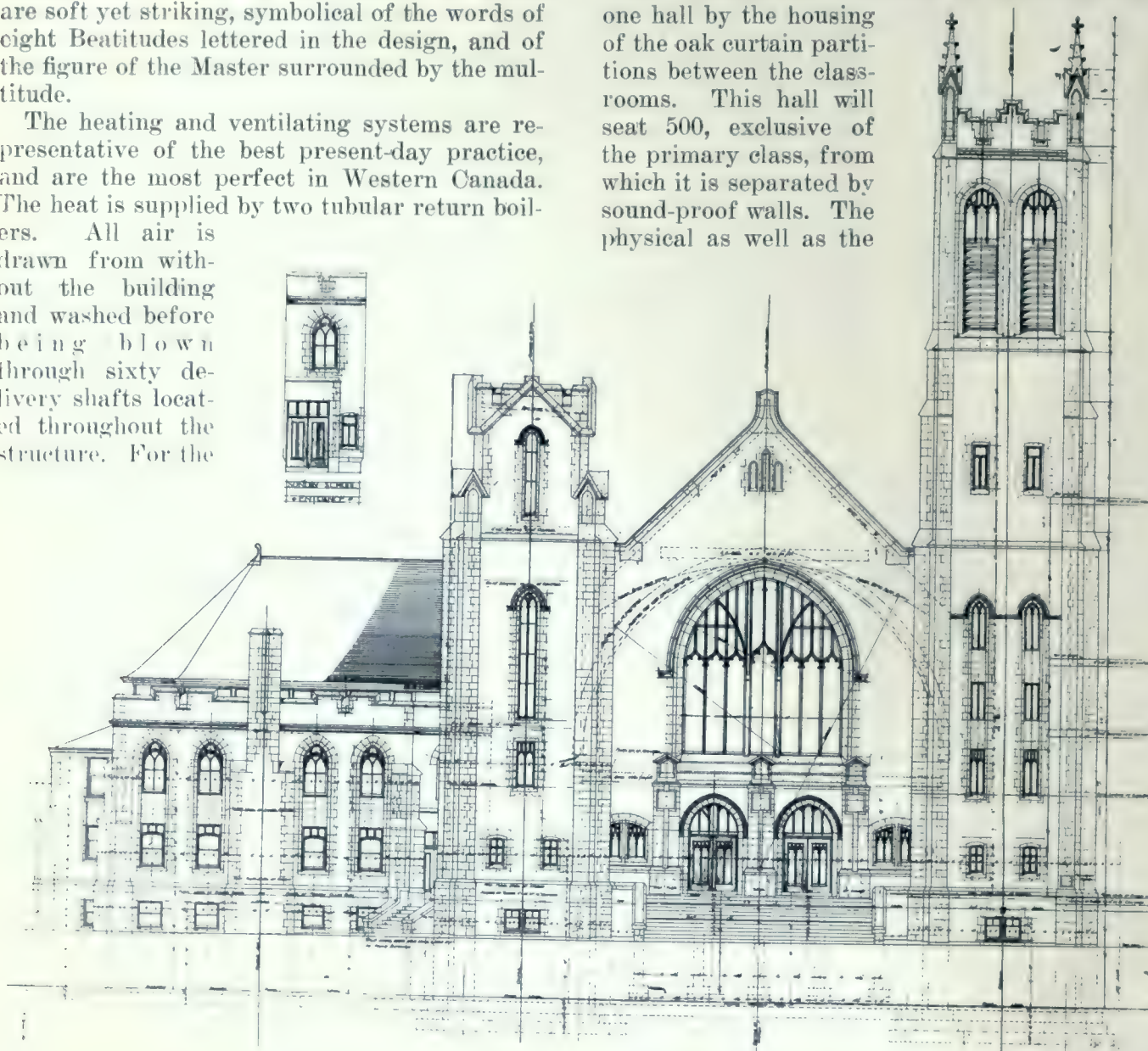
traying the Sermon on the Mount, its colors are soft yet striking, symbolical of the words of eight Beatitudes lettered in the design, and of the figure of the Master surrounded by the multitude.

The heating and ventilating systems are representative of the best present-day practice, and are the most perfect in Western Canada. The heat is supplied by two tubular return boilers. All air is drawn from without the building and washed before being blown through sixty delivery shafts located throughout the structure. For the

desk. The ground floor can be converted into one hall by the housing of the oak curtain partitions between the classrooms. This hall will seat 500, exclusive of the primary class, from which it is separated by sound-proof walls. The physical as well as the

added comfort of church attendants, the air can be ice cooled in warm weather to any desired temperature, and is renewed once in twelve minutes. An acousticon with nine outlets is a novel and useful adjunct to the church's equipment.

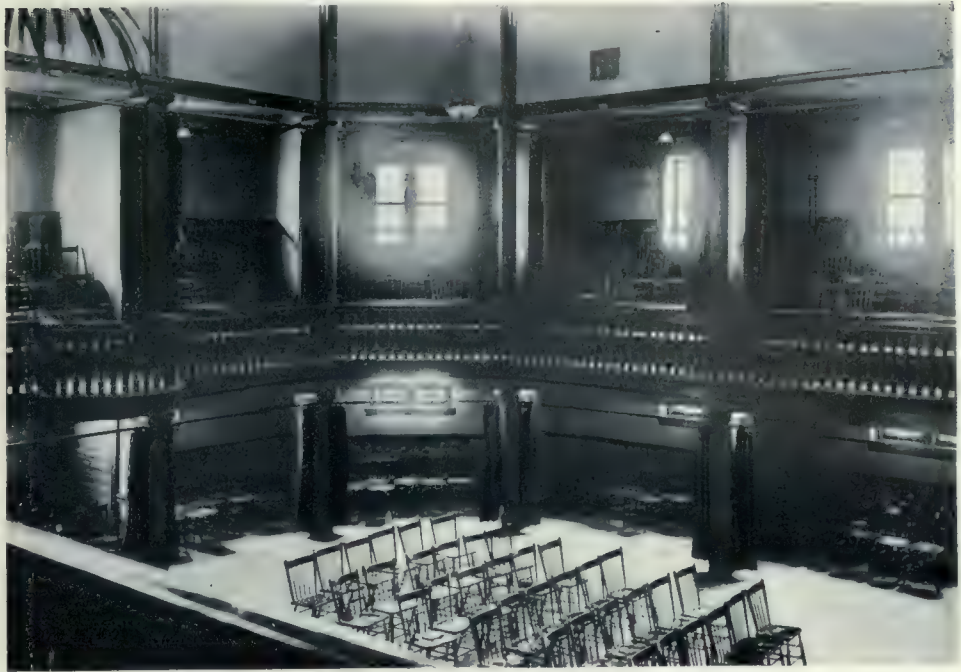
The Sabbath School is situated to one side of the church, a wide corridor giving them a common entrance. The class rooms are arranged in two semi-circular tiers, ten above and eight below, all visible from and communicating with the superintendent's



SOUTH ELEVATION, ST. ANDREW'S PRESBYTERIAN CHURCH, MOOSE JAW, SASK.

spiritual was considered in the design of this important branch of the church work, and a fully equipped gymnasium, 40 feet square, is an added attraction to the school. Beneath the Sunday school is the men's clubroom, and it and the boys' room are equipped with shower baths. On this floor is a large social hall, and a completely equipped kitchen.

The corner stone was laid October 10th, 1912, and the formal opening took place March 29th,



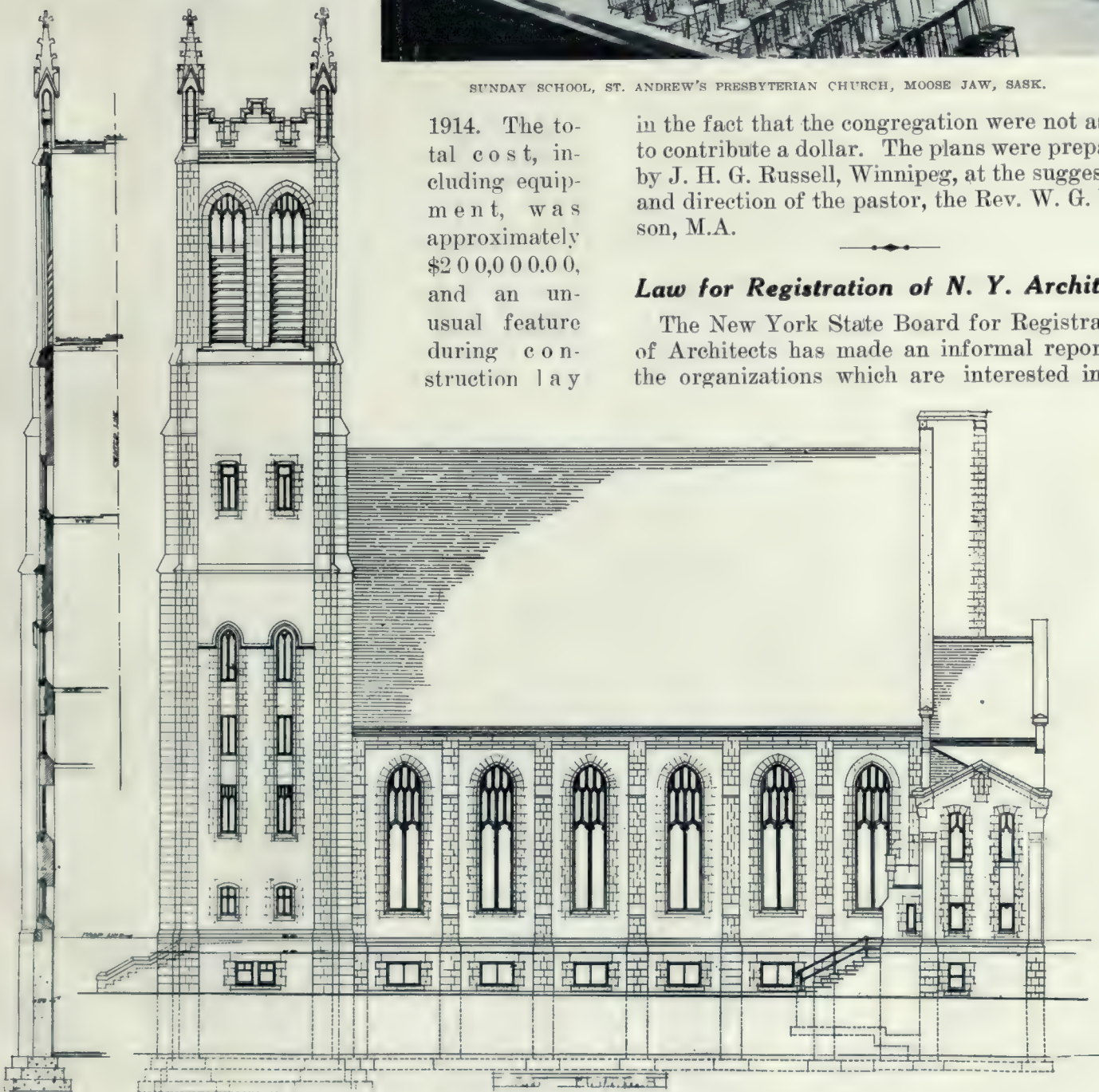
SUNDAY SCHOOL, ST. ANDREW'S PRESBYTERIAN CHURCH, MOOSE JAW, SASK.

1914. The total cost, including equipment, was approximately \$200,000.00, and an unusual feature during construction lay

in the fact that the congregation were not asked to contribute a dollar. The plans were prepared by J. H. G. Russell, Winnipeg, at the suggestion and direction of the pastor, the Rev. W. G. Wilson, M.A.

Law for Registration of N. Y. Architects

The New York State Board for Registration of Architects has made an informal report to the organizations which are interested in its



EAST ELEVATION, ST. ANDREW'S PRESBYTERIAN CHURCH, MOOSE JAW, SASK.

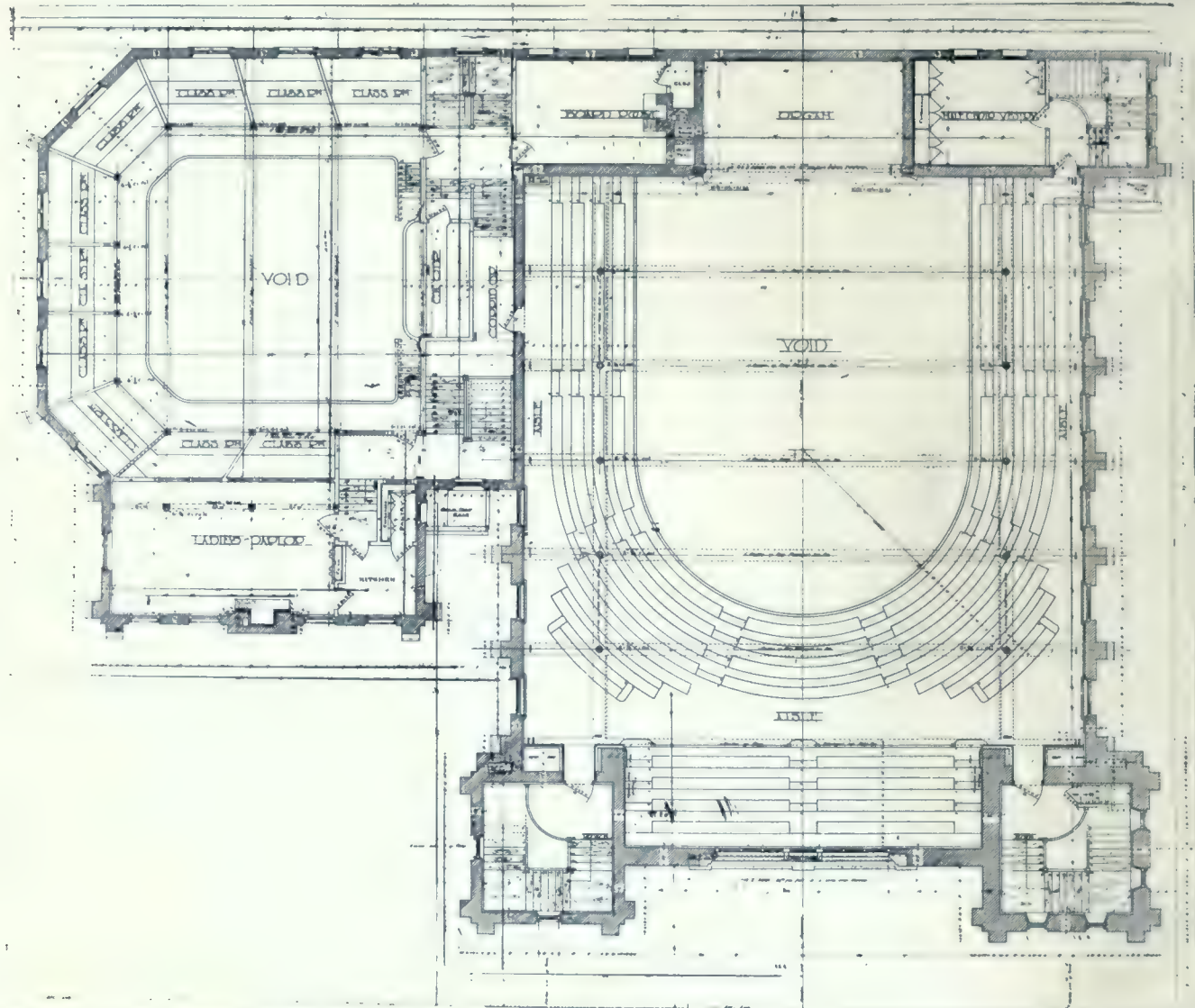


ST. ANDREW'S PRESBYTERIAN CHURCH, MOOSE JAW, SASK.

work. The first regular annual report to the Board of Regents of the State University will be printed for public use in due course of time.

The law, known as "Chapter 454, An Act to Amend the General Business Law, in Relation to the Practice of Architecture," was signed by the Governor on April 28, 1915, and became effective immediately. The members of the Board were appointed by the Regents and held their first meeting for organization October 22, 1915. The Board undertakes to meet one day weekly, usually in Albany on Thursdays. Since its organization, up to October 6, 1916, thirty-two (32) meetings have been held.

The work of the Board thus far has consisted; first, in formulating regulations for its own procedure; second, in outlining standards for examinations; third, in preparing for publication information regard-



GALLERY PLAN, ST. ANDREW'S PRESBYTERIAN CHURCH, MOOSE JAW, SASK.

J. H. G. RUSSELL, ARCHITECT.

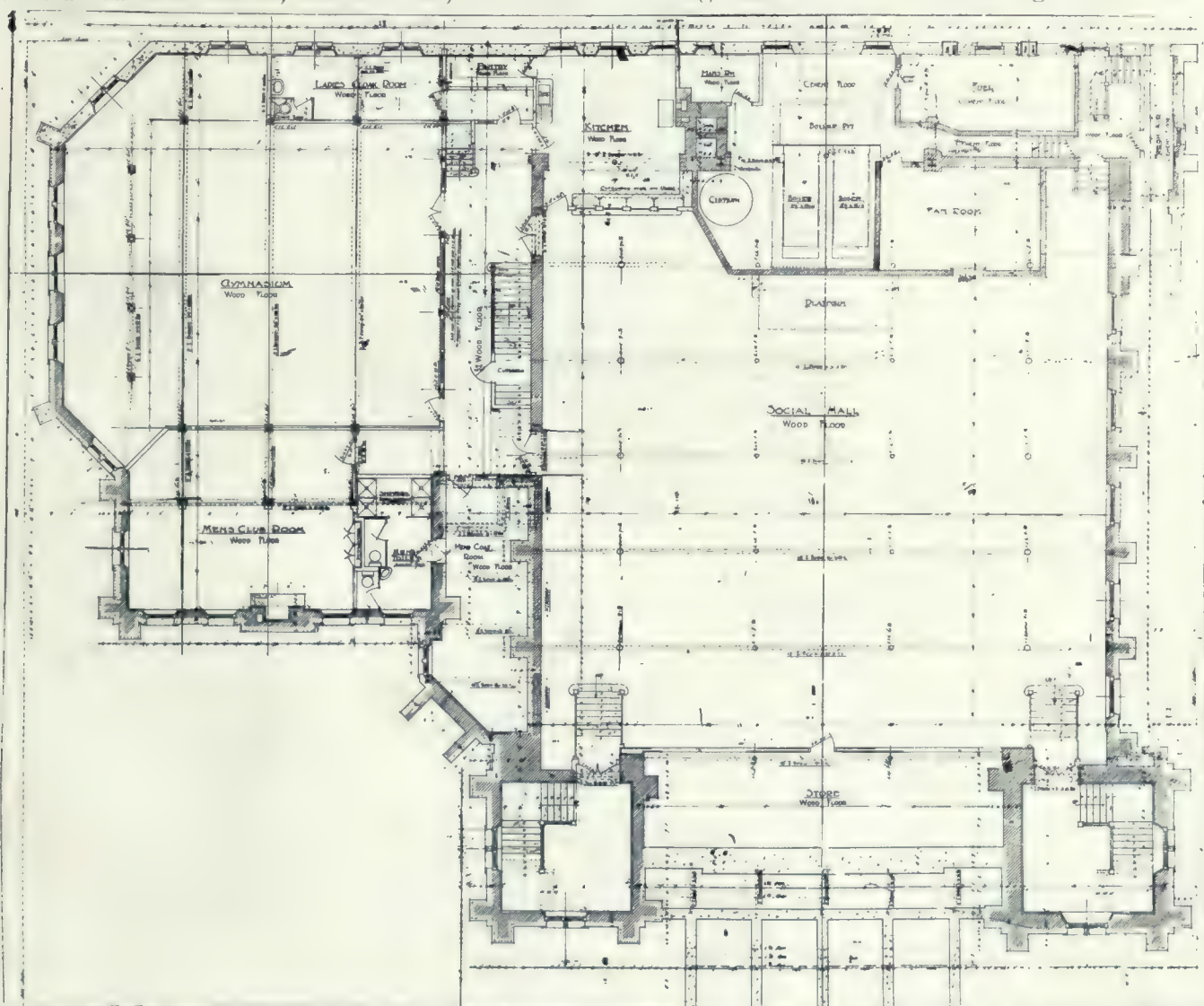
ing the Registration Law; and, fourth, in passing upon applications for certificates.

There were received about nineteen hundred (1900) applications for the granting of certificates without examination. Almost all of these applications are from men who were practising when the Registration Law went into effect. Inasmuch as the law is not a license law, those who were in practice before the law went into effect may continue to practise without certificates. Hence the Board believes that certificates should be withheld from all except those who appear to be reasonably well qualified to use the title architect. Among the applicants there have been those who have considered Real Estate, Automobiles, and even

Undertaking, along with Architecture, as legitimate branches of their contracting business. The Board has found it a tedious and time-consuming matter to review the large number of



VIEW FROM GALLERY, ST. ANDREW'S PRESBYTERIAN CHURCH, MOOSE JAW, SASK.

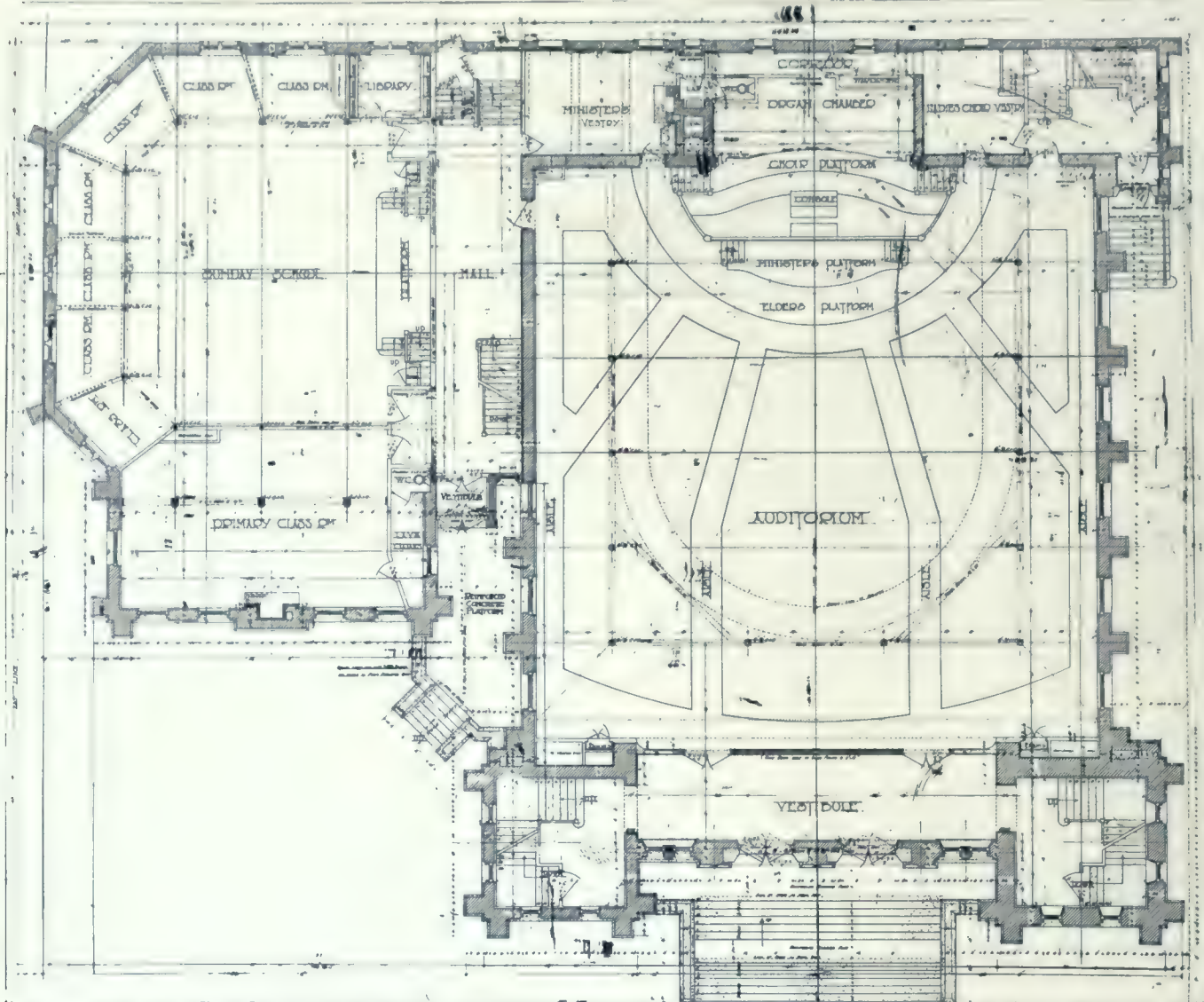


BASEMENT PLAN, ST. ANDREW'S PRESBYTERIAN CHURCH, MOOSE JAW, SASK.

J. H. G. RUSSELL, ARCHITECT.

applications, many a second and third time, and to examine thousands of drawings submitted under affidavit. Thus far, ten hundred and sixteen (1016) applicants have been reported to the Board of Regents as entitled to certificates, one hundred and ninety-seven (197) have been reported to the Regents with the finding of the Board of Registration that "the evidence submitted was not such as to entitle them to registration without examination," and about seven

The Board of Registration reports that it sees already evidence of beneficial effects of the Registration Law, and trusts that the most important work which the Board will have to do in future will be found in its efforts to raise the standard of education of architects by means of its examinations, or rather by means of its syllabus of required study and experience which may guide students of architecture in their preparation for the examinations. The good



GROUND FLOOR PLAN, ST. ANDREW'S PRESBYTERIAN CHURCH, MOOSE JAW, SASK.

J. H. G. RUSSELL, ARCHITECT.

hundred (700) applicants remain to be considered.

The Board for Registration of Architects has undoubtedly made mistakes, and recommended the issuance of certificates to men not entitled to receive certificates. The Board will correct any mistakes possible, and asks the help of the profession that it may do so. Information regarding any person who has attempted wrongfully to obtain a certificate should be sent to the State Board for Registration of Architects, Education Building, Albany, New York. Reports may be made personally to a member of the Board, and thus permit an investigation without the name of the reporter appearing in the record.

will and co-operation of all the profession is confidently hoped for, in order that the law may be administered wisely.

Australian Federal Parliament House Competition

The President of the Royal Institute of British Architects has received a communication, dated October 27, from the office of the High Commissioner for Australia in London, intimating that a cablegram has now been received from the Department of Home Affairs, Melbourne, to the effect that the date up to which designs for the above competition may be received has been extended from January 31 to April 30, 1917.

The Saskatchewan Association of Architects

AT the annual meeting of the Saskatchewan Association of Architects held in Regina, on October 27th, 1916, the following officers were elected for the year 1916-1917:

President, A. G. Creighton, Prince Albert; Vice-Presidents, R. G. Bunyard, Moose Jaw; J. E. Fortin, Regina; Secretary-Treasurer, Francis B. Reilly, Westman Chambers, Regina; Council, W. G. Van Egmond, Regina; Prof. Greig, Saskatoon; H. Cooper, Saskatoon.

The meeting was a very successful one and matters relating to the welfare of the profession were dealt with. The membership report shows that one third of the total membership are on active service for the defence of the Empire, and resolutions of appreciation for their service were passed.

The question of technical education received much attention. In view of the need of employment for returned soldiers who, if properly trained, would be able to help in the great development of the province which is bound to follow on the return of peace, it was resolved to urge the Government to establish schools for technical training throughout the province.

The employment of American architects for Canadian work, and often by Canadian firms was regretted. This practice naturally leads to the specification of American materials with which the American architect is familiar, and to the employment of American contractors to do the work. All of which is to the detriment of Canadian business and a serious loss to the country and it was resolved to take steps to bring this matter before the proper authorities to have the matter remedied.

The next annual meeting will be held in Regina.

Greater Home Comforts

Only two and one-half per cent. of the four hundred farmers visited in connection with the Agricultural Survey of the Commission of Conservation in 1915, had the complete service of water on tap, bath and toilet in their houses.

Five per cent. had automobiles; thirty-eight per cent. had pianos; thirty-two per cent. had organs; and twenty-two per cent. had gasoline engines on the farm. While it is well that seventy per cent. possess sufficient musical interest to have either a piano or organ in the house, it is regrettable indeed that thirty-nine out of forty have not installed the water service and bath.

Running hot and cold water in the kitchen removes much of the drudgery of housework for the farmer's wife.

Bathrooms for farm homes are just as necessary as for city homes, and the cost is not prohibitive.

No investment yields more in conserving the women's health and strength, in creating greater home comforts, and in elevating the general

tone of the material side of living than the installation of water service and the sanitary conveniences in the home. Thousands of farmers who could well afford to do so have not put in the service for various reasons—because they have not thought of it, or because they do not know how to go about it, or because they think it too expensive. The cost is not so great as many imagine. A bath tub can be purchased for \$10.00, a sink basin for \$3.00, a closet for \$16.00, a thirty-gallon hot water tank for \$10.00. Various means are employed in obtaining pressure at the taps, such as a force pump to elevate water to a tank in the attic, or a pneumatic tank in the

cellar, and the cost of piping and installation will vary according to circumstances.

One farmer had the hot water attachment, tank, bath and dry closet installed for \$50.00, the farmer himself helping the plumber to do the work. The complete service, which would be used three hundred and sixty-five days in the year, can be installed on the average farm for less than the farmer pays for the binder he uses for a few days at harvest time and which stands idle for the balance of the year. The man on the farm thinks he cannot get along without the many labor saving devices. How about a labor saver for the farm women?



A. GRAHAM CREIGHTON, PRINCE ALBERT, PRESIDENT SASKATCHEWAN ASSOCIATION OF ARCHITECTS. MR. CREIGHTON GRADUATED IN ARCHITECTURE FROM THE UNIVERSITY OF TORONTO, IN 1906, AND HAS BEEN PRACTISING SUCCESSFULLY IN THE WEST FOR THE PAST EIGHT YEARS.

St. Giles Presbyterian Church, Hamilton, Ont.

ST. GILES Church is an attractive structure with exterior walls of brick and concrete stone. The stone trimmings being designed to render an effective contrast to the coloring of the brick. The building is fifty-six feet, four inches, by one hundred and sixteen feet, on stone foundations. Walls are of solid brick, the basement being twenty-four inches and super-structure walls eighteen inches. The roof trussed is of steel, the steel beams being covered with ash, giving them a more massive appearance.

The interior walls are panelled with oak of a dark finish to a height of nine feet. The remainder of the walls in the building being finished in gray stucco.

strings, bars of metal and wood and also metallic discs, by means of induction from magnets in close proximity, which gives out a tone of marvellous sweetness. During the present year, in order to increase the volume of tone the Boston Company arranged with the Karn-Morris Company of Woodstock, to install a small pipe organ of five stops. The two instruments are played in combination from a three manual keyboard, the same as any ordinary pipe organ, and lends itself to great variety of tone.

Two small units of the choralcelo are placed in the rear gallery and give the effect of an echo organ.

This installation was the first of its kind in Canada and is proving satisfactory.



ST. GILES PRESBYTERIAN CHURCH, HAMILTON, ONT.

STEWART & WILTON, ARCHITECTS.

The seating capacity of the church is nine hundred and fourteen, the gallery and the east and west transepts, and at the rear supplementing the main floor and seating capacity. The floor and seats are of oak, the floor being carpeted. On the east side is included a chapel for prayer-meeting and special meetings. The Sunday School is a separate building being circular. The minister's study is also on the east side, has a beam ceiling, is oak panelled and carpeted.

The windows are all of stained glass. The lighting fixtures are unique, being of special design, each one containing three reflectors. The framework of the fixtures is of cyprus, enclosing art glass. Across the bottom of the inside is a prismatic glass which diffuses the light and gives a soft tone without shadows. Hot water heating has been installed, the heating unit being a set of self feeding boilers.

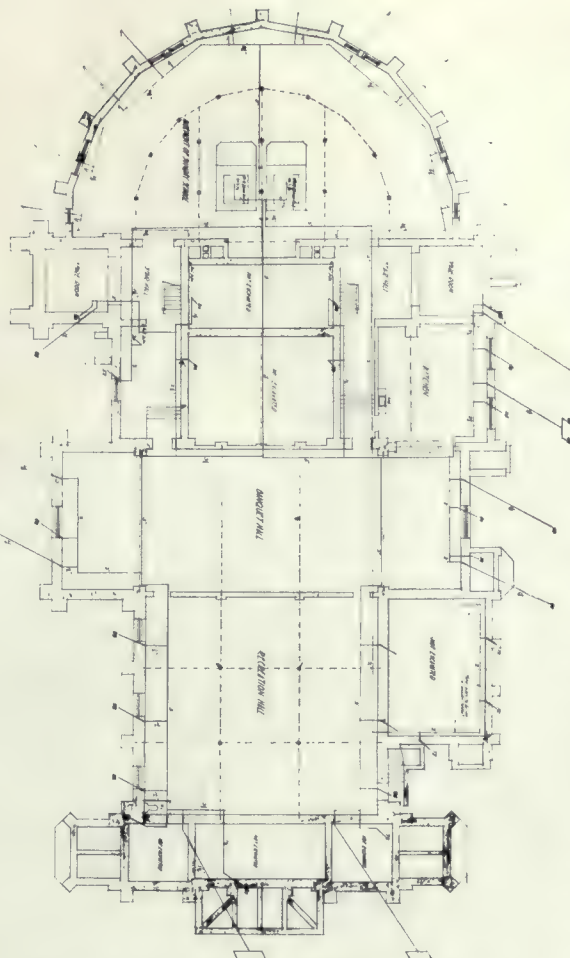
The musical instrument is a choralcelo and is in the nature of an electric organ, the tune being produced by vibrating chords similar to piano

Designs For War Memorials

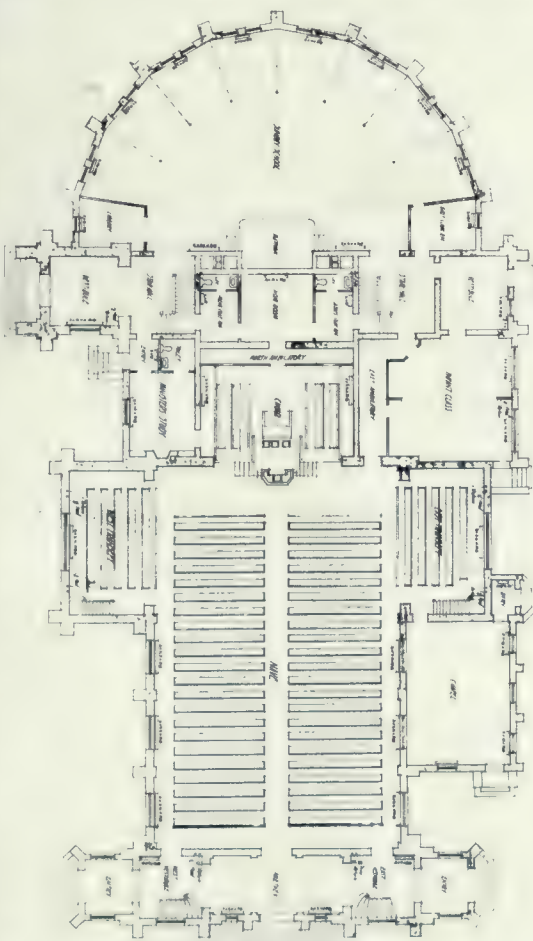
The first year of organization on the part of the Civic Arts Association, of Great Britain, resulted in the recent exhibition of War Memorial designs, held in the galleries of the Royal Institute. Nearly four hundred works were submitted for competition in the specified classes, but unfortunately limited space admitted of only a small number of selected works being shown. The Association, it must be explained, owes its origin to the far-seeing policy of the Hon. R. B. Kay-Shuttleworth, who early in the war collaborated with a number of artists to found a society whose chief aim would be to act in an advisory capacity to those of the public desiring to erect memorials to their dead. In addition it was recognized that the ambitious title Civic Arts embraced practically every subject bearing upon the problems of social amenity and artistic expression, a decision arrived at through the wisdom and eloquence of Professor Lethaby. The Executive Committee of the As-

sociation have the desire to augment the aspirations of other established bodies, not only in the furtherance of artistic achievement, but more particularly regarding the interests of artists, and hope to extend the scope of their operations to soil that has remained uncultivated. The need of an organized body of artists genuinely interested in the problems arising out of the great war is urgent. The movement in which the Association is the pioneer is as yet in its initial stages, the machinery far from perfect, the conditions seemingly overwhelming; yet the fact that a jury of responsible men, representing all sections of the sphere of art, has agreed to work in an executive capacity is an inspiring innovation with vast possibilities. The Association having organized itself, and having discussed all the conditions it would be called upon to meet, resolved to inaugurate a competition which would serve two distinct purposes: first, to assist those artists and craftsmen whom the war has seriously affected; and secondly, to enquire into, as well as to make discoveries regarding the nature of war memorials suitable for every purse. In time the scope of the Association might well be enlarged from its present advisory capacity to one in which it might exercise control in the design of monuments and their public setting.

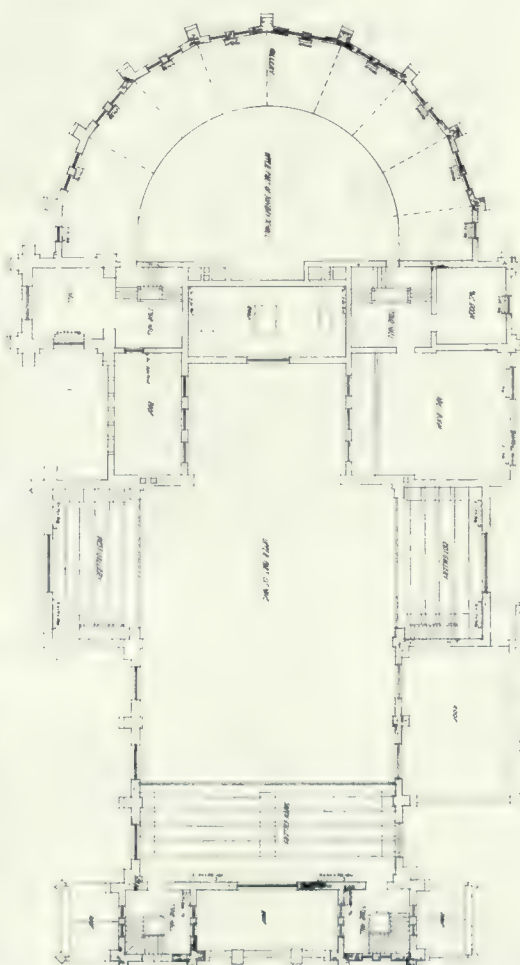
Judging from



BASEMENT PLAN, ST. GILES PRESBYTERIAN CHURCH.



GROUND FLOOR PLAN, ST. GILES PRESBYTERIAN CHURCH, HAMILTON, ONT.



SECOND FLOOR PLAN, ST. GILES PRESBYTERIAN CHURCH, HAMILTON, ONT.

the results of the first competition it cannot be said that artistic expression of to-day is ideal, although certain healthy signs are noticeable. There are apparently three distinct tendencies, groups, or schools in existence which can be classed as follows: the Arts and Crafts movement; the intellectual coterie, with predilections for the teachings of Rodin and Mestrovic; and the traditional school, which is unfortunately in a minority. Signs are not lacking that the first two groups have a common unity and sympathy, and practically unite forces in opposition to those who pin their faith to the standard of tradition. This is regrettable, but it is without doubt due to the amateurs in artistic matters possessing a smattering of knowledge and acting as direct patrons to

craftsmen, the lack of a general standard of taste, and the disturbing influence of fashion.

The traditional school, which to architects is the most important, has many obstacles to overcome before it regains its once-honored status. Its exponents are conservative of the old methods, but are keenly alive to modern thought and prefer to advance with circumspection. Notwithstanding such conflicting theories and apparent diversity of purpose among the competing artists, through the agency of the present competition several discoveries have been made. It is a well-merited triumph for the traditional school that the most important prize should have been awarded to an architect and a sculptor whose conjoint production is based on tradition—The group of sculpture flanked by trophies of war, submitted by Mr. E. A. Rickards and

Mr. Henry Poole, and awarded the first prize, is indubitably the best on exhibition. The second award was secured by Mr. Eric Gill and Mr. Charles Holden. This design is of quasi-religious character; its symbolical meaning has little reference to the war, but, on the con-

trary, aims at high moral significance. Mr. Eric Gill is a recognized theorist of the intellectual group which is at present fashionable; he aims at originality based on archaic simplicity, but he should have recognized that the legend of our Lord driving the money-changers from the Temple is too sublime to suffer translation into material terms.

The design by Mr. Alan Wyon and Mr. Stanley Ramsey, awarded the third prize, is an example of modern classic imperfectly worked out, although, considered as an idea, the conception is striking. Mr. Ramsey is well known for his theories regarding the best French models of similar character, and it is all the more regrettable that the sculptor did not rise to the occasion in the design of the figure surmounting the pedestal.

Regarding the wall tablets submitted in the various classes, these are far from convincing, although in some instances remarkable for good inscriptions and excellent lettering. The tastes of the artists vary from traditional Renaissance motifs to designs of pronounced Egyptian and Hellenic ancestry.

Mr. Eric Bradbury was awarded the first prize for a mural tablet in bronze, the design of which falls in the latter category. Mr. Eden's novel design for a carved wood tablet is an example of rich and ingenious complexity, recalling the naturalistic conventions of Grinling Gibbons transposed to terms of Gothic.

The designs submitted in the class for a Village Fountain vary considerably in expression. Mr. Cyril Farey's conception appears more suited to a vast garden than to the simplicity of a

village green, and the architectural treatment is labored and self-conscious. Other designs show sympathy for lych gates, seventeenth-century penthouses, and rude stone horse-troughs.

Among the lesser memorials for the home the medal stands designed by

Mr. Arthur Stratton are the most distinguished, and reveal legitimacy of purpose and sound scholarship. It is a pity that the claims of tradition in this particular regard were overlooked by the jury in favor of the lesser importance of craftsmanship as displayed in the design of inlaid boxes, illuminated lettering, etc.

The Civic Arts Association did not expect to receive standardized designs ready for use, for the primary object, as stated before, was to make discoveries and bring the necessitous artist into direct touch with the patron. The fact that the movement has been well received in the provinces and that the sympathies of local authorities throughout the country have been invoked is of good augury, for the future holds many awkward problems in store.

A. E. RICHARDSON (F.).



AUDITORIUM, ST. GILES PRESBYTERIAN CHURCH, HAMILTON, ONT. STEWART & WILTON, ARCHITECTS.

First Church of Christ Scientist, Toronto, Ont.

ARCHITECTURALLY, the new Christian Science Church, at the northwest corner of St. George street and Lowther avenue, may be described as a modern adaptation of Greek architecture, its general character being substantially that which prevailed in Greece and other countries during the first three centuries of the early Christian Church.

At the main entrance, on St. George street, is a row of fluted Grecian Doric columns. Crossing the loggia (illuminated at night by hanging

the foyer, are the board and reading rooms, where Christian Science literature may always be found. Here also are three of the five stairways which give access to the auditorium on the floor above; the one facing the main entrance being a broad flight of steps leading to the front and centre of the auditorium to facilitate the seating of the congregation.

While in the foyer, those who wish may leave their hats, coats, umbrellas, and parcels in a room for this purpose, each person's various



AUDITORIUM, CHURCH OF CHRIST SCIENTIST, TORONTO, ONT.

S. S. BEMEN, ARCHITECT.

lamps) the visitor passes through the main entrance into the vestibule, and through a second doorway into a spacious foyer. This is a feature of the church which distinguishes it from the usual church type. This foyer is large enough to accommodate about seventy per cent. of the audience standing, and fulfils the function of a large meeting place, for the people to exchange greetings after the service. Here Doric columns support the ceiling, and two fire-places are to be noted across the tiled space. On either side of the entrance, and accessible from

articles being given a separate compartment, and by an ingenious arrangement identified by one check. There are also comfortable and well lighted toilet rooms, sanitary drinking fountains, and a literature salesroom. The Sunday school room at the rear of the building is commodious, well lighted, and affords accommodation for about four hundred children.

Ascending to the auditorium, the visitor finds that everything has been done which would contribute to his comfortable enjoyment of the service. The nature of these meetings make it



ENTRANCE FRONT, HATLEY PARK, RESIDENCE OF JAMES DUNSMUIR, VICTORIA, B.C., CANADA.

SAMUEL MACLURE, ARCHITECT.

necessary that the readers should be heard from every part of the room. All of these essentials seem to have been perfectly provided by the architect and builders of this church.

The lines of pews are concentrically set on a sloping floor, giving the visitor unobstructed view of the platform. Behind and above the reader's desk is a row of Doric pilasters, separated by a grille or screen of classic design, through which the invisible organ is heard. Illumination is largely by the indirect method, the visitor enjoying a soft yet ample light, undisturbed by any lighting fixtures.

It will thus be seen that the general design and features of the church are of a practical and utilitarian character, and these basic necessities are beautifully clothed in a most artistic and convenient architectural form.

Curious Church Architecture

The parish church of Ormskirk, in Lancashire, England, has a tower and a spire side by side. The tower is built over the porch at the west end, and the spire is placed as closely as possible to it. The origin of this architectural freak has not been ascertained, but there is a tradition to the effect that when Orme, the Saxon pirate from whom the town derives its name, decided to construct a kirk, or church, as an expiatory offering for his evil deeds, his two daughters quarreled over the design for the structure. One determined to have a tower;



FRONT FACADE, CHURCH OF CHRIST SCIENTIST, TORONTO, ONT.

the other was equally resolved to have a steeple. As neither of them would give way, the pirate chief acceded to both their wishes, and the curious may see the tower and spire still keeping watch side by side on the surrounding country. —*Exchange*.

The Great Mistake

The great mistake made by the young architect at the beginning of his career is usually his failure to recognize that the world in which he lives is not supremely interested in Architecture written with a capital letter, and has not the time or inclination to make a close and intimate examination of the architect's qualifications. On the other hand, everyone enjoys pleasant and congenial companionship in daily life, and the architect who has lived a self-centered life of absorption in one pursuit is frequently a dull or boring companion in society. His natural anxiety as to his own future will, unless he is careful, operate directly against his chances of success, and when he obtains work he should remember that it is more to his advantage to have converted a client into a friend than to have pleased himself with the design of a building which, in any case, he will regard as a tentative effort in the future. We do not mean that he should be as wax in the hands of his client, or fail to do his utmost to produce good work, but he should avoid the mistake of over-estimating the importance of what he is doing. —*The Builder*.



READERS' DESK, CHURCH OF CHRIST SCIENTIST, TORONTO, ONT.

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A JOURNAL FOR THE ARCHITECTURAL
ENGINEERING AND CONTRACTING
INTERESTS OF CANADA



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FRASER S. KEITH - - - EDITOR AND MANAGER

Vol. IX Toronto, December, 1916 No. 12

Develop The Profession

In his letter to the editor, which appears on this page, Mr. Baker takes a laudable stand in reference to architectural affairs, and briefly touches upon points of outstanding interest to architects, and with an important bearing upon the future of the profession.

Mr. Baker's point in connection with the need of greater aggressiveness in respect to the education of architectural students is well taken, but it does not go far enough. The architectural profession in Canada will never fulfil its highest function nor reach its due and proper position until some suitable system of registration or recognized standard of qualification to practice is established. Educate the youth as we may, give them the best facilities the country offers in the way of advantages, insist on thoroughness and mastery of all necessary details pertinent to the functions of an architect, and then leave the door wide open, that anyone who desires may call himself an architect and secure work as an architect, will not advance the profession as a whole one iota. Talk as we may about raising the standard by means of a higher educational advantage for the students and agreeing amongst ourselves that we will do everything possible, personally, to maintain the traditions of the profession is but sounding brass and tinkling cymbal until we find some

means of protecting the profession and the public against the man who is not qualified to practice.

This should be done, not five or ten years hence, but right now.

6th December, 1916.

Editor of Construction:

A feeling of gratification and admiration must fill the breasts of those architects who are left at home still, at the spontaneous response so many members of the profession, their assistants and students, have made to the urgent call to arms of King and Country. Their enlistment and conduct in the war has added lustre and honor to the profession, and I am sure that at the proper time a suitable means will be found to perpetuate the memory of their noble action.

The course of the war is having a wonderful effect on Canadian character, and the country is passing through a very critical time. Architects in the ordinary routine of their work can do much to aid in moulding the character of the people, and I am sure that their constant effort will be to create in this young country a spirit of honor, thoroughness and energetic progress in every direction, at the same time using all their influence against that undue haste which invariably produces superficial results. England is to-day greatly strengthened and supported by her glorious traditions, resulting as they have from the high principles and thoroughness which have for generations characterized the mother country.

This is a time, too, when the calling in of professional advice from foreign countries, unless absolutely necessary, should be avoided. Canadians should support each other at every turn. Architects, like other men, have bills to pay, and cannot lightly turn to other employment. They properly rely upon their fellow countrymen, as they would also give them their own support. This, with the careful conservation of all resources, will help materially to bring this young country into line with the best traditions of the mother country.

Those foreigners who come here to settle are, of course, most welcome, and will soon be assimilated and made to feel at home. Those who come in for one piece of work, and then go home with the money, do this country a double injury. Our policy in regard to this should be a broad and generous one, but "Canada for the Canadians" must ever be before us.

There is undoubtedly a serious lack of aggressiveness on the part of architects in the matter of the education of the students, and the holding of meetings from time to time. A younger generation of architects must be brought along, we cannot stand still because there is a war. In the course of time the war will, we trust, come to the desired end, and architects will be required then for the immense amount of construction work which is ahead of us. It is not a healthy condi-

tion for the architects to go along without meeting from time to time to discuss those things which affect the profession in a general way. These meetings should not always be informal, but should be recorded, having in mind the future history of the country.

The press of the country could do much at a time like this to further those high aims which must come to a people whose finest young men have shown and are showing such splendid patriotism and courageous loyalty in defence of their country. Possibly it is not going too far to ask, have our journalists risen to the occasion? and to appeal to the daily papers of the country for a higher standard. The people are longing for it, and would rather pay a higher price for their daily paper, if that is necessary to ensure sound journalism in the highest sense of the term.

Architects, individually and collectively, should redouble their efforts not only to ensure good building and good architecture, but to see that students are trained and encouraged to provide for the future of Canada, the great advancement of which everything now points to.

Yours, F. S. BAKER.

A Forward Movement

The recent action on the part of some of our foremost banking institutions in resuming building operations suspended entirely after war broke out, promises much in the way of building activity for the coming year. Last year and most of this year until a month or two ago, it was extremely difficult, if not impossible, for contractors generally to secure loans for new buildings. The whole situation has been changed so that, within the limits of existing conditions, next year will see a substantial amount of building construction in Canada.

Canadians Not Barred

The interpretation placed upon the enforcement of the Alien Labor Act of the United States by J. H. Clark, United States Labor Commissioner at Montreal, as shown by a letter published on this page in August, gave unmistakable evidence that he considered Canadian architects, engineers and contractors in the same class as mechanics, and consequently they were barred from undertaking work across the border. Inasmuch as Mr. Clark has exercised control of emigration from Canada to the United States, and was in a position of authority, it became evident that we were being discriminated against.

We are glad to state that Mr. Clark's interpretation of the United States Act was not in accordance with its intent, and it is to be hoped that the authorities at Washington have so notified him.

Letters received from the United States Department of Labor and the Treasury Department, Washington, prove clearly that whatever may have been Mr. Clark's contention in respect to the Act, he was acting under an erroneous conviction. Considerable comment and not a little feeling was aroused in the minds of Canadian architects and engineers over the situation, but the atmosphere has been cleared by the letters to Mr. H. Macdonald, Acting Secretary of the Canadian Manufacturers' Association, in response to an enquiry from him.

U. S. DEPARTMENT OF LABOR, BUREAU OF IMMIGRATION

Washington, November 3rd, 1916.

H. Macdonald, Esq., Canadian Manufacturers' Association, Toronto, Ont.:

Dear Sir,—Receipt is acknowledged of your letter of the 26th ult., enquiring whether Canadian civil engineers and architects are permitted to practice their respective professions in the United States, and whether they are eligible to contract for the erection of Government works or civic buildings.

In reply, you are advised that professional engineers and professional architects who come to the United States to practice their respective professions, are regarded by the Bureau as members of a "recognized learned profession," and eligible to enter this country under the exception to the contract labor provisions of the Immigration Statute (Act of February 20th, 1907), in favor of that class. This information is furnished you because it is assumed you have reference to the admissibility of members of these two professions under the United States Immigration law, given in the enclosed pamphlet. (See Sections 2, 4, 5 and 6.)

So far as your letter relates to the privilege of Canadian civil engineers and architects to practice their respective professions in the United States, this office can only say it knows of no instance in which engineers and architects have been denied said right or privilege, or have been discriminated against by private manufacturers and construction firms because of the Canadian citizenship or alienage of such engineers and architects.

Your enquiry as to whether Canadian civil engineers and architects are permitted to contract for the erection of Government works or civic buildings is being referred to the Treasury Department, which can more properly give consideration to this question, and that Department requested to advise you in the premises.

Respectfully,

(Sgd.) C. T. HAMPTON.

Acting Commissioner-General.

TREASURY DEPARTMENT.

Washington, November 13th, 1916.

Mr. H. Macdonald, Acting Secretary, Canadian Manufacturers' Association, Toronto, Canada:

Sir,—Your inquiry of the 26th ult., addressed to the Immigration Bureau, Department of Labor, has been answered in part by the letter of the 3rd inst., from the Acting Commissioner-General of Immigration, stating that professional engineers and architects are regarded as members of a recognized learned profession, and, therefore, eligible to enter this country.

Your inquiry if Canadian civil engineers and architects are permitted to practice their respective professions in the United States, and whether they are eligible to contract for Government work and civic buildings, has been referred by the Department of Labor to this Department for reply.

The practice of their profession in this country by alien architects and engineers, as far as privately-owned buildings or civic buildings belonging to the states or their municipalities are concerned, is dependent upon the laws and regulations on the subject of the individual states, in which connection it should be borne in mind that certain states require architects to be licensed, which in most cases involves appearance before a licensing board for examination. These states are California, Colorado, Illinois, Louisiana, Michigan, New Jersey, New York, North Carolina, Utah and Florida.

So far as this Department is aware, there is no general law of the United States which prohibits the employment of alien architects and engineers for Government work, either in the capacity of professional men or in the capacity of contractors, except the restriction placed upon the Secretary of War by the Act of Congress approved March 3rd, 1875, which provides "That in all contracts for materials for any public improvement, the Secretary of War shall give preference to American materials, and labor thereon shall be performed within the jurisdiction of the United States."

While the law does not bar alien contractors, the Government is not bound to accept the lowest proposal, and might give consideration to the trouble and inconvenience to which the Government would be subjected in enforcing its rights against a defaulting alien contractor in the courts of his own country.

Respectfully,

(Sgd.)

B. A. NEWTON,

Assistant Secretary.

The authoritative sources of the above communications give ample assurance that Canadian architects and engineers are not prohibited from undertaking work with private concerns across the border, and in that respect, at least, we enjoy the same privileges as our American confreres do in Canada, except, of course, that in actual practice the benefit is all in favor of our friends to the south.

The Heating and Ventilating of Churches

By HAROLD L. ALT

THE ventilation problem in the modern church presents many angles for consideration, not the least of which is the fact that numerous churches are laboring under heavy debt and are, therefore, not at all anxious to spend any larger sum on the heating and ventilation end than is absolutely necessary. Added to this is the difficulty that some churches try to economize by standing cold during the week and heating up on Sunday only—a mistaken and dangerous policy.

The masonry construction of most churches, especially edifices built some time ago, is usually much heavier than that of a corresponding theatre of equal size, and this results in extreme heat-absorbing capacity when churches once get cooled down.

Another consideration, and a most essential one, is that of noise, many churches having given up their ventilation equipment in disgust on account of not being able to use their systems during services owing to the objectionable noise.

Therefore, a heating and ventilating system, to give the utmost satisfaction possible, should combine (with all the other usual desirable qualities) a low first cost, a minimum amount of noise in operation, great capability of quick heating, and still must be simple enough to be operated by more or less non-expert janitors.

Owing to the auditorium-like arrangement there is no need of the individual duct system in the ordinary church, since the air from all sides of the building intermingles almost at once and forms a fairly equal temperature at various heights above the floor; for the same reason the double duct system need not be considered. In fact, the trunk line system seems to supply every needed function, being at the same time cheaper and simpler than either the individual or double duct system.

For the small or moderate-sized country and suburban church, the modern furnace has much to recommend it, many manufacturers paying particular attention to this sort of work. In the first place, it is absolutely quiet in operation, does not require any expert knowledge to run, cannot freeze up during the week, and supplies enough fresh air to meet moderate ventilation requirements. A recirculation connection combined with a carefully designed furnace equipment of this sort is a very practical solution of certain church requirements.

In a large modern city church, which is the style of building with which this article particularly deals, the limitations of satisfactory furnace installations are exceeded, and some form of hot blast or fan system should be substituted.

Assuming the trunk line type of system has been settled upon for a large modern city church, the next point to be taken up is the location of inlets and outlets. A hot-air inlet in the aisle is objectionable on account of its being constantly walked over (thus receiving an excessive amount of dust), its poor distribution of the entering air (even when two or three such registers are used), and its unpleasant effect on the persons walking over it. Neither are hot-air inlets under the pews satisfactory, since they result in discomfort to persons sitting directly over them when the temperature is high, and must force more or less of their air through and around the clothing worn by the members of the congregation before this air rises to the breathing line.

Neither, on the other hand, do inlet registers in the ceiling and the use of downward ventilation entirely rid us of all our troubles, as the unusually high windows (present in most churches) result in very strong cold drafts downward, falling on those seated beneath such windows.

All things considered, the most satisfactory location of inlet openings is in the window sills when the incoming warm air counteracts the cold down drafts, resulting in a tempered mixture of atmosphere which is thrown outward toward the centre of the congregation.

There is no objection to exhausting from outlets located beneath the pews, and this avoids the exposing to view of large exhaust registers which would otherwise appear in the walls or ceiling. In fact, when the window sill inlet is used, better results are obtained with floor exhaust outlets than with openings in the ceiling. This is apparent from the fact that the natural flow of air from the window sill inlet toward the ceiling outlet would not cross the breathing line of a single member of the congregation.

A cross section showing just such a window sill inlet and new outlet is given in Fig. 1; both the supply and exhaust ducts in this particular case are run on the ceiling of the basement below.

Some systems only deliver supply air and let it find its way out through natural leakage. It does not seem, however, that it is reasonable to expect more than one, or at the utmost two, air changes per hour to find egress by this method. If more air (as is usually the case) is being supplied than two changes per hour, some provision should be made for taking care of the additional air furnished.

Many architects object to a radiator exposed to the view of the congregation, a much simpler expedient being the installa-

tion of a few additional rows of heaters at the fan and to warm as well as ventilate. This method involves the advantages of eliminating all the radiators, together with their steam and return piping, which would otherwise run promiscuously around the basement, and also cuts the first cost.

Practical trial, however, has developed several severe and radical failings in a purely hot blast system used without direct radiators. One of these is the well-known fact that while a hot blast system is at best rather slow in warming up a cold building (even with recirculation), the heavy walls of a church absorb so much of the first heat delivered to the room that a hot blast system otherwise perfectly adequate will have to begin operation Saturday afternoon to bring a cold building up to 70 degrees by 10 a.m. Sunday morning. This causes a jump in the electric power bill during cold weather that is nothing less than startling.

Another disadvantage is the inability to warm any room during the week without starting up the whole system and running the large fan. To some extent this may be overcome by a more or less complicated system of dampers, but can never compare in economy with the use of direct radiators for heat alone, and the blast system solely for ventilation effect.

The drawings shown in Figs. 2 and 3 are the basement and first floor plans of a church built a few years ago, in which the hot blast system is used in general without radiators.

This system was carefully designed in the extreme, flues being run to supply each class room individually, so that the doors of the class rooms could be shut, if desired, and ventilation still carried on.

The air was vented through the roof by means of two ventilators, one over the Sunday-school room and the other over the church. In the societies' room 8, where the air supplied amounted to more than would be lost through natural leakage, a vent X was cut through into the church to allow a relief of the back pressure which might otherwise be created in the confined room. This hot blast system was most carefully figured and installed by engineers co-operating with the architect, and everything to make the system a success, which could be done, was done. In spite of this, as might be expected, the objections previously mentioned were found to exist in this installation.

While a recirculation connection R (Fig. 3) was provided in the cold air downtake from the roof so that the outside cold air could be shut off and that in the church revolved over and over again, and ventilators V provided, it was found impossible to let the building get cooled down during the week and then heat it up on Sunday morning.

By starting Saturday afternoon and recirculating the air, the original 40-degree temperature (to which the interior of the church often fell during the week) could be raised up to about 60 degrees before shutting down for the night. During the night the temperature would drop back to somewhere around 52 degrees, and by starting up at 6 a.m. Sunday morning, it was possible to get as high as 65 degrees by 10.30 a.m. Continued operation during the day, even in extreme weather, showed the thermometer up to above 70 degrees before evening, showing that the apparatus was amply able to maintain a proper temperature as soon as the walls ceased absorbing large quantities of heat.

To those who might say the apparatus should be increased, I would answer that this increase must amount to at least 100 per cent. over that already installed, since it would be necessary to accomplish the same heating effect (minus the drop during the night, of course) in about one-half of the time at present required.

To those claiming the building should be kept warm during the week, I would answer that this would entail a total of more hours of fan operation per week, as well as additional coal, thereby increasing not only the coal expense, but the power bill as well.

Let us turn away from the combined hot blast heating and ventilating system,

and see what results are attained when the warm air is used solely for ventilation effect and the heating accomplished by direct radiators.

In the first place, this means that steam supply and return pipes must be run practically all over the basement, as well as the galvanized iron pipes used for the ventilating system, and that these pipes must be arranged so as not to interfere with each other. It also means a slightly higher first cost, this not being as much of an increase as might be expected, owing to the fact that the fan heater can be reduced to about 50 per cent. of the capacity otherwise required, besides which it is also unnecessary to provide a recirculation connection.

The advantage of heating positively all rooms regardless of direction of the wind or their isolated location, is obtained only with this system. By the simple expedient of valving each riser, and, possibly, two or three points in the mains, this heating can be accomplished without warming up the whole system and without the expenditure of any electric power whatsoever.

Moreover, no power need be used to operate the fresh air

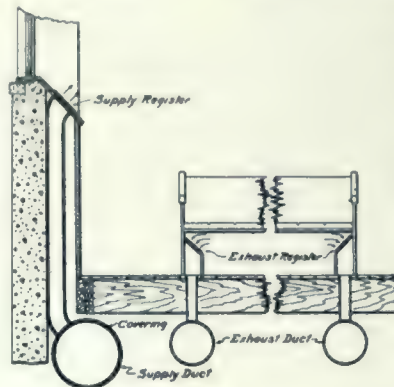


Fig. 1

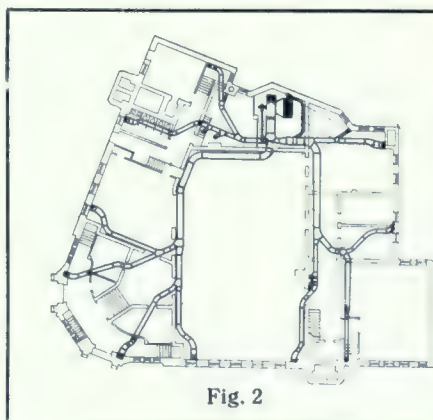


Fig. 2

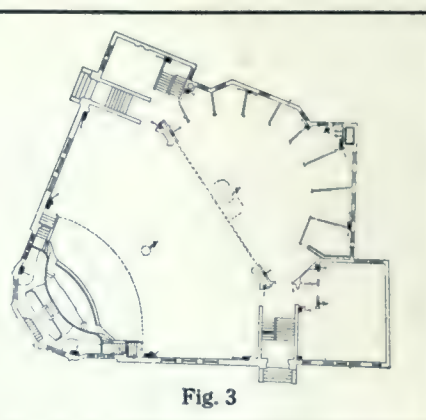


Fig. 3

system until the congregation is fully assembled, and often in bad weather when the attendance is small there is no discomfort experienced for an hour or so without operating the fan at all. With a proper amount of direct radiation installed it is possible to warm up a building in four or five hours, and the maintaining of a small fire under the boiler during the week will generate sufficient vapor to keep the building temperature from going down to a very low point, making it much easier to heat up than without the direct radiation.

As far as gravity air systems with the air in the flues heated by indirect steam or hot water radiators are concerned, they are naturally unsuited for church work. They have usually no practical way of recirculation, and, owing to most of the outlets being located at or near the floor level, the velocity of the heated air is very small.

With a heat stack hung on the basement ceiling it is often less than 24 inches to the outlet in the floor above, which means a great decrease in velocity; this requires, of course, excessive radiation and an undue number of outlets, which must also be of much larger size than required with a fan.

In fact, a church in which a system of the steam heated indirect gravity kind was installed in connection with an old type of propeller fan, is shown in Figs. 4 and 5, these being the basement and first floor plans after the heating was remodelled. This alteration was made necessary, needless to say, by the unsatisfactory operation of the indirect radiator system first installed; but the desire to avoid additional expense caused the utilization, as far as possible, of the old registers, which accounts for some of the idiosyncrasies in register shape and location as shown; otherwise the system is good.

Some of the readers of this article may question the showing of a system which is not "ideal" in every particular. Sad to say, systems "ideal" in every particular are few and far between. It is the purpose of this article not so much to theorize and vaporize on what should be—and is not—as it is to take practical installations which serve their purpose reasonably well—and which are installed.

It will be seen by referring to Fig. 4 that a fresh air chamber is located on one side of the basement in which a vertical down-discharge fan SF is located, the fan drawing the air out of the chamber and discharging it into an underground duct. The duct splits into two branches, one branch going to the rear heater chamber, and the other to the front heater chamber. The pressure produced by the fan drives the air upward in the heating chambers and through the indirect heaters H into the supply ducts on the ceiling, which carry the heated air to the various supply registers. This air is not intended to heat it, serving to ventilate only; the heating is accomplished by the direct radiators shown in Fig. 5. The system would have been improved had the supply registers been placed under the windows, but money was not available to permit this radical change. An elevation of the supply fan and one heater chamber is shown in Fig. 6.

The exhaust is pulled out through the various exhaust registers by a fan EF (located on the other side of the basement across from the supply fan), which discharges the air on the opposite side of the building. The discharge air from the adjacent Sunday school is carried out through the duct E, although this does not affect the church system in any way; Z indicates unexcavated cellar.

This system has the advantage of supplying fresh, cool air, if desired, just as efficiently as hot air, and keeps the power bill at the minimum.

A most important matter in the installation of a church system is the elimination of noise to the greatest possible extent. Of course, this is always desirable in any system, but it must receive particular attention in churches. The average church, while having massive masonry walls, for some reason seems to have poorly constructed floors; a few have concrete or terra cotta floor constructions, but most have only wooden floor joists with plaster below and flooring above, this construction having no more sound proof qualities than possessed by the ordinary frame house. Therefore, while noise is specially objectionable, the normal construction means of deadening such noise is unusually poor. Noise in fan systems is generally produced by one or more of several distinct causes. These may be divided into fan noises, caused by too high speed or improper alignment; air noises, caused by high velocities; belt noises, when belts are used; motor hum, present to greater or less extent in all motors; and vibration noises, caused by improper or unstable foundation.

In cases of improper alignment, of course, the remedy is easily applied; while maintaining air velocities of 1,200 feet per minute or less will generally prevent the sound of the air moving through the ducts. The matter of fan speed should be carefully looked into before specifying a fan; in general a tip speed not to exceed 3,000 feet per minute will be quite conservative, but the recommendations of the manufacturers of the particular fan specified should also receive consideration.

Belt noise is always present where the motors are belt connected to the fans, but this trouble may be aggravated by looseness and improper joints.

The hum of the electric motor is a sound of apparently small moment, yet in alternating current motors it is of a peculiarly penetrating character. Many engineers regard the motor hum as deserving of more consideration than the fan which the motor drives. Let us see what means may be taken to overcome the various noise troubles.

In Fig. 9 is shown a fan and motor installed in what may be termed a "first-class standard manner." Both the fan and motor are set on substantial concrete foundations, A being a 4 by 6 inch yellow pine frame halved together at the corners and bolted to the foundation bolts, the heads of which are countersunk into the frame. The fan is lag-screwed to the frame, and a 2-inch cork separator pad C is placed between the frame and the concrete foundation F; the motor is set in a similar manner. With ordinary first-class apparatus, properly installed, and masonry floor construction, this arrangement is fairly satisfactory. With wooden joists, plaster ceiling, and common flooring above, the motor hum from this installation will be plainly audible in the church, and other more efficient means should be adopted.

In Fig. 7 is shown a method of confining the motor hum so as to render it unobjectionable, but this method does not kill the noise of the belt or the fan. A, C and F in this figure indicate the same materials as in Fig. 9, while the canvas joint shown should be used on any and all fans wherever installed. It is impossible to operate a fan without having a certain amount of noise from the moving air and revolving parts; this is transmitted from the fan to the duct, which telephones it direct to the room outlets, unless the metallic connection is broken by the

canvas connection, this being usually made about 8 inches long. With Fig. 7 the noise might still be heard to an objectionable extent in the church, but, on the other hand again, it might not, this depending largely on the fan and its peculiarities.

In Fig. 8 a much superior method of sound deadening is shown, this having proved satisfactory in almost every case. Here A is a yellow pine frame as previously described; B is $\frac{1}{2}$ -inch tongued and grooved stock; C consists of two layers of 2-inch cork, and D is another layer of $\frac{1}{2}$ -inch boards, binding the whole together; E is piano felt 1 inch thick and in strips 6 inches wide; while F is a common concrete foundation. Sometimes lead or rubber washers are used under the foundation bolt nut heads, which are recessed in the frame, the fan being lag-screwed as before, while the hung ceiling over the entire apparatus gives a double dead air space between the fan

room and the church. Of course, it is necessary to carry the regular basement ceiling straight through on the bottom of the joists in order to produce the double space, but after being thus treated this installation may be safely located under any portion of the church.

Where basement head room is scanty, various expedients are adopted, the best of which lower the grade of the fan room floor until the method shown in Fig. 8 can be used. Where this is not practical, an expedient such as is shown in Fig. 10 may be used. Frankly, this will not be as efficient as the method shown in Fig. 8, but it is fairly satisfactory.

When exhaust fans are located on upper floors the problem is also best solved by the scheme shown in Fig. 8, the foundation F being carried on suitable structural steel supports. Where the head room is limited, a structural steel support arranged as shown in Fig. 11 will also give good results.

One thing that should be remembered in all fan installations carried on steel supports is "mass in the foundation." In other words, there must be sufficient weight in the foundation mass to absorb the vibration of the fan, for, although small, this vibration is present just the same.

As an example of this in aggravated form it may be interesting to note the case where one of the large public service companies recently installed some blowers for forced draft purposes. These blowers were driven by direct connected steam

turbines, thus eliminating all reciprocating parts, but of course they operated at a much higher speed than the ordinary fan. The blowers were located on a steel platform constructed of 15-inch I beams swung across the firing aisle between the two rows of boilers and supported on the steel building columns. The beams were designed with a factor of safety of twelve, and had a 4-inch reinforced concrete slab to form a walkway around the apparatus.

In spite of all that the manufacturers' experts and the company's engineers could do, this platform shook so when the apparatus was started that it was impossible to stand on it without holding on to the handrail. Numerous suggestions

for remedy were made and tried out, but none sufficed until a common wooden form was built under the bottom of the I beams, and the 4-inch concrete slab torn off, and a new slab, 15 inches deep, extending from the top to the bottom of the beams, was poured in its place. No further trouble from vibration was experienced, simply because the increased weight of the mass was sufficient to absorb the vibration.

The same effect in a lesser degree is present in every fan carried on steel members, and the presence of a 12-inch concrete slab under the entire area covered by both the fan and the motor, while a simple matter during construction, will save much annoyance that might occur.

WAR AND INDUSTRIAL ECONOMICS PRESENT AND POTENTIAL.

The military phases of the war, which at the moment are of intense significance, cannot appropriately be discussed in a technical journal, but the critical position at present, and the suggestion it conveys of a prolonged conflict, invests with renewed importance the economics of the situation. In the process of attrition financial resource must be a dominant factor. Expenditure is growing, debt is mounting up, and it is incumbent upon

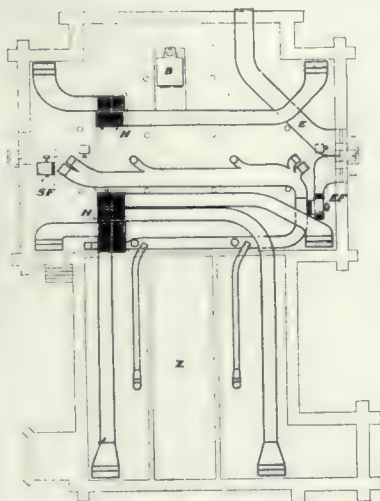


Fig. 4



Fig. 5

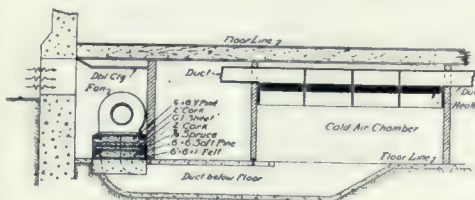


Fig. 6



A FRENCH PAINTER'S JOKE ON THE CUBISTS.

This picture was one of the features of the exhibition of work by contemporary French artists at the National Exhibition. It is entitled "A Showman's Speech," and shows a cubist painter trying to sell a skeptical old gentleman one of his freak pictures.



H.R.H. THE DUKE OF CONNAUGHT LAYS CORNER-STONE OF NEW PARLIAMENT BUILDINGS.

This picture, which was the last important ceremony in which Their Excellencies took part at the Canadian capital, occurred on September 1st, 1900. The portrait of the Princess Patricia, who stands in the rear of her father and mother, is the finest snap-shot that has ever been taken of her.

all concerned with that production, which means the accumulation of money, to face their responsibilities. Thus no excuse need be made by us for insisting time and again upon the necessity for thought and action in the maintenance of our national income. The strategic skill and resource of our generals and their staff, the valor and self-denying courage of our troops, and the continuous and untiring effort of munition-producers, all combined, may not serve to achieve a victory without lasting disadvantage from the Imperial standpoint. More is necessary. We must keep our exchequer fully supplied now and in the future. We have at present the co-operation of the industrial resources of neutral nations in helping to augment war supplies. It is necessary that we should now export productions rather than gold to pay for such purchases. Consequently the maintenance, if not the increase, of the output of disposable manufactures now is a vital duty. To increase them in the future is equally important, in order that the war shall not involve a permanent injury to our financial and commercial stability.

The advance in the price of commodities, involving war bonuses, as it has rightly or otherwise done, is economically unsound. The cost of production has as a result been augmented, because, in the great majority of cases, the increase in wage is not counterbalanced by greater output. Goods for home and foreign use are made dearer. Thus the cost of living tends to rise still more, while at the same time it becomes more and more difficult to add to the volume of our export trade. Only by this latter means can our financial condition be made satisfactory. We do not propose to enter here into the somewhat abstruse question of the influence of paper currency on the value of gold, or into the effect on foreign exchanges of the accumulation of gold in neutral countries, due to payments by belligerent countries for war supplies. It will be recognized, however, that, in effect, adverse rates of foreign exchange must influence adversely the cost of food supplies brought to this country. This is another reason why the aim must be, as far as possible, to pay for our raw material and food supplies—and, in as great a measure as is feasible, also for our war material—by exporting manufactures.

This can only be done by a full recognition on the part of the employer and worker of their national duty to ensure economic equilibrium between the exports and imports. The latter may be decreased by stringent economy in consumption, with the further advantage that savings may be invested for personal gain and national weal. The exports may be increased by greater and more efficient manufacture. The difficulty in achieving the latter is intensified by the great number of workers withdrawn from their ordinary avocations for military service either in the trenches or in munition factories. It is difficult to compute the number of these, but Professor W. R. Scott, the occupant of the Chair of Political Economy in Glasgow University, in the inaugural lecture of the session, computed that the number for Europe was 25,000,000. We do not think that this is by any means an excessive estimate; it is probable that in this country alone there are 10,000,000 workers who have ceased to contribute by labor towards national income. We have seen it stated, and many hold the view, that, as the money paid for war work is put into circulation, the expenditure is not lost. There can be no greater fallacy. As the production resulting from the expenditure of this money is non-reproductive, it does not add permanently to the nation's wealth. The money spent in producing a time-fuse, which is fired away with a shell in the European war, cannot, by any trick of the imagination, be regarded as comparable with the money given to the same workers for producing a sewing machine or similar piece of mechanism, capable of augmenting wealth. While we cannot avoid the task thrust upon us of wasting money on shot and shell to be fired away in the four corners of the Continent, we must, at the same time, try to counterbalance the account by maintaining, as far as possible, our output of wealth-producing manufactures for home as well as, and particularly, for export.

There are but two ways of increasing the production of marketable goods at the present juncture; by the fullest possible utilization of all mechanical appliances available, and by the utilization of all physical effort that the nation can mobilize. Lord Derby's scheme of recruiting must in its result reduce the number of young men who might be more effectively employed industrially than at present. It will, as a consequence, be necessary to draw into the net for the output of manufactures a still larger volume of female labor. Indeed, the question must soon arise as to whether some Government department, either existent or to be created, should not tackle the problem of maintaining our export trade in order to rectify the economic difficulty which threatens us. We are glad to note that the Home Office has this week appointed a committee in connection with female labor on commercial work. We need one also for utilizing the remaining female labor for augmenting manufactures to adjust the economic situation. This phase of the conflict is apt to be lost sight of, because industrial economics is not sufficiently considered in our commercial life. As a science it is ignored. This

is not the time to enforce the advantage, for all employers as well as workers, of becoming familiar with economic principles and their application; but we hope that one of the changes which will come as a consequence of the intensity of life resulting from the war will be a fuller recognition of the need for a study of industrial economics. Professor Scott, in his lecture, not only established a strong case for such recognition, but illustrated the advantages by his admirably informing survey of the influence of economics, not only on modern warfare, but on post-bellum conditions. He defined economic science as "the explanation of the phenomena of the economic life of a country," and this surely involves the whole industrial fabric of a nation. The phenomena have become much more important owing to the war, and the ravages already disclosing themselves, so that it is well that we should at once tackle the problems which must arise sooner rather than later.

The post-bellum conditions will raise new problems. There will be the question of the re-distribution of labor at home. Uncertainties prevail regarding the markets for our exportable productions. As Professor Scott pointed out, certain goods and certain kinds of skilled labor bear at the present time a "scarcity value," and there have been indications that the sellers, both of goods and labor, have endeavored to obtain a "scarcity price"—in some cases even a monopoly price. If the scarcity ceases, prices alike for material and labor will fall, and there will come a corresponding readjustment of real wages, which will be to the advantage of the unskilled worker. But to what extent this will operate is uncertain. What must be aimed at, not only now, but in the future, is economy in life in consumption of all classes of goods which can be exported, associated with the highest productive efficiency in labor. This does not necessarily mean the cheapening of labor, but rather the ensurance of the highest degree of productivity for a given expenditure, both of labor and the mechanical appliances utilized by labor.

The war, too, has involved immense governmental interference with the conditions accepted, and more or less service-emergency measures takeable, in peace time. The State controls the internal transit trade of the country; State insurance schemes have far-reaching effect upon sea-borne commerce; a very considerable number of armament and engineering works are also controlled—the number now exceeds 1,000; the accepting houses and banks and the Stock Exchange have been supported by the public credit; and foreign trade is regulated to an extent that reminds one of the measures of the mercantilists. The Government, too, have purchased commodities, such as sugar, for re-sale, and have taken steps to regulate prices in the coal market. The Government have been careful in all their agreements to stipulate that the observations and restrictions imposed, owing to abnormal conditions, will not be continued after the war. Everyone realizes that the nation is living in what Professor Scott terms "an interim industrial life." And yet there is uncertainty as to when and to what extent we shall return to normal conditions. Although State regulation of industry may succeed under the abnormalities of war time, it does not follow that it will confer corresponding advantage when the unexpected conditions due to war cease to prevail. From the economic point of view, as he pointed out, war is a colossal waste, and a part of that waste, which may be necessary for military reasons, is the limitation and restriction of individual initiative. The war is being fought in the interests of national freedom and for the maintenance of free institutions. Our whole history establishes these to be consistent with, and a source of strength to, our national life. Yet the same spirit which commends representative democratic government is manifested in the growth of individualism in commerce, which is most conducive to the stimulation of the power of initiative in industry. Thus, while the war may lead us into new avenues of progress, there is every probability that the changes made may not be so much in basal principles as in a fuller realization of the fact that the economic soundness of a nation, at peace as well as at war, can only be founded on prudent economy, in order to limit the outflow of gold to foreign countries, and on the subordination of all effort to the utilization to the fullest extent of our mental, physical, and mechanical resources.

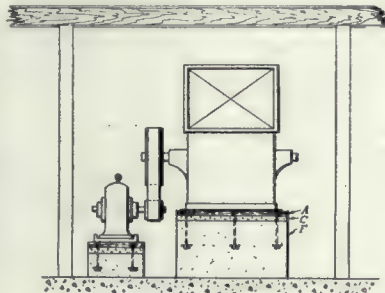


Fig. 7

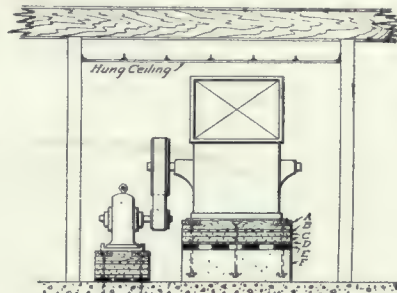


Fig. 8

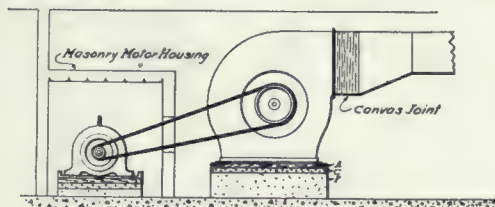


Fig. 9

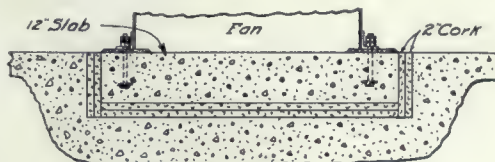


Fig. 10

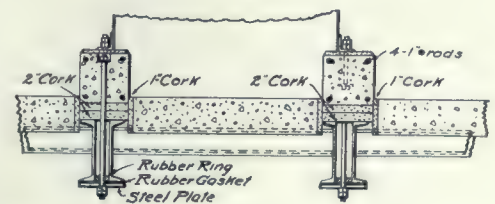


Fig. 11

NEW OFFICE BUILDING FOR CALGARY.

A handsome new office building will soon be erected in Calgary at the corner of Fourth street west and Ninth avenue, for the Robin Hood Mills, Ltd. The building, which was designed by W. S. Bates, A.R.I.B.A., will be two stories in height, built of reinforced concrete, faced with tapestry brick and artificial stone trimmings. The contractors are Fraser & Bennett, a local firm. An interesting feature of the new building is an experimental bake shop, which will be located on the first floor, for the purpose of testing all flour from day to day.

CONSTRUCTION CONSTRUCTION NEWS

Information of Special Interest to Architects Contractors, and Manufacturers.
Construction Building Reports will Give You Up-to-date Information Every
Day on all New Buildings About to be Erected or in Course of Erection.

BUSINESS BUILDINGS.

Galt, Ont.—Plans are being prepared for a business block for Dr. W. S. McKay, Main St., and Dr. W. S. Dakin, 63 Water St. North, to cost \$15,000.

Hagersville, Ont.—Geo. Frid Co., Ltd., Bank of Hamilton Building, has been awarded the contract for the erection of a bank for the Bank of Hamilton, at Hagersville; Gordon Hutton, Bank of Hamilton Building, is the architect.

Kentville, Nova Scotia.—The sanatorium at Kentville will be enlarged for military purposes.

Kingston, Ont.—The Military Hospital Commission, Ottawa, are contemplating the erection of a hospital to accommodate one thousand patients.

London, Ont.—Architect W. J. Carmichael, care of the Bell Telephone Co., Montreal, has prepared plans for an addition to the telephone exchange, on Park Ave., to cost \$75,000. Tenders are being called by Architect L. Carrothers, Bank of Toronto Building, for the erection of an office building, for the Utilities Board, London, to cost \$75,000.

Niagara Falls, Ont.—Tenders have been received by the Accountant of the Royal Bank of Canada, Niagara Falls, for the erection of a bank, at Niagara Falls, to cost \$40,000; C. M. Borter, Main St., Niagara Falls, is the architect; Ireland & Dinham are the general contractors.

Ottawa, Ont.—Frank Hunt, 115 Arlington Ave., Ottawa, has been awarded the plastering contract on an office building for the Dominion Loose Leaf Co., Wellington St., to cost \$30,000; Luford Ltd., 70 Rideau St., have been awarded the painting contract; McFarlane & Douglas Ltd., 250 Slater St., have been awarded the roofing contract; McCallum Electrical Co., 525 Bank St., have been awarded the electrical contract; Gauthier & Co., 247 Dalhousie St., have been awarded the plumbing and heating contract; Doran & Devlin, 104 Sparks St., are the general contractors; Richards & Abra, Booth Building, Sparks St., are the architects.

Renfrew, Ont.—Work has started on a business block for John Mitchell, Renfrew, Ont., to cost \$15,000; G. T. Moore, Renfrew, is the general contractor.

Windsor, Ont.—David Coutts, 70 Church St., has been awarded the contract for the erection of a store and office building for Dr. S. J. Minard, Pitt St., to cost \$20,000; Hugh Sheppard, Campbell Ave., is the architect. W. M. Walker, 41 Jeannette Ave., has commenced work on a business block for R. Beusette, Wyandotte St., to cost \$7,500.

Windsor, Ont.—F. Reaume, River Front, Sandwich East, has been awarded the electrical wiring contract for a hospital addition for the Hotel Dieu, Ouellette Ave., to cost \$40,000; Jos. J. Heuroaux, 17 Wyandotte St., has been awarded the heating and plumbing contract; J. R. Boyd, 240 Ouellette Ave., is the architect.

CLUBS, HOSPITALS, THEATRES AND HOTELS.

Byron, Ont.—Tenders are open for the erection of a hospital for the London Health Association, London, Ont., to cost \$75,000; Watt & Blackwell, London, are the architects.

Byron, Ont.—The Dennis Wire and Iron Works have been awarded the iron contract for the addition to the sanatorium for the London Health Association, and A. & E. Nobbs, William St., London, have been awarded the stone contract; Watt & Blackwell, Bank of Toronto Chambers, London, are the architects.

Guelph, Ont.—Wm. Checklen, Guelph, has been awarded the mason contract for a theatre for Geo. Reinhart, Guelph, to cost \$15,000; Joseph Maylor, has been awarded the carpenter contract; R. J. Pepper has been awarded the cement contract; Oscar Strome has been awarded the plastering contract; R. Robson has been awarded the heating contract; A. Malcolm has been awarded the painting contract; W. Gowdy has been awarded the stone work; the Hamilton Bridge Co., Hamilton, Ont., has been awarded the steel contract; Colwill Boothe & Co., Guelph, are the architects.

Hamilton, Ont.—W. B. Charlton, 515 Indian Road, Toronto, has been awarded the general contract for the erection of a hospital addition for the Hamilton Health Association; J. J. Evel, 51 Stanley Ave., is the secretary; the hospital will cost \$50,000; Capt. W. L. Symons, Military Hospital Commission, 22 Victoria St., Ottawa, is architect.

Hamilton, Ont.—Architect Captain W. L. Symons, Military Hospital Commission, 22 Victoria St., Ottawa, has prepared plans for a tubercular hospital, to cost \$400,000. Architects Stewart & Witton, 7 Hughson St., have prepared plans for an addition to the hospital of the Hamilton Health Association, to cost \$50,000. Architect L. W. Lambe, care of L. M. Shenck, 1493 Broadway Ave., New York, is preparing plans for a theatre for Loews Ltd., on King and St. Mary Sts., to cost \$200,000.

Kitchener, Ont.—Plans have been prepared for a hospital for the Sisters of Charity in Queen's Park, to cost \$30,000.

Montreal, Que.—The Atlas Construction Co., Ltd., Montreal, have been awarded the general contract for the erection of the Marcus Loew Theatre, to cost \$900,000, at the corner of Catherine and Mansfield Sts.

Oshawa, Ont.—J. D. Storil Fittings Ltd., Oshawa, President of the Hospital Board, is receiving tenders for alterations to the Oshawa Hospital, to cost \$20,000.

Port Brice, Ont.—E. Johnston, Aylmer, Ont. has prepared plans for a summer hotel, to cost \$10,000.

Quebec, Que.—Architect P. Levesque, Quebec, is preparing plans for a hospital at Villeguay, Quebec, to cost \$25,000.

St. Thomas, Ont.—Work has started on a picture theatre for K. H. McLean, St. Thomas, to cost \$10,000.

Union-on-Lake, Ont.—Henry E. Foster, John St., Leamington, has commenced work on a hospital for the Essex Health Association, Ruthven, Ont.; Charles White, Leamington, Ont., has been awarded the mason and plastering contracts, and A. E. Law, Leamington, Ont., has been awarded the heating and plumbing contracts; J. C. Pennington, LaBelle Building, Windsor, Ont., is the architect.

Vancouver, B.C.—The New Pantages Theatre will be completed in January; B. Marcus, architect.

Windsor, Ont.—Urel Jacques, 160 Dougal Ave., has commenced work on a hospital addition for the Hotel Dieu, Ouellette Ave.; Cross Brothers, 25 Louis Ave., have been awarded the mason contract; J. R. Boyd, 240 Ouellette Ave., is the architect.

FIRE LOSSES.

Bathurst, N. B.—The beautiful gray granite edifice of the Sacred Heart Roman Catholic Church was destroyed by fire; loss \$10,000.

Bolton, Ont.—The Ontario Hotel and a store and residence were destroyed by fire; loss \$15,000.

Delhi, Ont.—The Sovereign Mitt & Glove Company's factory was destroyed by fire; loss \$15,000.

Frankford, Ont.—Graham & Co.'s factory was destroyed by fire; loss \$8,000.

Galt, Ont.—Woolworth Company's store on Main St. was damaged by fire to the extent of several thousand dollars.

Kelowna, B. C.—A fire which partly damaged one section of Kelowna is estimated to have done damage amounting to \$10,000.

Montreal, Que.—The stores from 242 to 250 St. James St., Montreal, were destroyed by fire.

Newark, Ont.—The cheese and butter factory of Robert Snell were destroyed by fire; loss \$3,000.

Ottawa, Ont.—The warehouse of Stewart & Co., 34 Rideau St., on Sussex St., was destroyed by fire; loss \$10,000.

Peterborough, Ont.—The electric light plant was partially destroyed by fire; loss \$3,000.

Quebec, Que.—The Limoilou Parish Church, Quebec, was destroyed by fire; loss \$180,000.

Regina, Sask.—The electric light plant of Grand Coulee and a blacksmith shop were destroyed by fire.

Saskatoon, Sask.—The elevator of the British America Co. at Harris, Sask., was destroyed by fire; loss \$40,000.

Toronto, Ont.—Brickey's boat house was destroyed by fire; loss \$5,000.

Toronto, Ont.—The factory of Adams Brothers, 204 King St. East, was destroyed by fire; loss \$50,000.

Truro, N.S.—The Kemp Building was destroyed by fire; loss \$40,000.

Wlarton, Ont.—The sawmill of Johnston, Hunter & Crawford was destroyed by fire; loss \$100,000.

Winnipeg, Man.—Borbridge Saddlery Company's warehouse was destroyed by fire; loss \$100,000.

Woodslee, Ont.—The store of Louis George and the Odd Fellows' Hall were destroyed by fire; loss \$6,000.

MISCELLANEOUS.

Chatham, Ont.—Architects Adams & Adams, Chatham, have prepared plans for a salesroom for the Gray Dort Auto Co., Chatham, to cost \$6,000.

Chatham, Ont.—Blonde & Little, Chatham, have been awarded the mason contract for the salesroom of the Gray Dort Motor Co., on William St., to cost \$6,000.

Collingwood, Ont.—Bull Bros., Collingwood, are erecting a garage on Hurontario St., to cost \$10,000; P. C. Palin, Collingwood, is the architect.

Fort William, Ont.—M. Sellers & Son, Fort William, will erect a grain elevator, to cost \$150,000.

Galt, Ont.—The Perfection Machine Co., Samuelson St., have commenced work on a moulding shop, to cost \$7,000.

Hamilton, Ont.—Work on a subway for the City of Hamilton will start next spring, to cost \$8,000.

Hamilton, Ont.—Work on the electric incline railway for the City of Hamilton will not proceed this fall.

Hamilton, Ont.—A. A. Lees, 47½ Main St. East, is preparing plans for a garage on Jackson St., to cost \$10,000.

Hamilton, Ont.—Architect E. B. Patterson, 143 Wentworth St. North, has prepared plans for a garage for A. Venator, 222 John St. North, to cost \$8,000.

Hamilton, Ont.—Tenders may be called before January 1st for the erection of an addition to the waterworks, to cost \$600,000. E. R. Gray, City Engineer. Plans have also been prepared for a 20,000,000 gallon reservoir.

Hamilton, Ont.—Architect E. B. Patterson, 143 Wentworth St. North, has prepared plans for a garage for Thos. Ramsay, 15 Market St., to cost \$15,000. Work on a Labor Temple for the Trades and Labor Council, Hamilton, will not proceed this fall, the temple will cost \$35,000. The City of Hamilton will spend \$20,000 on a new fire alarm system; L. M. Wright, Hamilton, is chairman of the Commission.

Kingston, Ont.—The City of Kingston intends to build a dock at the foot of Clarence St., to cost \$10,000.

London, Ont.—S. H. Foxworthy, 616 Waterloo St., has commenced work on a garage for J. M. Moore, 425 Richmond St., to cost \$8,000.

London, Ont.—New plans have been prepared for garbage stables for the City of London, to cost \$10,000, the former plans being too costly.

London, Ont.—John Hayman & Sons, 432 Wellington St., London, are erecting car barns for the London & Port Stanley Railway, on Grey St., to cost \$12,000. R. G. Wilson & Son, 197 College Ave., London, have been awarded the contract for remodeling the Salvation Army Citadel on Clarence St., to cost \$10,000; Brigadier-General Miller, 20 Albert St., Toronto, is the architect.

Mimico, Ont.—Work has started on the Masonic building for the Connaught Lodge, A.F. & A.M., Superior Ave.; C. Coxhead, Mimico, has been awarded the cement contract.

Moncton, N. B.—Fraser's Limited are considering the erection of a new pulp mill on the Chatham Head site, near the end of the Morris Bridge.

Montreal, Que.—The International Manufacturing Company, 65 Victoria St., will erect a powerhouse on Notre Dame St. East, Mercier Ward, to cost \$10,000.

Montreal, Que.—The Nicholson Construction Co., Ltd., Montreal, have been awarded the contract for erection of car barns for the Montreal & Southern Railway.

New Toronto, Ont.—Reed Products Co., of Toronto, have been awarded the contract for the erection of an incinerator for New Toronto, to cost \$10,000.

Ottawa, Ont.—Architect John A. Pearson, J. O. Marchand (Associate), Ottawa, have received tenders for interior stone for the Parliament Buildings.

Ottawa, Ont.—Sutherland & Son, 216 Cooper St., have commenced work on a garage for the Ottawa Car Co., Slater St., to cost \$60,000; W. E. Noffke, Plaza Building, is the architect.

Ottawa, Ont.—R. C. Desrochers, Secretary of Public Works, will receive tenders up to December 22nd, 1916, for British Columbia fir timber and for white oak timber, for Dredge No. 125.

Ottawa, Ont.—T. H. Cathcart, 9 Melrose Ave., and E. Webster, 124 Breeze Hill Ave., both of London, have been awarded the contract for the erection of a flax building for the Ontario Government.

Ottawa, Ont.—Alexander Carlock, 136 Lewis St., has commenced work on alterations to a garage for F. D. McFarlane, 250 Slater St., on Sparks St., to cost \$7,000; W. H. George, Castle Building, is the architect.

Ottawa, Ont.—McKinley & Northwood, Rideau St., have been awarded the plumbing contract on a restaurant for Bowles Lunch, Ltd., 149 Yonge St., Toronto, to cost \$40,000; J. T. Blyth, Frank St., has been awarded the heating contract; Hand, Harris & Merritt, 9 King St. East, Toronto, are the architects.

Point Abino, Welland, Co., Ont.—Tenders close January 15th, 1917, for the erection of a reinforced concrete lighthouse for the Dominion Government; plans and specifications at the Harbor Master's Office, Toronto, and at the Post Offices in Welland, Hamilton and Brantford.

Port Stanley, Ont.—Work has started on a refreshment pavilion and bath house for the London & Port Stanley Railway, to cost \$25,000; Watt & Blackwell, Bank of Toronto Building, London, are the architects.

Toronto, Ont.—J. T. Turner, 110 Dearbourne Ave., has commenced work on a garage for J. Tulloch, 59 Cambridge Ave. Tenders have been called by the City Architect for wiring and lighting fixtures for the Don incinerator.

Toronto, Ont.—H. N. Dancy & Son, C. P. R. Building, have been awarded the mason contract for the Masonic Temple, for the Masonic Temple Corporation of Toronto, Limited; Curry & Sparling, 105 Bond St., are the architects; the building will cost \$175,000.

Toronto, Ont.—The Dominion Bridge Co., Ltd., 20 Victoria St., Toronto, have been awarded the steel contract on the Art Museum at Toronto, to cost \$60,000; Purdy Mansell, Ltd., 63 Albert St., have been awarded the plumbing and heating contract; Architectural Bronze & Iron Works, Lansdowne Ave., have been awarded the ornamental iron contract; Witchall & Son, 156 St. Helena Ave., have been awarded the mason contract; Darling & Pearson, 2 Leader Lane, are the architects.

Toronto, Ont.—H. N. Dancy & Son, Ltd., have been awarded the general contract for the erection of a boiler room and garage for Stauntons Limited, 944 Yonge St., Toronto. Tenders are invited by S. G. Whaley, 2411 Yonge St., for the erection of a garage, to cost \$6,000. Architect Major Barry has prepared plans for a shed at the Old Fort, to cost \$10,000. Architect F. S. Mallory, 65 Adelaide St. East, has prepared plans for a garage and show rooms for T. A. Rowan, 59 Victoria St., to cost \$8,000.

Trenton, Ont.—Architect A. Dunbar, 402 Kent Building, Toronto, has prepared plans for a studio for the Canadian National Features, Ltd., to cost \$10,000.

Vancouver, B. C.—J. S. Emerson and E. Dubey, Vancouver lumbermen, are considering the erection of a sawmill. The B. C. Sulphite Fibre Co. has filed plans with the Government for a water right; they intend to build a dam about three-eighths of a mile south of Mill Creek, for the purpose of storing one hundred million gallons of water.

Vittoria, Ont.—Work has started on a sawmill for J. E. Butler, Vittoria, Ont., to cost \$7,000.

Weston, Ont.—Work has been postponed until next spring on the pavilion for the National Sanitarium Association at Weston; Denison & Stephenson, 18 King St. West, are the architects.

Windsor, Ont.—Work has commenced on a flat building for Winter, Williamson & Little, 16 Pitt St., to cost \$5,000.

PLANTS, FACTORIES AND WAREHOUSES.

Brantford, Ont.—The United Rubber Co., Ltd., are making alterations to their factory, to cost \$10,000.

Brantford, Ont.—R. T. Chisholm, Brantford, has been awarded the general contract for alterations to the factory of the United Rubber Co., Ltd., to cost \$10,000.

Cobourg, Ont.—The Lydia Pinkham Medicine Co., Montreal, Que., contemplate the erection of a factory, to cost \$40,000.

Cornwall, Ont.—A. Adams, Cornwall, Ont., has been awarded the general contract for the erection of an addition to the St. Lawrence Brewery Co.'s factory on Water St., to cost \$10,000; Walter J. Francis & Co., 260 St. James St., Montreal, are the architects.

Elmira, Ont.—The Canadian Consolidated Rubber Co., Montreal, contemplate the erection of a factory.

Galt, Ont.—P. H. Secord & Sons, 133 Nelson St., Brantford, Ont., have been awarded the contract for the erection of a factory for the Galt Brass Co., Ltd.; J. Evans, 30 North Water St., Galt, is the architect.

Galt, Ont.—P. H. Secord & Sons, 133 Nelson St., Brantford, have been awarded the general contract for the erection of an addition to the factory of Sheldon's Limited, Galt, Ont., on West Main South, to cost \$20,000.

Guelph, Ont.—The Robson Motor Car Co. are making a number of alterations to their warerooms.

Guelph, Ont.—W. E. Taylor, 82 Eramosa Road, has been awarded the mason contract on a factory for the Guelph Stove Co., to cost \$10,000. Geo. Ibbotson, Woolwich, has been awarded the carpenter contract; Dennis & Bennett, 22 Suffolk St., have been awarded the painting contract; Irving & Son have been awarded the roofing contract.

Guelph, Ont.—Geo. C. Walker, Guelph, has been awarded the general contract for the erection of an addition to the factory of the Munder Tungsten Lamp Co., to cost \$15,000; Rundel & Son have been awarded the mason contract; J. J. Mahoney has been awarded the plastering contract; Fred Smith, has been awarded the plumbing contract; Frank Schuett has been awarded the sheet metal and iron work contract; Dennis and Bennett have been awarded the painting contract.

Hamilton, Ont.—H. G. Christman & Co., Sun Life Building, Hamilton, have commenced work on a new factory for the Canadian Cartridge Co., on Sherman Ave. North, to cost \$15,000.

Hamilton, Ont.—The American Car Company, Emerald and Shaw Sts., are preparing plans for an addition to their factory, to cost \$25,000. Work has commenced on an addition to the factory of the Cummer Dowsell Co., on Elgin St., to cost \$10,000; Stewart & Witton, 7 Hughson St. South are the architects.

Hamilton, Ont.—The Canadian Shovel Co., Hamilton, Ont., have started work on a factory and boiler house on Imperial St., to cost \$6,000; McPhee & Kelly, Bank of Hamilton Building, are the architects. The Canadian Engineering Co., Bank of Hamilton Building, have started work on a temporary factory for the Hamilton Steel Co., on Palmerston Ave., to cost \$8,000; George F. Smith, 26 Carrick Ave., has been awarded the carpenter contract; Thos. Irwin & Son, MacNab St. North, have been awarded the roofing contract; Prack & Perrine, Lumsden Building, Toronto, are the architects.

Hamilton, Ont.—Architects Stewart & Litton, 7 Hughson St. South, have prepared plans for an addition to the factory of the Tallman Brass & Metal Co., Ltd., Wilson St., to cost \$50,000. Geo. E. Frid Co., Bank of Hamilton Building, have commenced work on an addition to the factory of the Standard Underground Cable Co., to cost \$35,000; Prack & Perrine, Lumsden Building, Toronto, are the architects. The Watkins Medical Co., Winona, Minn., U.S.A., will erect a warehouse and factory at Hamilton, to cost \$100,000. The W. T. Rawleigh Co., Freeport, Ill., U.S.A., have prepared plans for a factory on Barton St. East, to cost \$100,000.

Hamilton, Ont.—Mitchell & Riddell, 115 Florence St., have been awarded the mason contract for an addition to the factory of the Cummer Dowsell Co., Elgin St., to cost \$10,000; R. T. Paog & Co., Westinghouse Ave., have been awarded the carpenter contract; Hill Brothers, 317 Emerald North, have been awarded the plastering contract; Stewart & Litton, 7 Hughson South, are the architects. Thos. E. Irwin & Co., McNab St. North, have been awarded the roofing contract for an addition to the factory of the Canadian Cartridge Co., on Sherwin Ave. North, to cost \$15,000; H. G. Christman & Co., Sun Life Building, are the general contractors. Turner, Day & Woolworth, Louisville, Kentucky, will erect a factory on Depew St.

Indian River, Ont.—The Farmers' Dairy Co., Toronto, are erecting a dairy building at Indian River, to cost \$10,000; H. Shurter has been awarded the mason contract; Wm. Saxby, Peterboro, has been awarded the plastering contract.

Kitchener, Ont.—Plans have been prepared for an addition to the factory of the W. E. Wolfe Shoe Co., Ltd., 127 Wilmot St., to cost \$15,000.

Kitchener, Ont.—C. Braun, 295 King St. West, has commenced work on a factory for the Consolidated Felt Co., on Margaret Ave., to cost \$30,000; C. Cowan, 200 Victoria St., is the architect.

London, Ont.—The Ford Motor Co., London, Ont., contemplate the erection of a factory, to cost \$50,000.

London, Ont.—R. G. Wilson, 193 College St., has been awarded the general contract for the erection of an addition to the factory of F. Lawrason, 643 Nelson St., to cost \$5,000; W. G. Murray, Dominion Savings Building, is the architect.

London, Ont.—Jas. Moran & Sons, London, have commenced work on an addition to the factory of the McClary Mfg. Co., Wellington and King Sts., to cost \$40,000; The Canadian Bridge Co., Walkerville, Ont., have been awarded the steel contract; J. M. Moore, 415 Richmond St., is the architect.

Mimico, Ont.—Toms Contracting Co., Kent Building, have commenced work on a factory for the Dominion Abrasive Wheel Co., at Mimico, to cost \$60,000.

Montreal, Quebec.—The International Fuse and Arms Co., U.S.A., will erect a large munition plant in Mercier Ward.

Montreal, Que.—H. Morgan & Co., Beaver Hall Hill, will erect a warehouse on Park Ave., St. Lawrence Ward, to cost \$35,000.

Montreal, Que.—The International Manufacturing Co., 65 Victoria St., will erect a factory on Notre Dame East, Mercier Ward, to cost \$280,000.

Niagara Falls, Ont.—Work has started on an ice plant for the Sure Ice and Cold Storage Co., at Niagara Falls, to cost \$20,000.

Niagara Falls, Ont.—The Canadian Aloxite Co., Niagara Falls, will erect an addition to their factory, to cost \$35,000; L. J. Call and Son, Niagara Falls, are the engineers. Work has started on a pickle factory for the Niagara Falls Pickles Ltd., Clark St., to cost \$6,000; George Murray, Niagara Falls South, has been awarded the mason contract.

New Toronto, Ont.—The Dominion Bridge Co., Imperial Life

Building, have been awarded the steel contract on a factory to be erected for the Dominion Abrasive Wheel Co., New Toronto, to cost \$65,000; A. B. Ormsby Ltd., 48 Abell St., have been awarded the steel sash contract; the Toms Construction Co., Ltd., Kent Building, Toronto, are the general contractors. L. E. Dowling, 167 Yonge St., has been awarded the general contract for the erection of an addition to the factory of the National Electric & Heating Co., 544 Queen St. West, to cost \$5,000.

Ottawa, Ont.—Tagon & Lackey, 23 First Ave., have commenced work on a storehouse and garage for the Bell Telephone Co., Montreal, on Catherine St., to cost \$35,000; W. J. Carmichael, architect.

Renfrew, Ont.—Wm. A. Moore, Renfrew, Ont., has commenced work on an addition to the factory of the Renfrew Textile Co., Renfrew, to cost \$10,000; John McNicol, Renfrew, is the architect.

Stratford, Ont.—The Mooney Biscuit Co., Ltd., will make an alteration to their factory, to cost \$10,000. The City of Stratford may take over this property and alter it for a convalescent hospital, if so plans will be prepared by Capt. W. L. Symons, Architect for the Military Hospital Commission, 22 Victoria St., Ottawa.

Sudbury, Ont.—La Berge Lumber Co., Sudbury, have been awarded the contract for the erection of a creamery and cheese factory for the Sudbury Co-operative Creamery Co., Ltd., to cost \$10,000.

Thorold, Ont.—The Standard Steel Construction Co., Port Robinson, have commenced work on a factory for the Exolon Co., to cost \$60,000.

Tillsonburg, Ont.—The Maple Leaf Tool Co., Tillsonburg, are erecting an addition to their factory, to cost \$10,000.

Toronto, Ont.—The Hydro Electric Commission of Ontario will commence work on a canal between Chippewa Creek and Queenston, to cost \$9,000,000.

Toronto, Ont.—P. W. Ellis & Co., Ltd., 31 Wellington St. East, have commenced work on an addition to their factory on Prescott Ave., to cost \$10,000.

Toronto, Ont.—The Construction Supply Co., Ltd., Bell Telephone Building, Toronto, have been awarded the contract for mastic floors in the factory for the Goodyear Tire & Rubber Co., at Weston, to cost \$750,000; the Dominion Construction Co., 14 Wellington St. East, are the general contractors. Work will not start this fall on the factory for the Matthews Brothers, Dundas and Sterling Road, to cost \$30,000; Ellis & Ellis, Manning Chambers, Toronto are the architects. Architect J. A. MacKenzie, Lumsden Building, has prepared plans for an addition to the factory of the Kilgour Davenport Co., 44 Osier Ave., to cost \$10,000.

Toronto, Ont.—J. V. Gray Construction Co., Confederation Life Building have been awarded the general contract for the erection of a storage building for the Canadian Fairbanks Morse Co.; T. Pringle & Son Ltd., Excelsior Life Building, are the architects. The Dominion Machinery Co., 110 Church St., have prepared plans for a factory on Darling Ave., to cost \$6,000. Page & Co., Queen's Park, have been awarded the mason contract on an addition to the factory of W. H. Banfield & Son, Ltd., 372 Pape Ave., to cost \$15,000; Dominion Bridge Co., Ltd., Imperial Life Building, have been awarded the steel contract; J. C. Scott has been awarded the carpenter contract; H. Williams & Co., 23 Toronto St., have been awarded the roofing contract; G. M. Bryan, 524 Yonge St., has been awarded the skylight contract; Sproatt & Rolph, 36 North St., are the architects. L. E. Dowling, 167 Yonge St., has commenced work on a storehouse for the Dunlop Tire and Rubber Co., 244 Booth Ave., to cost \$6,000. Brown & Cooper Ltd., 297 Carlton St., have been awarded the contract for the erection of an addition to the Toronto Laundry Machine Co.'s factory, to cost \$7,000.

Toronto, Ont.—C. L. Yolles, 67 Baldwin St., architect and contractor, has commenced work on a factory for F. Daville, 191 George St., to cost \$13,000. J. Everard Myers, 4 Gould St., has been awarded the electrical contract for the factory of P. W. Ellis Co., Ltd., 31 Wellington St. East, on Prescott Ave., to cost \$10,000; F. F. Saunders, 23 Jordan St., is the architect. Architects MacVicar & Heriot, 104 Union Ave., Montreal, are revising the plans of the warehouse on Front St., Toronto, for Cassidy's Ltd., 51 St. Paul St. West, Montreal, to cost \$90,000. J. Everard Myers, 4 Gould St., Toronto, has been awarded the electrical contract for the factory of the Northrup-Lyman Co., on Wellington St. West, to cost \$50,000. Robt. Jordan, 37 Hazelton Ave., has been awarded the plumbing contract on a bread factory for the Ideal Bread Co., 18 Dovercourt Road, Toronto; R. G. Kirby, 537 Yonge St., is the general contractor. Work will not start on the bakery for Jas. Dempster, 244 Dundas St., until next spring. It will cost \$7,000. H. N. Dancy & Son Ltd., C.P.R. Building, Toronto, have been awarded the mason contract on a factory for Harry Webb Co., 23 Buchanan St., to cost \$40,000; Raymond Construction Co., 43 Victoria St., have been awarded the concrete contract; J. F. Brown, Board of Trade Building is the architect. John Aldredge & Co., 128 Westmount Ave., have been awarded the mason contract on an addition to the factory of the Kilgour Davenport Co., on Osier Ave., to cost \$10,000; E. A. Cale, 312 Wellesley St., has been awarded the carpenter contract; Robert Rennie & Son, 198 Dupont St., have been awarded the roofing contract; John Ritchie Ltd., 56 Adelaide St. East, have been awarded the plumbing and heating contract; J. A. MacKenzie, Lumsden Building, is the architect. J. H. Tromanhauser Co., Ltd., Temple Building, have been awarded the general contract for the erection of a warehouse and elevator for the Western Canada Flour Mills, 74 King St. East, Toronto, to cost \$25,000.

Trenton, Ont.—The British Chemical Co., Ltd., will erect a chemical plant, to cost \$500,000.

Victoria, B. C.—Wm. W. Northcott, Superintendent of Public Works, has received tenders for the erection of a storeroom at the Garbally Yards, for the City of Victoria.

Windsor, Ont.—The Sterns Tire & Tube Co., of Canada Ltd., Windsor, contemplates the erection of a factory on Howard Ave., to cost \$100,000.

Winnipeg, Man.—The Franklin Co. will erect an addition to their plant at Winnipeg, to cost \$500,000.

RESIDENCES, STORES AND FLATS.

Hamilton, Ont.—Plans have been prepared for an apartment house on Maple Ave., for B. B. Cope, 31 Albert St., to cost \$15,000.

Hamilton, Ont.—Architect W. H. Hunkin, Lister Block, Hamilton, has prepared plans for an apartment house for Harvey Levitt, Beamsville, to cost \$10,000.

Hamilton, Ont.—Architect W. A. Edwards, Hughson South, has prepared plans for a residence for Miss McCandlish, 163 Wellington St. South, to cost \$6,000. Plans have been prepared for an apartment house for M. Sanzone, 99 Park St., to cost \$10,000.

Hamilton, Ont.—Isbister Brothers, Jackson and Hughson Sts., have been awarded the mason contract on a residence for Miss McCandlish, 163 Wellington St. South, to cost \$6,000; J. Evans, 23 Hunter St. West, has been awarded the carpenter contract; W. A. Edwards, Hughson St., is the architect.

Hamilton, Ont.—J. Buscombe, Dundurn St. North, has been awarded the mason contract in connection with alterations to an apartment house on Main and Hughson Sts., for E. D. Cahill, Sun Life Building, to cost \$5,000. Tenders will be received by the architect, B. F. Richardson, 1 Market St., for the balance of the trades. T. A. Wooley, 64½ King St. East, has prepared plans for his residence on Proctor Boulevard, to cost \$6,000; work will start about Christmas. M. Chirig, 76 Platt Ave., has been awarded the mason contract on two residences for T. A. Wooley, 64½ King St. East, to cost \$12,000; H. Baylis, 372 Beach Road, has been awarded the plastering contract; J. Paul has been awarded the painting and glazing contracts; J. A. Dynes, 161 Sanford South, has been awarded the electric wiring contract; C. Smith, 171 Lock St. South, has been awarded the plumbing and heating contracts; R. Spicer, 279 Bay St. South, is the general contractor. Hill Brothers, 307 Emerald St., will erect a residence on Proctor Boulevard, to cost \$5,000; Lewington & White, 140 Rosslyn Ave., have been awarded the mason, sheet metal and steel contracts; T. Hobbs & Son, 313 Emerald St. West, have been awarded the carpenter and roofing contracts.

Humberstone, Ont.—Work has not yet commenced on a residence for S. J. Quinn, Buffalo, N.Y., at Humberstone, Ont., to cost \$6,000; C. M. Borter, Main St., Niagara Falls, is the architect.

Indian River, Ont.—Work has started on a dairy and residence for the Farmers' Dairy Co., Toronto; Elphgrave & Barrett, 571 Gilmour St., have been awarded the general contract; H. Shurter, Peterborough, has been awarded the concrete contract.

Oakville, Ont.—Architects Wickson & Gregg, Kent Building, Toronto, have prepared plans for a residence for J. W. Flavell, Jr., Queen's Park, Toronto, to cost \$30,000.

Oakville, Ont.—Architects Munro & Meade, 34 Hughson St. South, have prepared plans for a residence and garage for W. F. Eaton, Ravenscliffe Ave., Hamilton, to cost \$40,000.

Ottawa, Ont.—T. J. Somerville, 28 Waverley Road, has commenced work on a residence and store on Clewlow Ave., to cost \$7,000.

Ottawa, Ont.—Mr. Wilson, corner Lisgar and Kent Sts., has commenced work on a store and apartment house for Leon Petegorsky, 351 Chapel St., to cost \$16,000; Robert Holmes, 80 Arlington Ave., is the architect.

Ottawa, Ont.—Cuthbertson & Clark, 710 Echo St., have been awarded the general contract for the erection of a residence for D. Cuthbertson, 710 Echo St. Geo. A. Earman & Co., 1171 O'Connor St., have commenced work on a residence for E. Stanfield, 82 Belwood Ave., to cost \$5,000. Work has started on an apartment house on Seneca St., for Frank Wilson, 9 Roslyn Ave., to cost \$5,100.

Port Colborne, Ont.—Architect C. M. Borter, Niagara Falls South, has received tenders for the erection of a store and residence for David Dick, Welland, Ont., to cost \$6,000.

Port Stanley, Ont.—Hon. C. S. Hyman, Grand Ave., London, will erect a residence at Port Stanley, to cost \$30,000.

Toronto, Ont.—Work has commenced on a residence on Hyland Ave., for H. Ireland, 18 Weybourne Ave., to cost \$6,000.

Toronto, Ont.—James Elliott, 98 Concord Ave., has been awarded the plumbing contract on an apartment house being erected by J. T. & H. Hutson, 43 Victoria St., to cost \$35,000.

Toronto, Ont.—J. T. & H. Hutson, 43 Victoria St., have commenced work on an apartment house, to cost \$35,000. Plans have been prepared for a duplex residence for W. V. Dixon, 249 Yonge St., to cost \$6,000.

Toronto, Ont.—I. R. Hunter, 50 Chicora Ave., has prepared plans for his residence on Stibbard Ave., to cost \$6,000. Work has commenced on an apartment house on St. Mary's St., for Johnston & Sutherland, Room 25, 16 King St. West, to cost \$15,000. Plans have been prepared for a residence for J. H. C. Lurham, Craigmore Farm, Bond Lake, Ont., to cost \$6,000.

Toronto, Ont.—John McGonegal, 28 Jackman Ave., has prepared plans for a residence on Jackman Ave., to cost \$6,000. Davidge & Lunn, Sykes Ave., Weston, have been awarded the mason contract on a residence for H. B. Johnston, on Elm Ave., to cost \$22,000; Charles Cooper, 382 Dupont St., has been awarded the carpenter contract; E. J. Curry, 57 Queen St., has been awarded the plastering contract; Wm. Paris, 82 Amelia St., has been awarded the painting contract; R. S. Gray, 85 York St., has been awarded the wiring contract; Sheppard & Abbot, 78 Harbord St., have been awarded the plumbing contract; Jos Harrison, 8 St. Mary St., has been awarded the heating contract.

Toronto, Ont.—R. H. Forsythe Confederation Life Building has been awarded the wiring contract on a residence for A. A. Thompson, 88 Warren Road, to cost \$12,000; tenders for plastering and heating closed December 6th; Edwards & Edwards, 18 Toronto St., are the architects. Douglas Brothers, 124 Adelaide St. West, have been awarded the roofing contract on a residence for E. L. MacLean, 98 Walmer Road, to cost \$15,000; the Italian Mosaic & Tile Co., Ltd., Manning Chambers, have been awarded the marble and tile contract; Burke, Horwood & White, 229 Yonge Street, are the architects. Draftsmen at the office of Howard J. White, 408 Ryrie Building, local representative of architects Graham, Burnham & Co., Chicago, Ill., are preparing plans for a departmental store at the south west corner of Yonge and College Sts., for the T. Eaton Co., Ltd., to cost \$5,000,000.

Windsor, Ont.—Work has commenced on two stores and apartments for O. Orzechkin, 98 Wyandotte East.

Windsor, Ont.—Wm. Hedrick, 6 Glengawyne Ave., Windsor, has been awarded the general contract on an apartment house for Wm. Byrne, 19 Elm Ave., to cost \$7,500.

Co-operative Engineering Service

A series of bulletins has been issued by the Corrugated Bar Co., Buffalo, describing in detail, with photographs and blue prints, the construction of several reinforced concrete buildings. Three of the bulletins relate to factory construction, and one each is devoted to hospital, hotel, office and Y.M.C.A. buildings of reinforced concrete.

In addition, each bulletin gives prominence to the recently established engineering service department of this firm, which has a number of novel and interesting features. They have been in the reinforced concrete business since 1891, and their engineers are well known as being among the leaders in this field of construction. The company, however, has never operated strictly as an engineering firm, but has always marketed patented types of reinforcing material, such as expanded metal in the early days, and, in more recent years, corrugated bars.

They not only sold, but manufactured the expanded metal, but gave this up in 1900 on account of the growth of the sale of corrugated bars. The latter material is a rolling mill product, and has never been manufactured by the company itself. They are therefore not a manufacturing concern, and their business is more of a jobbing nature, and this fact is one of the features which enables them to offer their engineering service to architects in the designing and detailing of reinforced concrete buildings, on the basis of a professional fee therefor. Although they sell a reinforcing material, they have no plant or machinery to keep in operation, and are able in consequence to offer the service entirely divorced from the sale of their reinforcing material; even going so far as to agree to refrain from bidding on the reinforcement if the client has any feeling that their interest in a possible sale of the material—even though in competition—might influence their design.

The service is now being offered in Canada to Canadian architects and engineers, and consists in the making of designs, and complete, detailed drawings for the reinforced concrete work for such construction, which is coming to be the standard for industrial buildings. It comprises:

1. Preliminary and comparative sketches, estimates and cost data as a basis for negotiations between the architect and client.
2. An analysis of the needs of the building, and the selection of the best type of reinforced concrete construction therefor.
3. The making of the designs, and complete, detailed drawings, with setting plans for the use of the contractor in erection.
4. Guarantee of the sufficiency of the plans to perform the work intended.
5. Free use of any patented types of systems or designs owned or controlled by the company.
6. Guaranteed patent protection.
7. Guarantee against alternate plans. If a bid on a properly designed alternate is submitted at the letting, the cost of which is less, the difference will be paid by the company, or no charge will be made for the plans submitted.
8. The charge for the service is a small percentage of the cost of the reinforced concrete portion of the work. This is not paid by the architect, but is added to the cost of the building upon which he obtains his professional fee.

The result of the use of this service is the obtaining by the owner of a building exactly suited to his needs under competitive conditions on exactly known quantities, and hence at the lowest possible price.

The customary method of letting such contracts is for the architect to prepare the general outlines of the building, and call for bids on competing systems of fireproofing or reinforced concrete construction. When this is done, the system people have but a few days in which to make up their bids, and have to estimate the quantities hastily from typical plans and sections, and are obliged to add from five to ten per cent to their quantities for fear these typical sections will not accurately represent the average conditions of the building as a whole. In this method, the type of construction adopted by each bidder is the one, in their opinion, most likely to land the job, and not the one designed to best meet the needs of the building. The result, therefore, is likely to be a building of improper design at high cost.

There are a great many patents in the field of reinforced concrete construction, many of which have been adjudicated in the courts of last resort in the States. Many of these patents exist in Canada. This is a condition not fully appreciated by the general public. The Corrugated Bar Company maintains that, having been in the business from the start, it has not only its own patents, enabling it to operate without the necessity of paying tribute in the various fields of reinforced concrete construction, but also a knowledge of other patents affecting the field, and how these may be avoided without sacrifice of efficiency. The owner has free use of these facilities.

There are very few architectural firms that can afford to maintain an expert force in all the different fields of engineering. To admit this is no reflection upon the profession. Many of the building arts are nowadays developing so rapidly, and are so intricate in their nature, that it would be quite impossible for the architects to maintain such organizations and keep them up to date. This condition exists in the field of reinforced concrete construction.

The proposition is somewhat peculiar, coming from a "material" company. It seems, however, that the Corrugated Bar Company meets this situation squarely and fairly by saying that there is no obligation whatever to use their material, and that they will even refrain from bidding upon it, if the architect or the owner feels that their possible chance of securing the order for the material, even though in competition, might influence them in their design of the structure.

The charge for the service is not named, but in view of the amount of protection offered by the service, the general reputation and reliability of the company, and the wide experience its engineers have had in this field, it should prove of benefit to the architectural profession of Canada in general. By addressing the Corrugated Bar Company, Buffalo, N. Y., bulletins and interesting data may be had.

CONTRACTORS and SUB-CONTRACTORS

As Supplied by The Architects of Buildings
Featured in This Issue

Building, Church of St Francis of Assisi, Toronto, Ont.

Architects, Arthur W. Holmes.
Boilers, Spencer, Toronto.
Concrete Work, R. Sheehy & Sons, Peterboro.
Electric Fixtures, F. C. Henderson, Toronto.
Electric Wiring and Apparatus, Bennett & Wright, Ltd., Toronto.
Expanded Metal, Pedlar People, Ltd., Oshawa.
Furniture, Globe Furniture Co., Ltd., Waterloo.
Glass, Luxfer Prism Co., Toronto.
Hardware, Peterboro Lock Co., Ltd., Peterboro, Ont.
Heat Regulating System, Canadian Power Regulator Co., Toronto.
Marble and Tile, Italian Mosaic and Marble Co., Toronto.
Pipe Organ, Casavant Freres, St. Hyacinthe.
Plaster Work, J. P. Hynes, Ltd., Toronto.
Radiators, Steel and Radiation, Ltd., Toronto.
Stone, Nicholson, Curtis & Vick, Toronto.
Structural Iron and Steel, Dickson Bridge Co., Ltd., Peterboro.
Contractors (general), Richard Sheehy & Sons, Peterboro.

Building, Northern Congregational Church, Toronto, Ont.

Architect, John Gemmel.
Brick, Don Valley Brick Co., Ltd., Toronto.
Carpets and Rugs, T. Eaton Co., Ltd., Toronto.
Electric Fixtures, F. C. Henderson, Toronto.
Electric Wiring Apparatus, Windeler Bros., Toronto.
Flooring, R. Sherwin, Toronto.
Furniture, Valley City Seating Co., Ltd., Dundas.
Glass, N. T. Lyon Glass Co., Ltd., Toronto.
Marble, Canada Glass Mantle Tile Co., Ltd., Toronto.
Plumbing Fixtures, Jas. Robertson, Ltd., Toronto.
Plaster Work, E. Gale, Toronto.
Stone, F. Rogers & Co., Ltd., Toronto.
Ventilating System, Canadian Sirocco.
Pipe Organ, Casavant Freres.
Memorial Windows, N. T. Lyon Glass Co., Ltd., Toronto.
Steel Lockers, Dennis Wire & Iron Co., Ltd., London.

Building, St. Andrew's Church, Moose Jaw.

Architect, J. H. G. Russell.
General Contractors, Jas. Ludlow, Winnipeg.
Seating, Globe Furniture, Waterloo.
Electric Wiring and Apparatus, Acme Electric Co., Moose Jaw.
Plumbing and Heating, Charette Kirk, Winnipeg.
Masonry, Malcolm Bros, Winnipeg.
Leaded Glass and Memorial Windows, N. T. Lyon Glass Co., Ltd., Toronto.
Stone, Wallace Sandstone Quarries, Ltd.
Pipe Organ, Casavant Freres, St. Hyacinthe.

Building, St. Giles Church, Hamilton, Ont.

Architect, Stewart & Witton, Hamilton.
Electric Fixtures, Culley & Breay.
Flooring, Stuart Bros.
Furniture, Valley City Seating Co., Ltd., Dundas.
Hardware, Kent-Garvin & Co., Hamilton.
Marble, Kent-Garvin & Co., Hamilton.
Plaster Work, Hannaford Bros., Hamilton.
Seating, Valley City Seating Co., Ltd., Dundas.
Structural Iron and Steel, Hamilton Bridge Works Co.
Contractors (general), Richard Tope & Son.

Building, First Church of Christ Scientist, Toronto, Ont.

Architect, S. S. Beman.
Boilers, Purdy Mansell, Ltd., Toronto.
Carpets and Rugs, Murray-Kay, Ltd.; T. Eaton Co., Ltd.
Electric Fixtures, MacDonald & Willson Co., Ltd., Toronto.
Electric Wiring and Apparatus, Bell Bros, Toronto.
Flooring, Harris Hayes Lumber Co., Toronto.
Fittings, Purdy Mansell & Co., Ltd., Toronto.
Furniture, Murray-Kay, Ltd.
Glass, R. McCausland & Son, Ltd., Toronto.
Hardware, Aikenhead Hardware Co., Ltd., Toronto.
Heat Regulating System, Purdy, Mansell & Co., Ltd., Toronto.
Interior Fittings, Cabinet and Wood Work, Charters Lumber Co., Ltd., Toronto.
Marble and Tile, Canada Glass Mantles and Tiles, Ltd., Toronto.
Plumbing, Purdy, Mansell & Co., Ltd., Toronto.
Pipe Organ, Warren & Son, Toronto.
Plaster Work, W. J. Hynes & Co., Ltd., Toronto.
Structural Iron & Steel, Dominion Bridge Co., Ltd., Toronto.
Seating, Valley City Seating Co., Ltd., Dundas.
Vaults, J. & J. Taylor, Ltd., Toronto.
Contractors (general), Dickie Construction Co., Ltd., Toronto.

PERSONAL.

Mr. A. T. Black, who has been manager of the Sales Promotion and Advertising Departments of Martin-Senour Co., Ltd., is now general manager of this concern. Although Mr. Black's connection with Martin-Senour only extends over a period of three years, the increase in output speaks glowingly of the results obtained through his methods.

R. J. Durlay, consulting engineer, has taken over and will carry to completion the unfinished work in Canada previously handled by the Montreal office of the firm of MacMullen, Riley & Durlay, which was recently dissolved. He will continue to practise as a consulting engineer, under his own name, at 4 Beaver Hall Square, and will specialize in the design and construction of power plants and industrial works, in addition to the design of the complete mechanical and electrical equipments of large buildings.

CANADIAN NATIONAL CLAY PRODUCTS ASSOCIATION CONVENTION.

An attractive programme has been adopted for this convention, which is to be held January 23-25, 1917, in Hamilton. Information and data of interest to every manufacturer of clay products will be given and special subjects covered.

CONSTRUCTION

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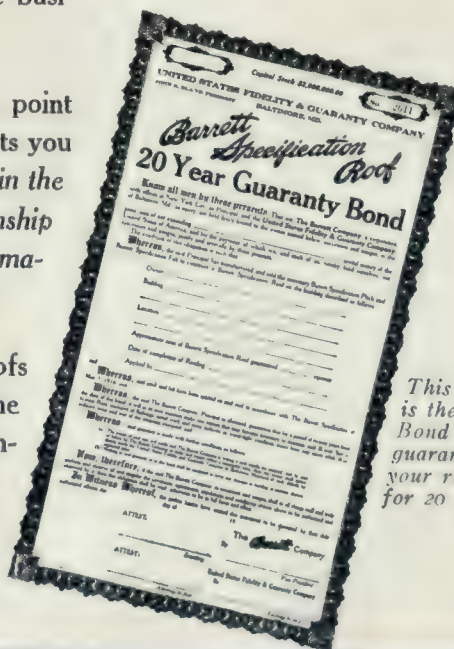
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