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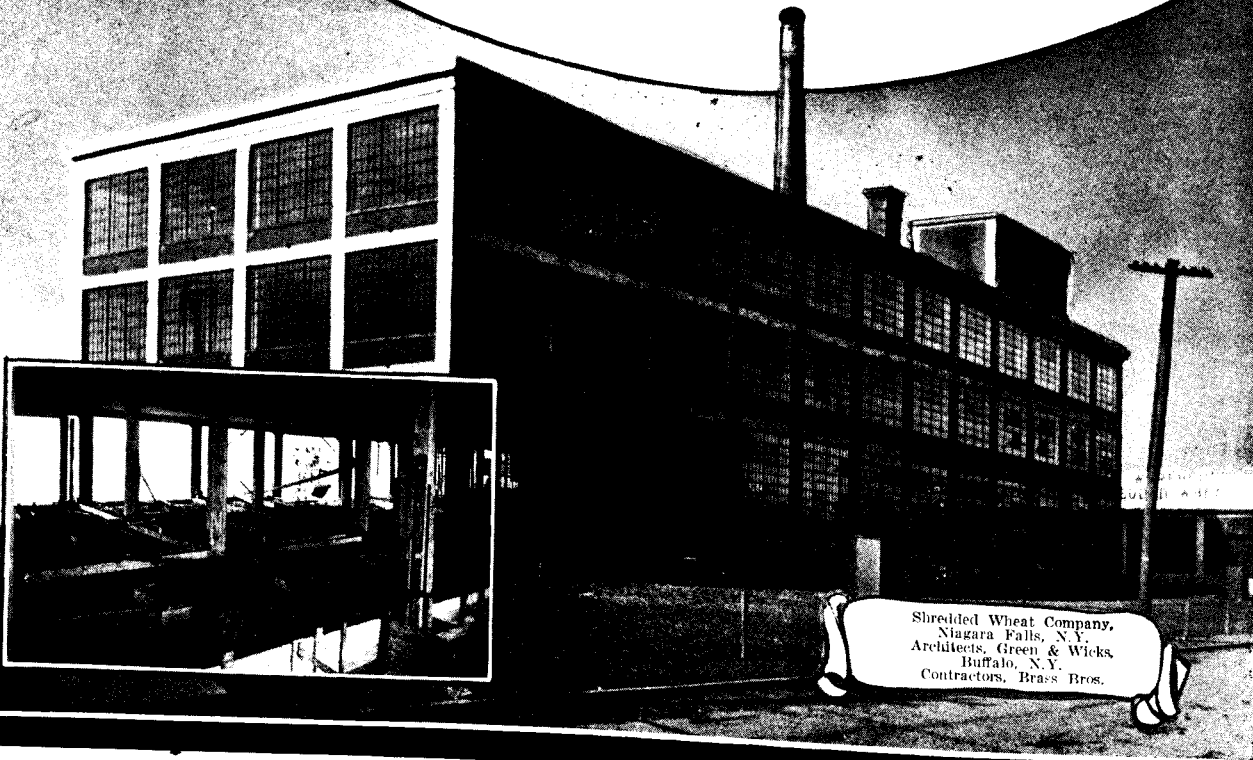
CORR-PLATE FLOORS

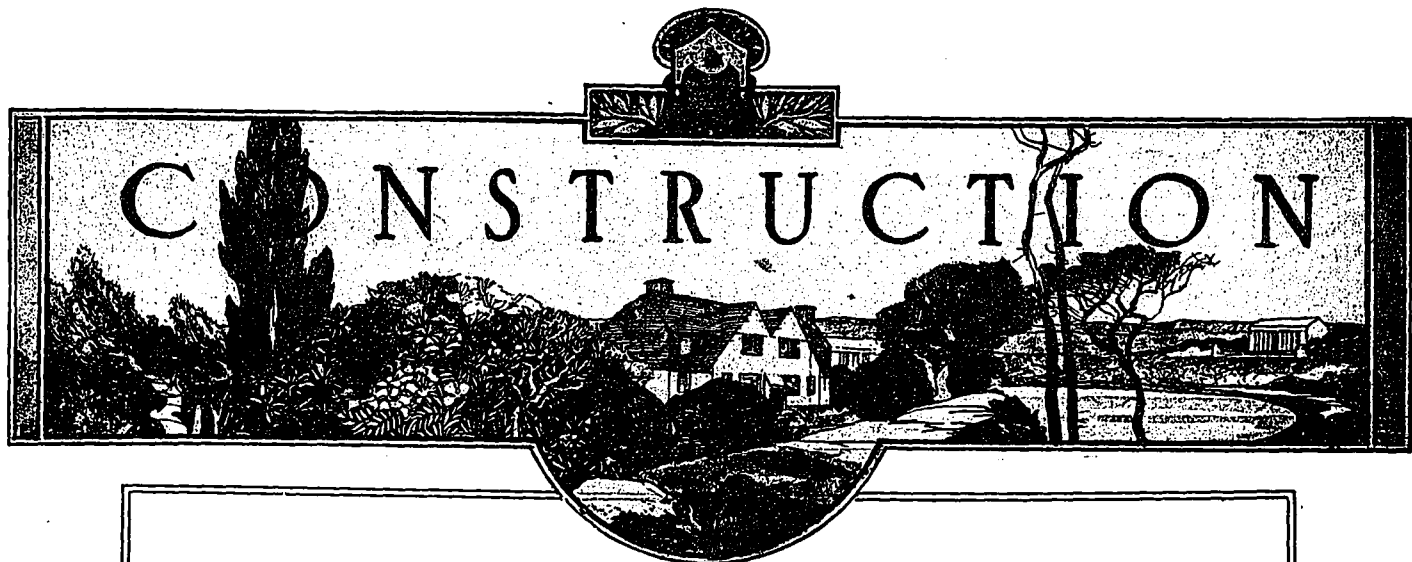
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FREDERICK REED

159 Church St., - Toronto, Ont.
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May, 1918

Volume XI, No. 5

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H. GAGNIER, Limited, Publishers

GRAPHIC ARTS BLDG., TORONTO, CANADA

MONTREAL

BRANCH OFFICES

NEW YORK



THE ART MUSEUM OF TORONTO.
PRESENT ENTRANCE CORRIDOR LEADING FROM "THE GRANGE" TO COMPLETED PORTION OF GALLERY.
DARLING & PEARSON, ARCHITECTS.



Toronto's Art Museum

THE formal opening of the new Civic Art Gallery, or according to its proper title, "The Art Museum of Toronto," contributed in a large measure to make the recent exhibit held under the joint patronage of the Royal Canadian Academy and the Ontario Society of Artists, an event of more than usual importance.

Although only a small part of the contemplated building scheme has as yet been completed, it at least rewards in tangible form the efforts of those who have patiently labored to bring this much needed institution into existence. Its present realization is primarily due to the magnificent generosity of the late Mrs. Goldwin-Smith in bequeathing to the city the property known as "The Grange," so rich in the recollections of the name and personality of her deceased illustrious husband. The famous old homestead on the grounds will be preserved intact, and at the present time serves as an entrance to the existing galleries.

To the north of the property the city has purchased the parcel of land extending through to Dundas street, which will permit of carrying out the necessary future extensions. The completed scheme will result in an impressive stone building covering an area of approximately three hundred and seventy feet by two hundred and twenty-five feet, and having its main approach through a portico entrance from the latter thoroughfare. Not only will it give Toronto a notable structure to house her civic art treasures in, but it will be about as noteworthy a building of its kind as will be found in any city of like size on this continent.

The exhibition just held within the finished portion of the structure proved a most interesting inaugural, representing a collection of the most recent work of Canadian artists; and from now on there will be a series of art exhibits to meet the desires

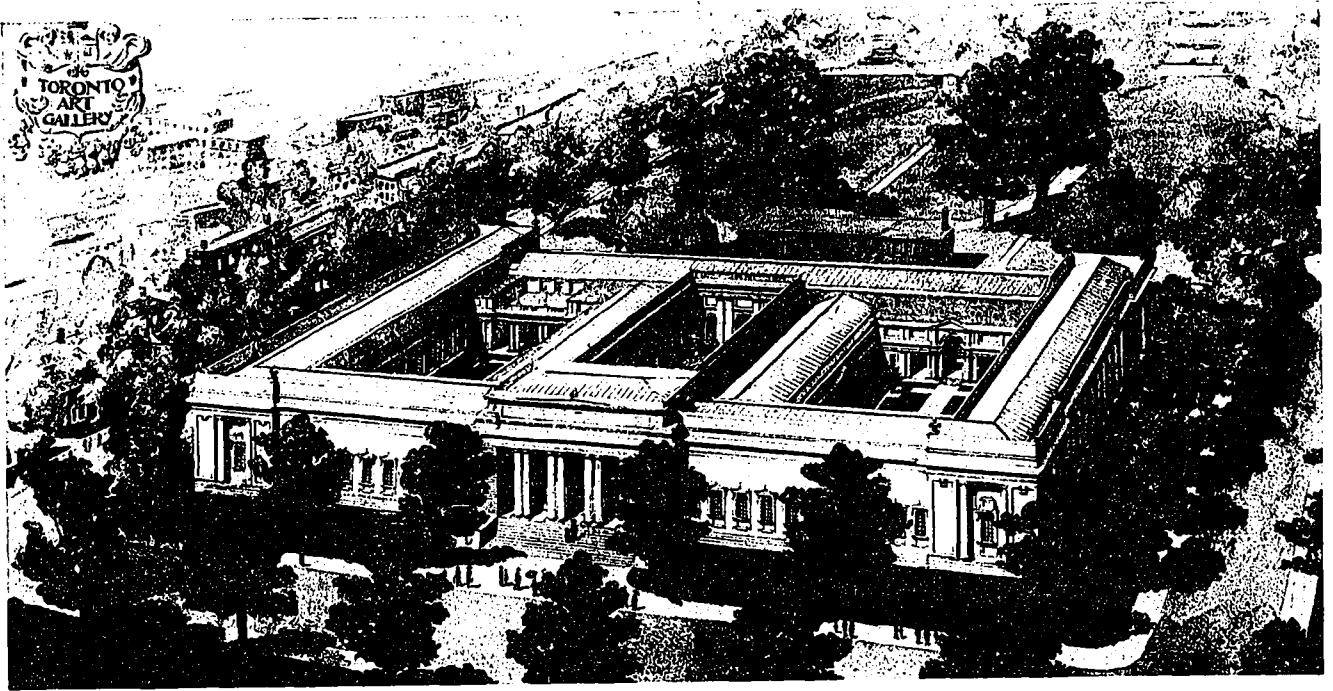
of Toronto's growing population of picture lovers. That the gallery fills a long-felt want was clearly indicated by the large average daily attendance, and it is evident that it will be well patronized by the general public.

Only about one-twentieth of the general scheme has as yet been completed. The remaining portion will likely not be built until after the war. The present part runs parallel to "The Grange" on its north side, and is approximately one hundred and fifty-five feet long by forty feet wide, exclusive of the portion of the structure which connects "The Grange" to the gallery itself. All further developments will be made on this side, extending towards Dundas street, and will eventually result in a quadrangular structure with two central divisions forming three large open inner courts. The central one of these courts will be "The Sculpture Court," and the other two will be desig-



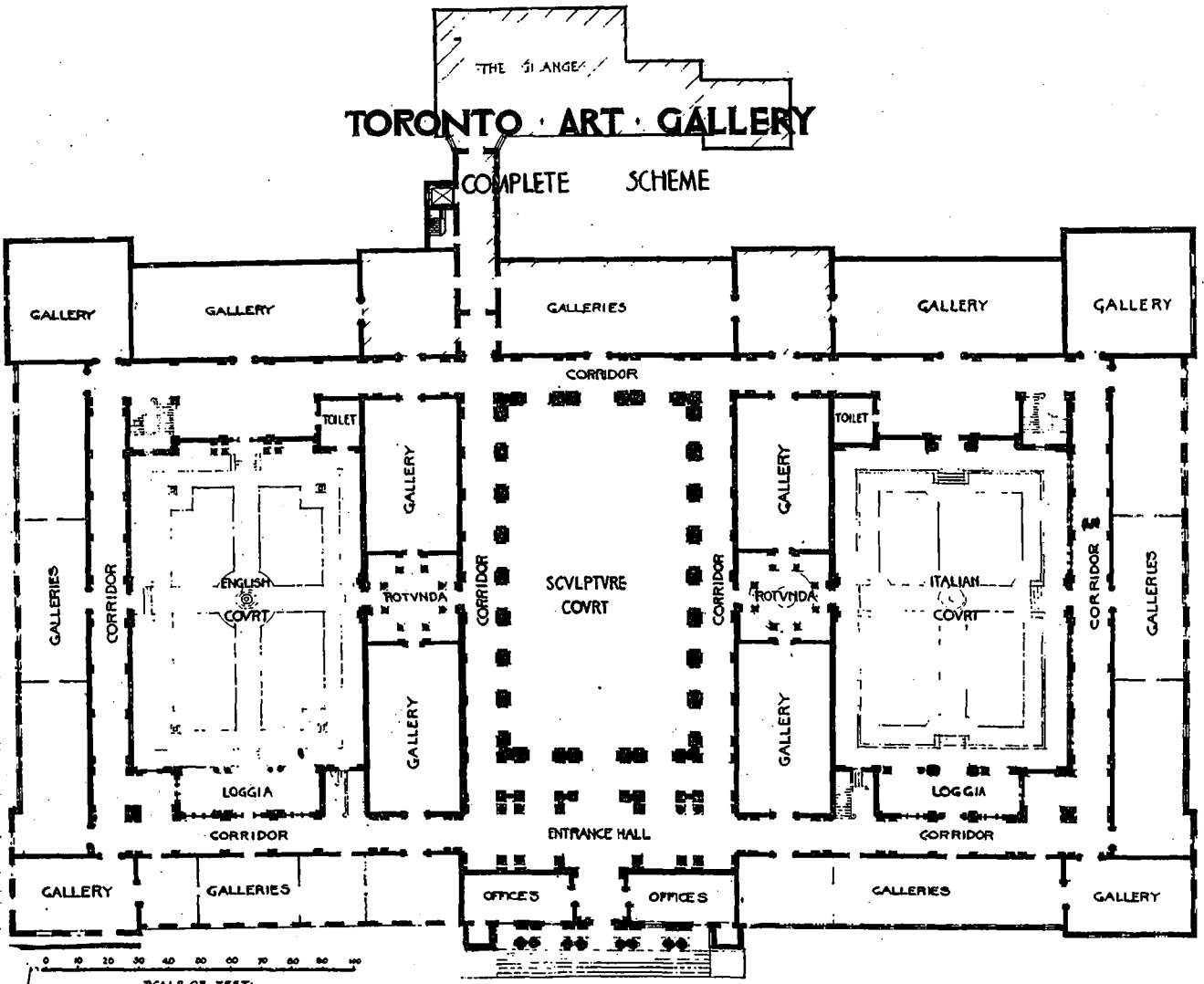
CORNER OF PRESENT WEST GALLERY, TORONTO ART MUSEUM.

DARLING & PEARSON, ARCHITECTS.



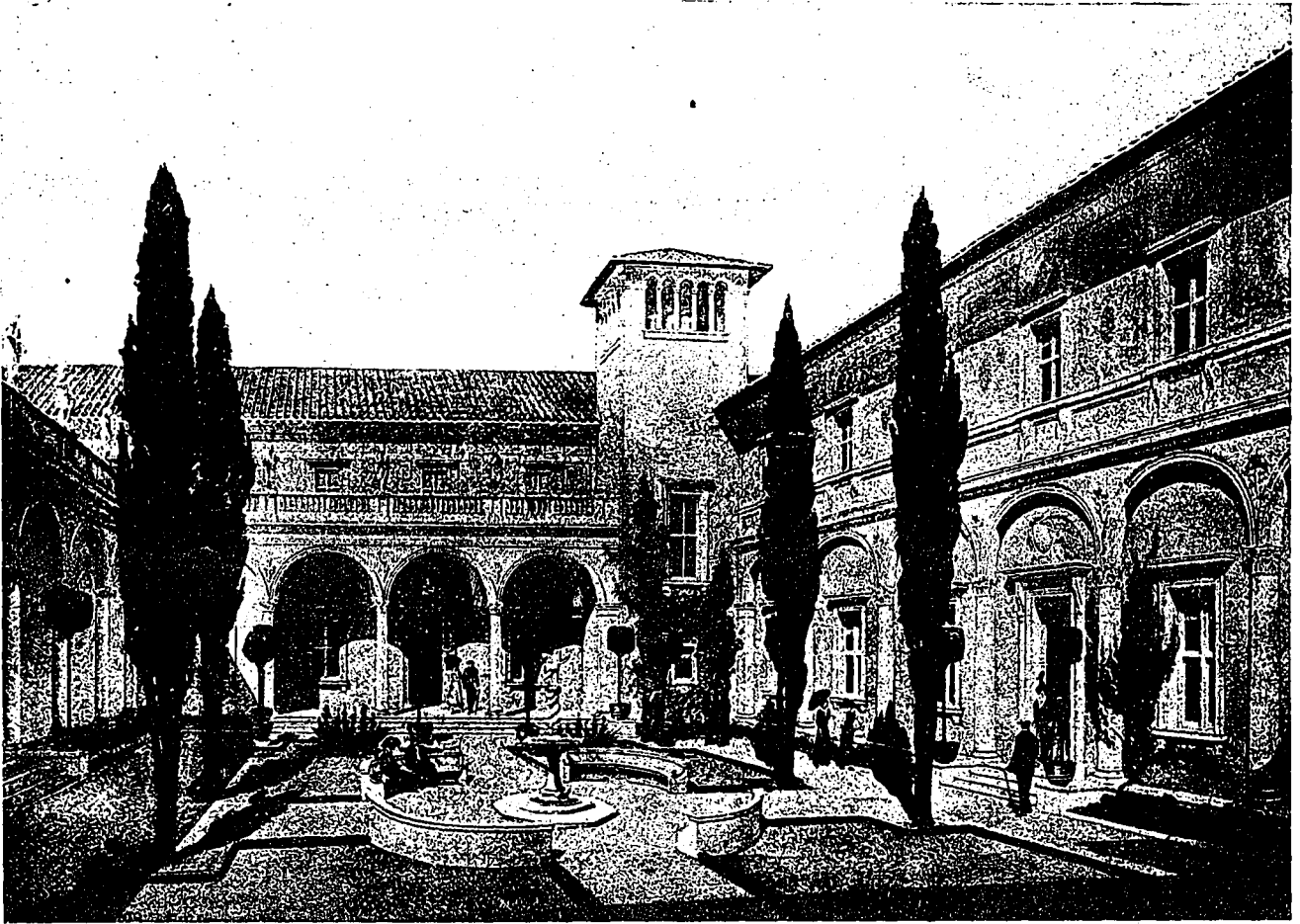
TORONTO ART MUSEUM, SHOWING THE FINISHED BUILDING AS IT WILL APPEAR WHEN THE ENTIRE SCHEME IS CARRIED TO COMPLETION.

DARLING & PEARSON, ARCHITECTS.



PLAN

DARLING & PEARSON - ARCHITECTS - TORONTO



PROPOSED ITALIAN COURT, TORONTO ART MUSEUM.

DARLING & PEARSON, ARCHITECTS.

nated the "English" and the "Italian" courts.

An idea as to the comprehensiveness of the scheme, as it will finally appear, is obtained in the accompanying perspective and general plan. These show the grouping of the various courts and galleries and an arrangement which gives direct accessible means of communication from one part of the building to the other.

The general construction will conform to the present completed section, having reinforced concrete floors and exterior walls of stone backed by brick and a course of hollow tile. The inner walls of the existing galleries are finished with boards instead of plaster, and will be covered with canvass or linen tinted a soft neutral tone. This forms a most suitable backing for the hanging of pictures, as nails can be driven at any desirable point with little or no perceptible damage to the walls themselves. Underneath the gallery is a full sized basement containing the boiler room and large storage space and connecting with the upper floor by both a freight elevator and staircases.

When the building is entirely finished, the old homestead on the property known as "The Grange" will constitute a rear annex and the outside walls will be renovated to architecturally conform with the Museum premises. The present connecting corridor which gives entrance from "The Grange" is finished with a

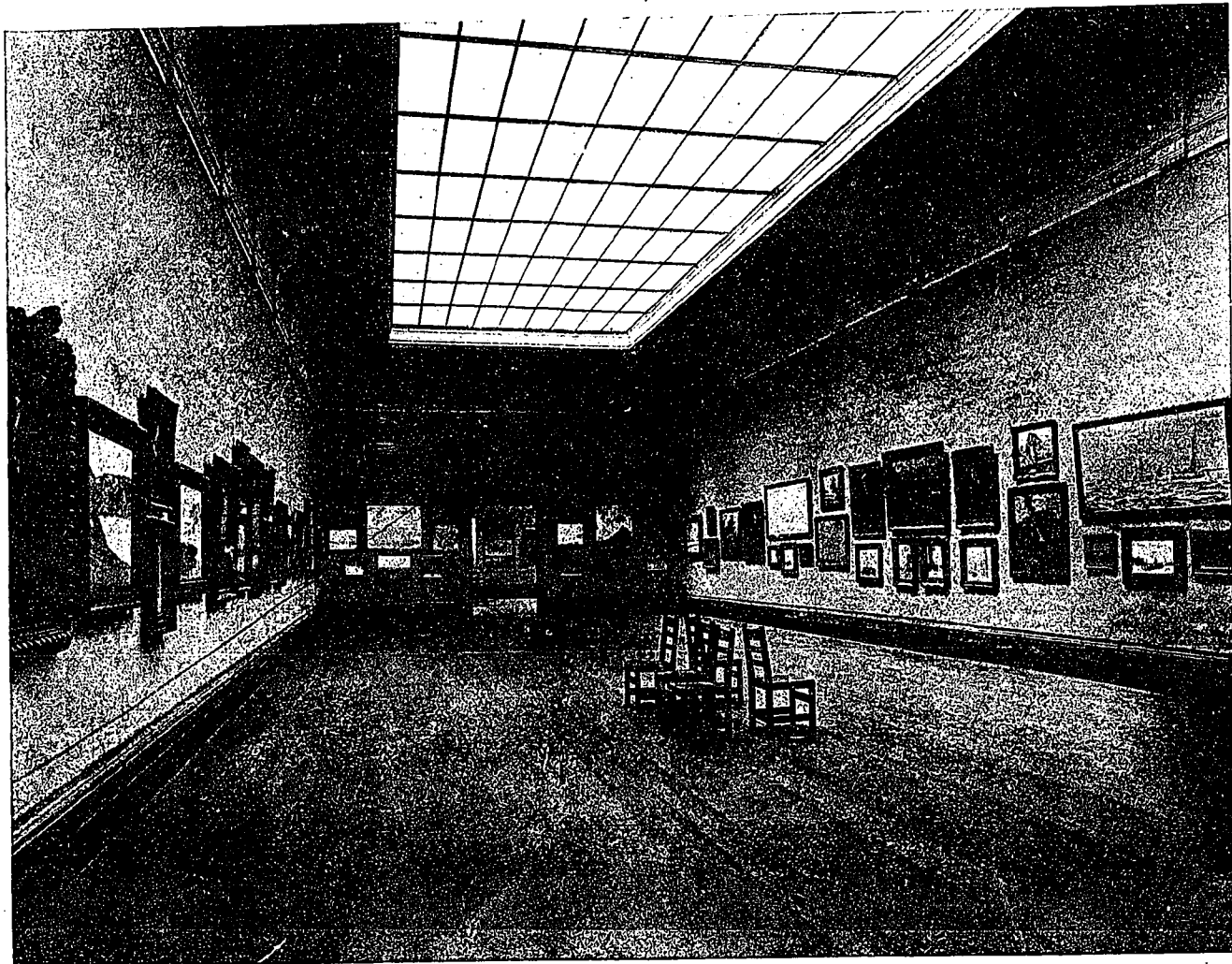
vaulted ceiling and marble wainscoting and floor. In the exhibit rooms the ceilings consist entirely of skylights carried on a heavy plaster wall cornice.

An especially interesting feature of the gallery is the system of artificial lighting, of which an accompanying view is shown. This is situated above the lower skylight, and consists of a frame of metal conduits carrying a series of nitrogen lamps of one hundred and fifty candle power each. These lamps have blue colored bulbs, and are set in deflectors arranged in rows on either side of the skylight. The light rays are projected down through the skylight at an angle directed towards the opposite walls, and the result is a perfect even diffusion of light in the gallery below, eliminating all shadows and giving a remarkable daylight effect.

The Art Museum's Lighting System

By GEO. J. BEATTIE

It cannot be denied that daylight is generally the proper quality of light for illumination of objects in art gallery—more particularly pictures. There may be considerable divergence of opinion as to whether the light from the northern or southern exposure is the better, but even here the opinion of the majority of artists and others qualified to judge is that the southern



PRESENT MAIN GALLERY, TORONTO ART MUSEUM.

exposure is the best. Of course, quality and consistency have weight in arriving at this decision, and the warmer tones of the southern

exposure seem to be preferable. Consequently, it is often advisable to warm up the light that enters north windows by means of light tints of yellow in the curtains or draperies which cover the window.

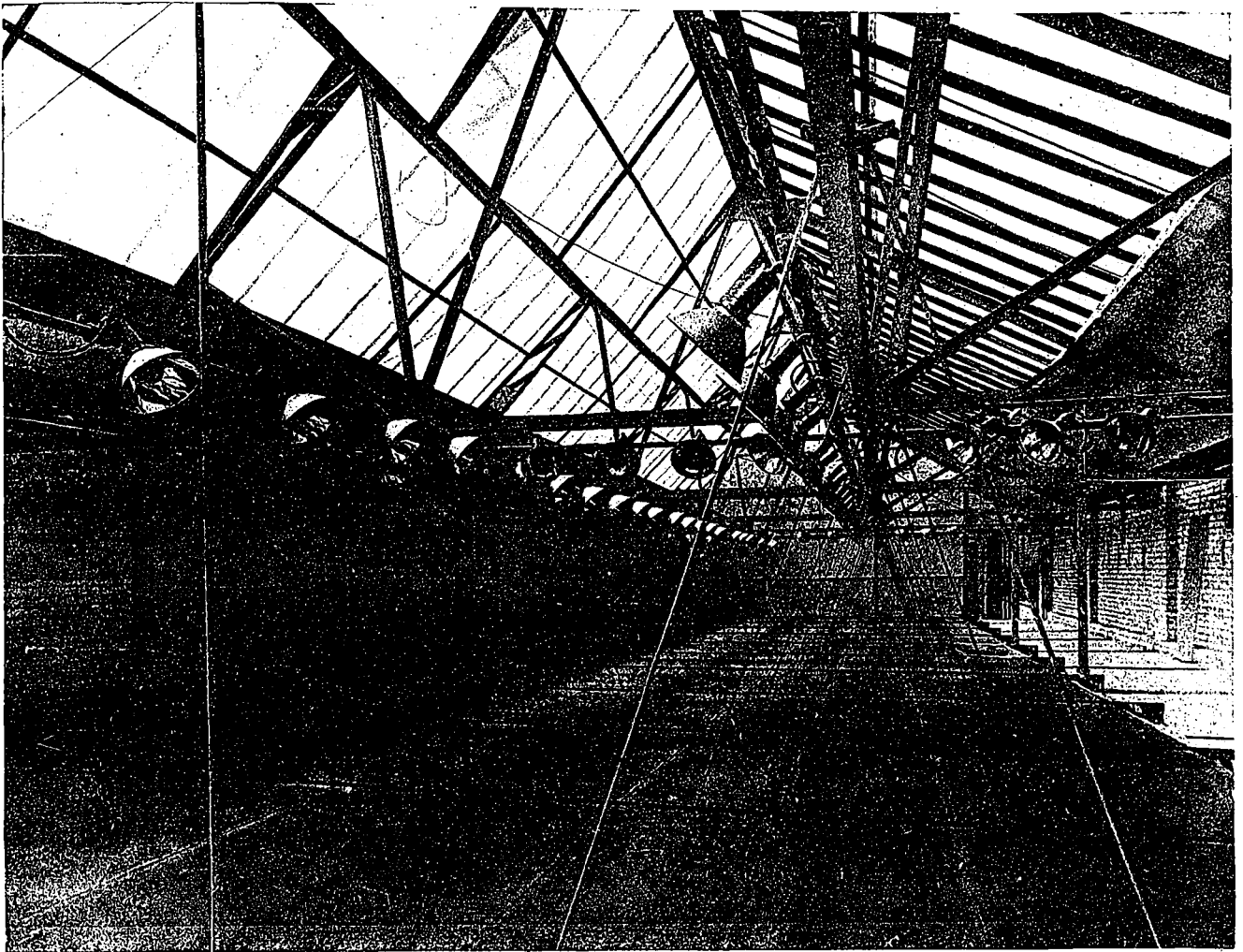
The problem of artificial lighting in the Toronto Art Museum, therefore, resolved itself into installing a system which would most nearly approximate daylight from a southern exposure. The success of the result can best be judged from the opinions of those best qualified to criticize, and it seems to be the general expression that the effect produced is even better than that of daylight.

The success of the installation is due to a very great extent to the thoroughness with which the architects and the Museum authorities considered this



VIEW OF ABOVE INTERIOR TAKEN AT NIGHT BY ARTIFICIAL LIGHTING SYSTEM INSTALLED.

DARLING & PEARSON, ARCHITECTS.



SKYLIGHT AND OVERHEAD LIGHTING SYSTEM, TORONTO ART MUSEUM.

DARLING & PEARSON, ARCHITECTS.

particular part of the work; and also to their willingness to adapt the building construction to the necessities of the lighting system itself. As a result, Toronto has one of the most satisfactorily lighted art museums in America, if not in the world. The lighting system was built into the building, and was not, as is often the case, an afterthought. Even the color of the floors has an effect on the result, as will be seen later.

In the lighting of picture galleries there are other fundamental considerations besides a daylight quality of light. These may be summed up as follows:

(1) That the brightness of the floor and ceiling should not be disproportionately large in comparison with the brightness of the area upon which pictures are to be hung.

(2) That the amount of downward light should not be disproportionately large in comparison with that directed toward the important wall space.

(3) That there should be no reflective of bright portions of the skylight from the glazed or varnished pictures into the eyes of an observer standing at reasonable distance from the pictures.

(4) That the lighting equipment should be

entirely concealed so as not to mar the beauty of the galleries.

(Concluded on page 152)



END OF PRESENT ENTRANCE CORRIDOR, TORONTO ART MUSEUM.



NEW NORLITE BUILDING, OTTAWA, ONT.

RICHARDS & ABRA AND C. P. MERIDITH, ASSOCIATE ARCHITECTS.

New Norlite Building, Ottawa

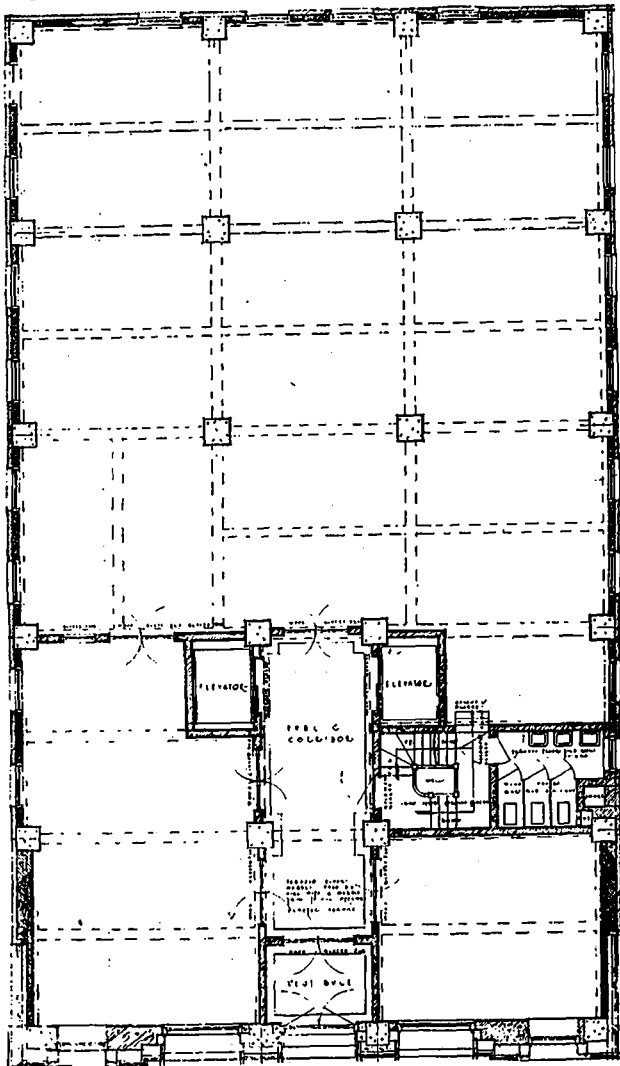
TO the advantages of modern office accommodations, the new Norlite Building, recently completed on Wellington street between O'Connor and Bank streets, Ottawa, gives to its tenants the advantage of an ideal location. It is one block west of the Langevin Block (a Government departmental building), and is strictly within the area known as the Government office district.

Besides the location, which makes the building decidedly suitable as office quarters for either professional or governmental purposes, the building is exceptionally well lighted, deriving direct outside light on all four sides. On the east side there is a large lawn between the structure and the Bank of Montreal; on the west side is a lane and a large open space belonging to the North-West Mounted Police Department, while at the rear is an open space about twenty by thirty feet separating the structure from the Booth Building.

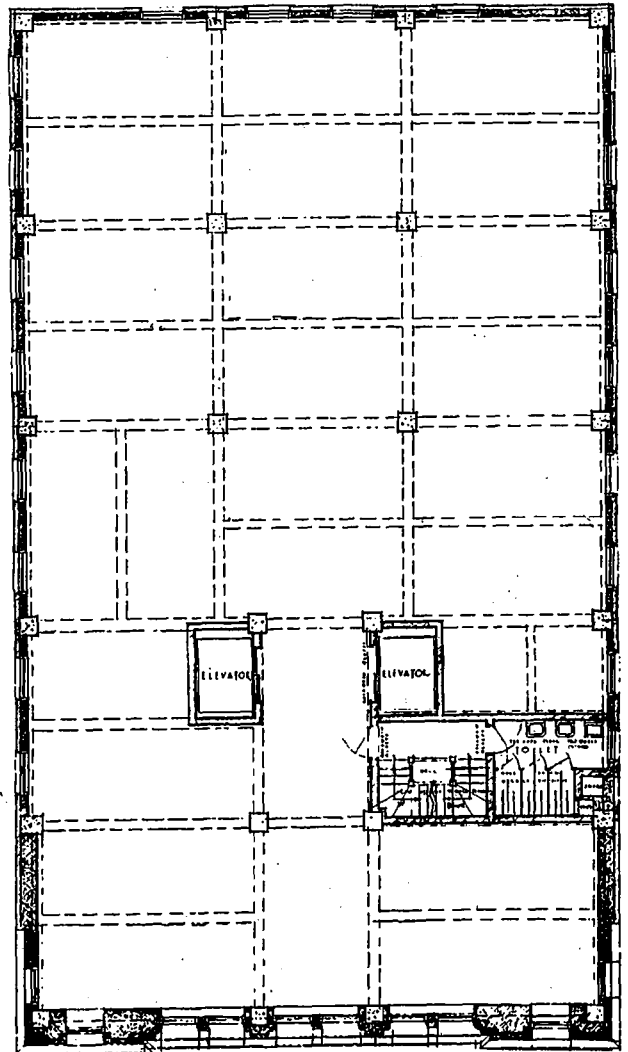
The front of the building faces north, overlooking the large lawns of the Parliament Buildings and the Ottawa River. From the upper

floors there is a beautiful view of the Laurentian Mountains and the surrounding country and rivers. The construction is fireproof throughout. The exterior is built of Indiana limestone, light cream terra cotta and brick to harmonize in color with these two materials. There are no inside offices, all the rooms being arranged to have direct outside light.

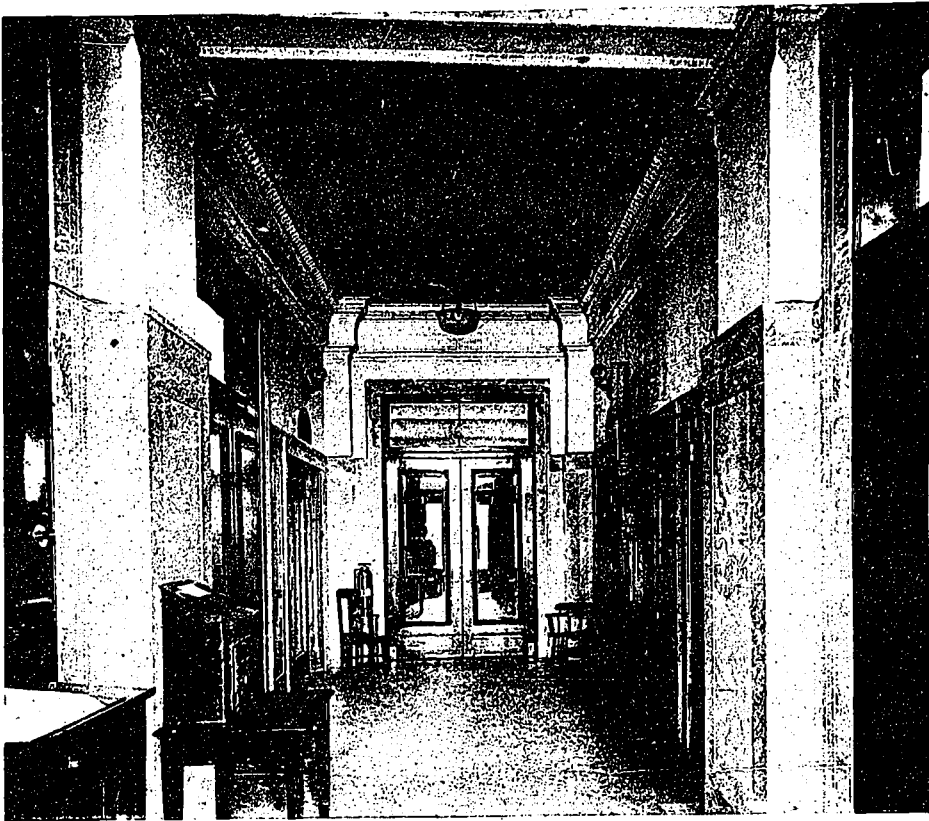
On the ground floor the entrance and elevator corridor is finished with marble wainscoting and ornamental plaster cornice at ceiling. The elevators have heavy, bronze copper doors with bronze grilles and glazed with close wire polished plate glass. All the interior trim is of hardwood, finished in dull polished mahogany. The floors throughout the building are of white marble terrazzo. The stairs are of metal with terrazzo treads, and are enclosed with fireproof materials from basement to roof with fireproof doors at each floor landing. Toilet and lavatories are provided on each floor in the space adjoining the stair hall. These rooms are finished with tile and marble to a height of seven feet, and equipped with plumbing of the most



GROUND FLOOR PLAN.



TYPICAL FLOOR PLAN.



ENTRANCE CORRIDOR, NEW NORLITE BUILDING, OTTAWA.

approved modern sanitary type.

Two high-speed electric traction passenger elevators give service to the various floors, and are ample to meet the requirements of the building in a quick and efficient manner. Each elevator car is constructed of bronze with a brass rail, and has accommodation for twenty-four passengers.

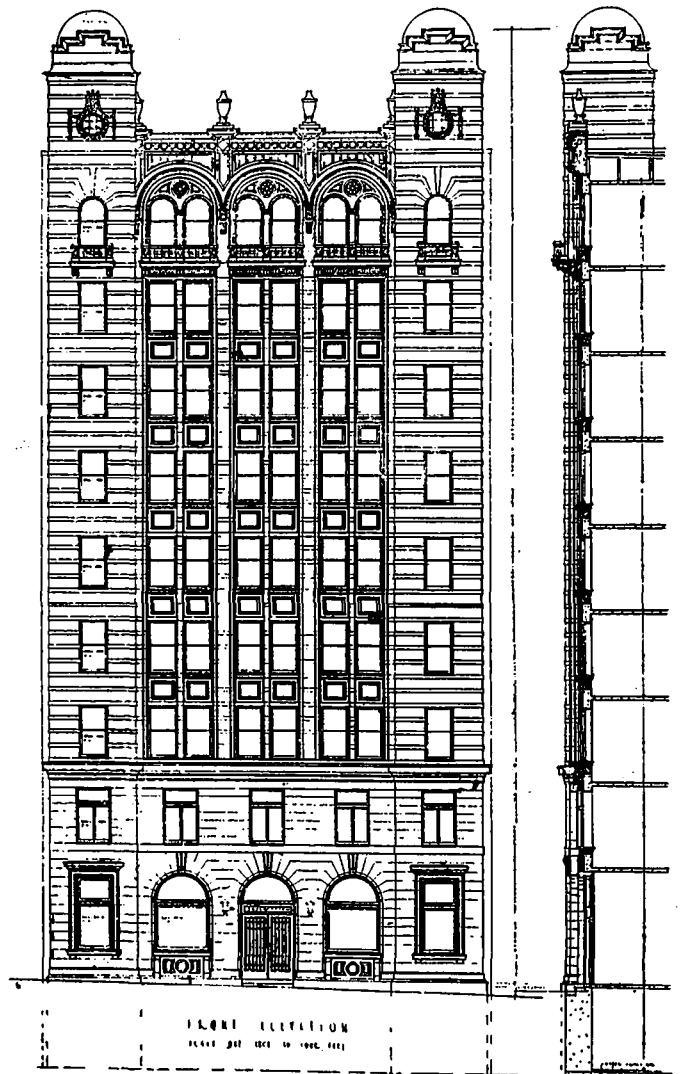
The heating comprises an up-to-date steam system with temperature regulators giving individual control in each of the various offices; and the electrical layout has been arranged so as to take into account the subdividing of any space, so that all interiors will be abundantly lighted.

Obituary

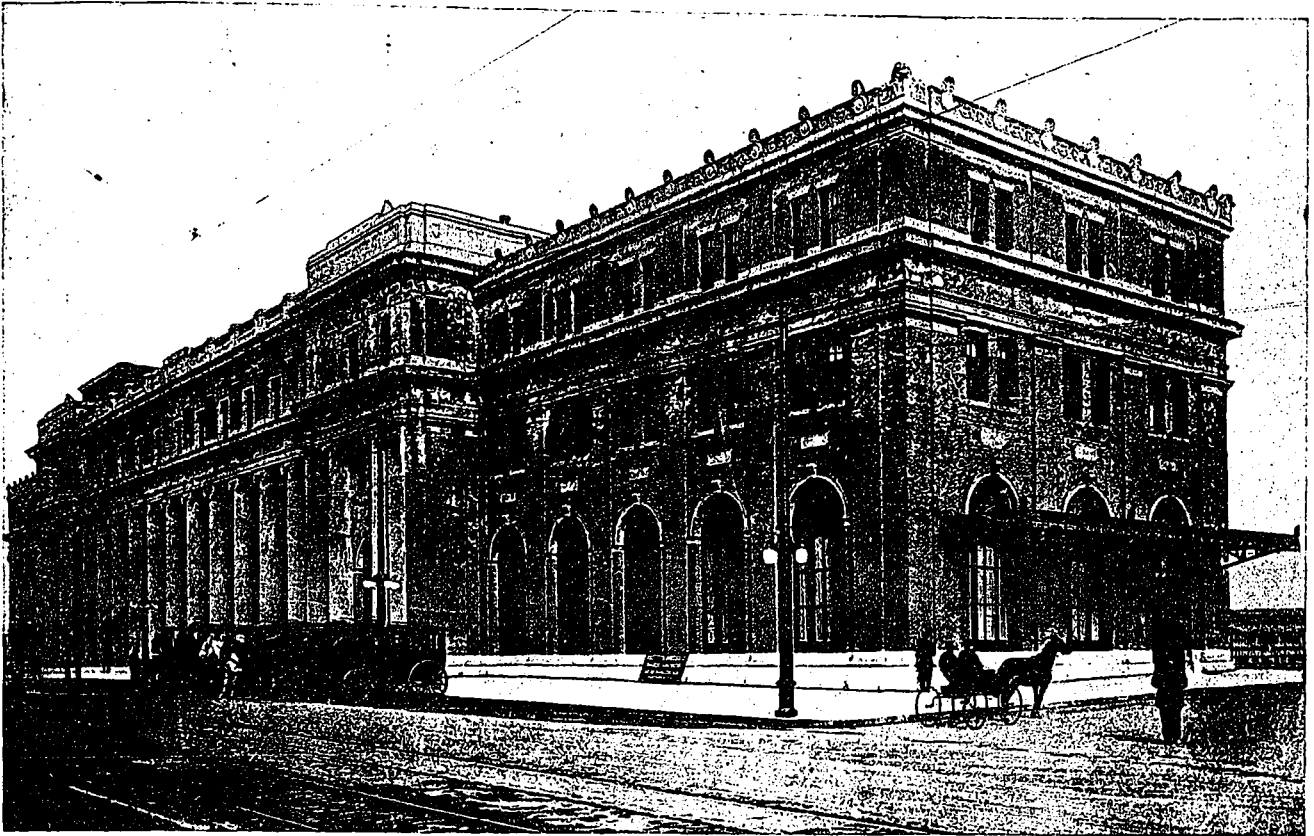
Mr. James A. Smith, a pioneer architect and well known as a designer of churches, recently passed away, in his eighty-seventh year, at his late residence on Woodlawn avenue, Toronto. Mr. Smith was one of the founders, and for many years secretary-treasurer of the Royal Canadian Academy of Art. He had practised as an architect in this city for about forty-five years, during which time he built over ninety churches in Toronto. He was the architect of the old Knox College on Spadina avenue, and of the Church of the Redeemer. Mr. Smith was the second son of James Smith, native of Fordyce, Banffshire, Scotland. He was born in Marduff, Scotland, April, 1832, and came to Toronto about 1850.

Housing Scheme For Colored Labor

The war, with its increased opportunities for work in the big industries, has brought eighteen thousand to twenty thousand negroes into the district of Pittsburg, Penn, and housing conditions, even with alleged greatly inflated rents, have practically broken down, the City Council, sitting as the Committee on Public Safety, was told by a delegation from the Urban League of Pittsburg for Social Service Among Negroes. To relieve the overcrowding the council was asked to urge the Government to build homes for colored industrial workers.



FRONT ELEVATION, NEW NORLITE BUILDING, OTTAWA.



VIEW ALONG CORDOVA STREET, C.P.R. STATION, VANCOUVER, B.C.

BAROTT, BLACKADER & WEBSTER, ARCHITECTS.

C. P. R. Station, Vancouver

THE new C.P.R. terminus at Vancouver is the fourth station which this company has built since it ran its first train over a single track into Vancouver about thirty-two years ago. It therefore denotes the rapid and substantial growth of the city in the intervening period and the increased transportation and traffic facilities which have been made necessary to meet the present industrial and commercial requirements.

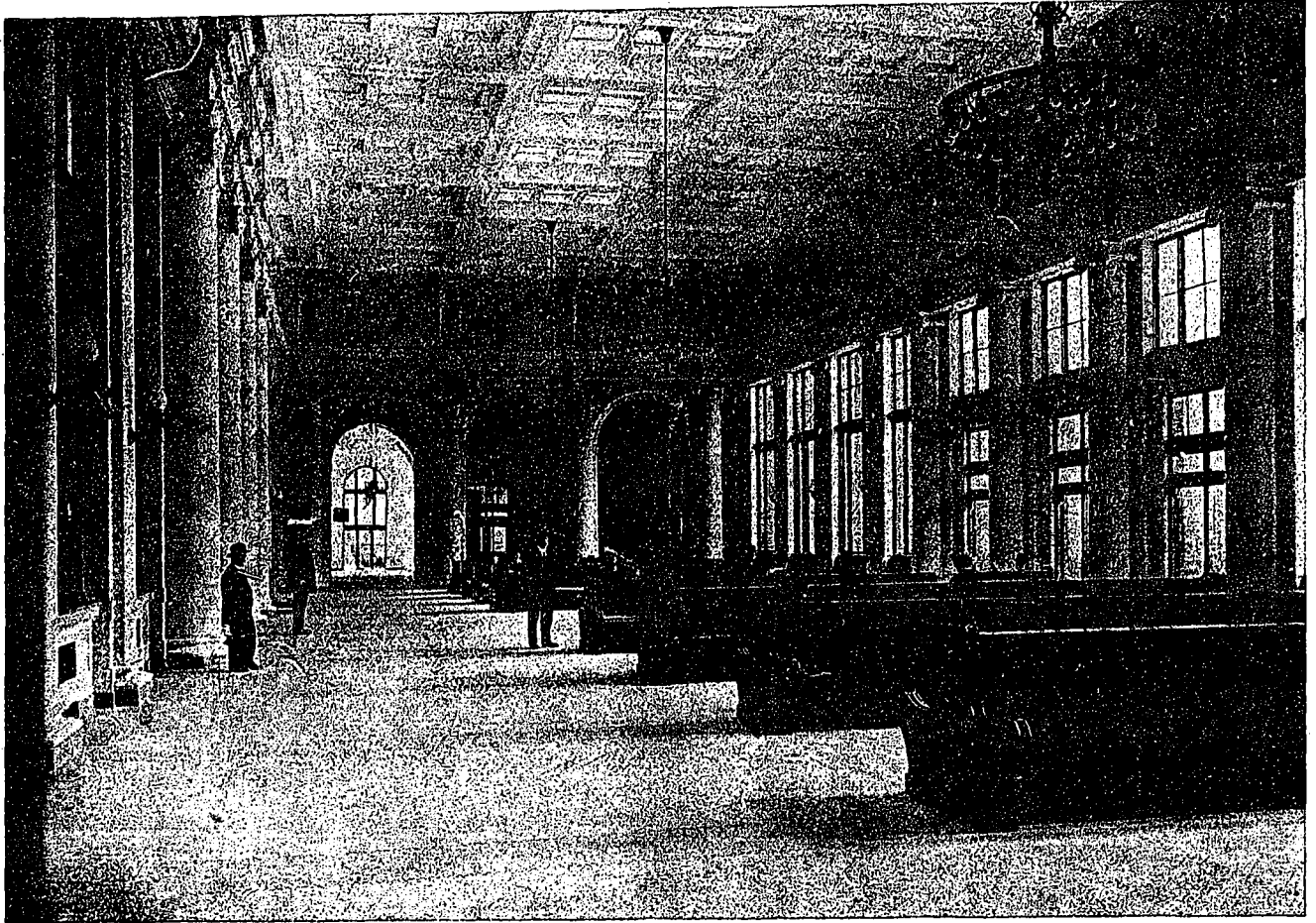
The work of reconstructing the station was commenced in March, 1913, and completed about two years later. The exterior is of red brick construction with terra cotta and limestone trimmings and the character and equipment of the building is modern throughout.

Along the track side the structure is six storeys high and extends four hundred and eighty feet, or practically two blocks. On Cordova street, which forms the main facade at a higher level, the elevation is approximately four storeys. The main entrance consists of a colonnade of ten large Ionic columns. This entrance leads straight through the main waiting room to the exit to the tracks; while from the Granville street entrance at the west end of the building is a wide corridor extending through to the Plaza at the east end of the station. There is also another entrance on Cordova street, and one on the track side for third-class passengers

from the wharves and trains, making six entrances in all. A retaining wall has been erected to support the tracks which have been raised four feet above the old level. A covered passenger bridge thirty feet wide leads from the main waiting room on the track side to the platforms below, while the stairs leading down to the platform from both sides of the passenger bridge are six feet wide.

The two floors below the street level on the track side of station are given over to the baggage and express departments, the lower floor being used mostly for heavy and bonded baggage. The mail room, where all the business mail of the company is handled, is also on this floor, together with the telephone exchange, general service rooms, part of the dining car service department, and boiler and pump rooms. The boiler room contains three one hundred and fifty horse-power boilers, which supply all heat to the station and wharves, a modern steam system being installed for this purpose. On the lower mezzanine floor are the kitchen, auxiliary store room and baggage rooms.

The general waiting room which occupies the central portion of the main floor is sixty feet wide by one hundred and fifty feet long, and has Ionic columns and pilasters marking the divisions of the walls, and an enriched coffered ceiling forty feet above the floor. All the floors,



MAIN WAITING ROOM, C.P.R. STATION, VANCOUVER, B.C.

BAROTT, BLACKADER & WEBSTER, ARCHITECTS.

with the exception of the offices, are of granolithic composition, with the base course of the walls consisting of marble. On this floor are also situated the restaurant and lunch room, railway and steamship offices, women's waiting room, and smoking room. The ticket offices consist of eight booths. A large lobby opens off from the general waiting room for the use of

first and second class passengers, separate accommodations being provided for third class travellers, including a separate waiting room entrance and other features of convenience.

The upper storeys of the building accommodate the various offices of the company, and are finished with hardwood floors, while the lavatory facilities of the building and other features of service are the most modern throughout. A master clock, operated by the station master, regulates every clock in the station, and the arrangements of all departments is such as to facilitate the handling of passengers and traffic business in the most convenient and direct way.



TRAIN SHEDS, C.P.R. STATION, VANCOUVER, B.C.

Further improvements to the terminal facilities of the C.P.R. at Vancouver have been carried out in the reconstruction of Pier "D," to which an extension of five hundred and thirty-seven feet has lately been added. This pier is on Burrard Inlet, just at the foot of Granville street, and the extension, which now gives it a total length of about nine hundred and fourteen feet, has been made necessary in order to meet

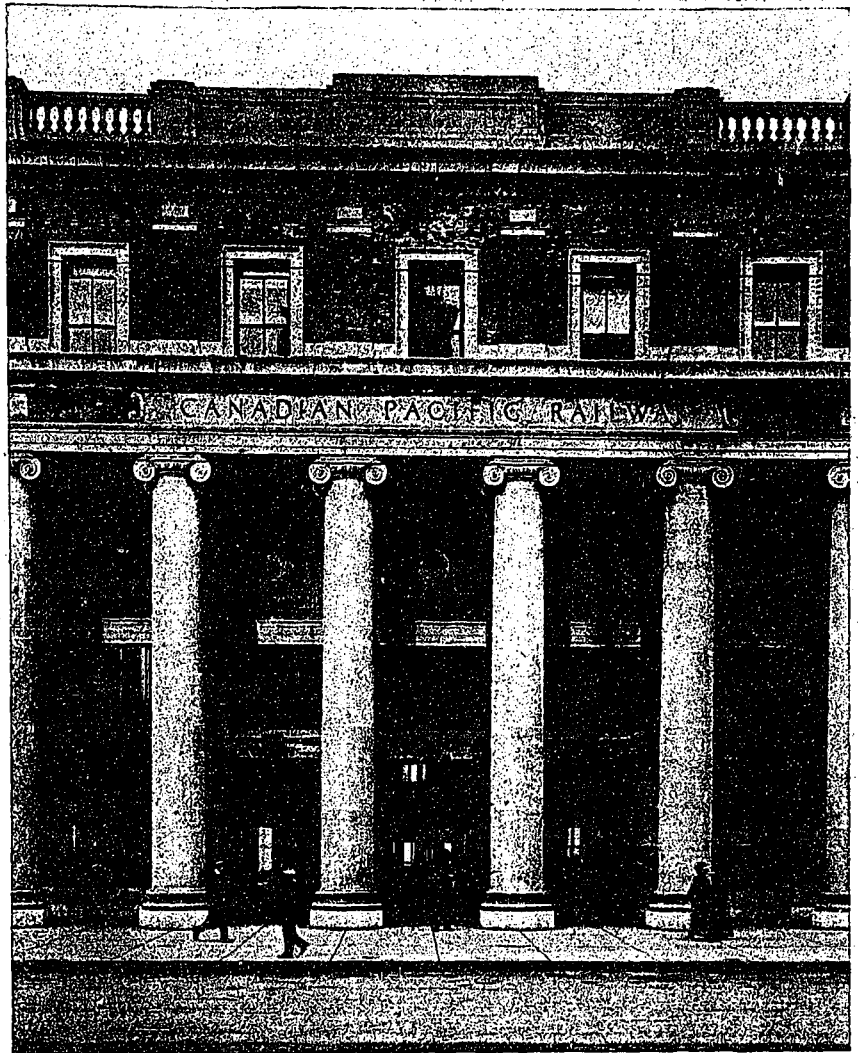
the growth of both coastwise and trans-Pacific traffic.

As a result of the new improvements, facilities are now provided on the west and north side of the pier for berthing four coast boats at one time, with separate ramps or staircases for taking the passengers direct from the boat to the upper floor level without interference with the handling of freight shipments. On the east side, where the trans-Pacific boats dock, continuous sliding doors give openings to the shed at all points along the pier. There are two adjustable freight slips and a standard gauge railroad track which makes it possible to deliver car shipments of freight right to the ship slings.

On the newly added section of the pier is a one-storey shed of heavy mill construction continuing from and conforming to the general width of the building on the old portion of the pier, and supporting in turn a covered promenade which runs along both outer edges of the shed at the roof level. This promenade, which is six feet in width, is used both for passenger traffic and sight-seeing purposes, and affords a splendid view of the surrounding harbor.

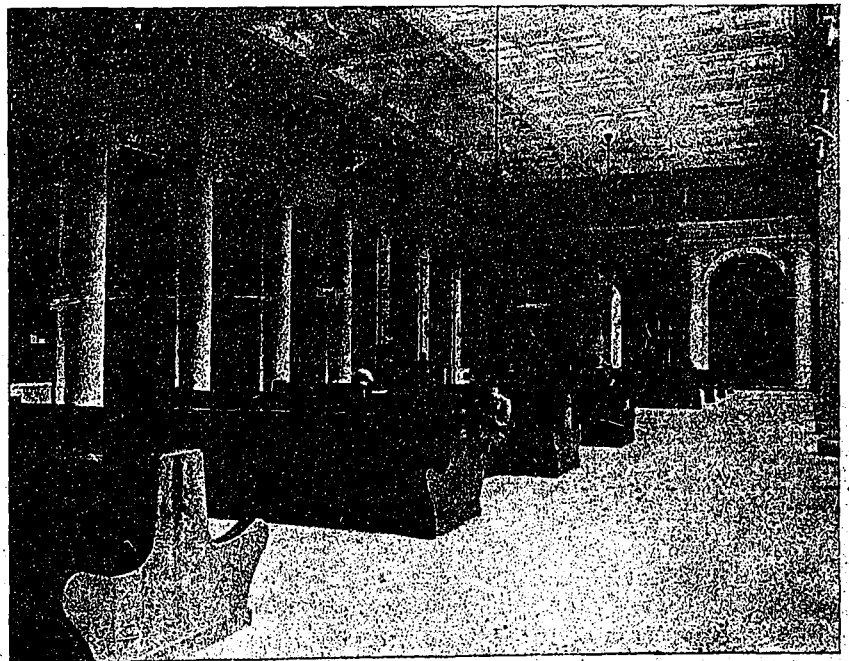
It is connected by staircases to the lower outside dock level. The total width of the shed is one hundred and thirty-six feet, or one hundred and sixty feet including the outside dockage. Removable sections of railing on the east side of the promenade give a direct landing at the upper level, and entirely avoid the movement of passengers through the freight section at the dock level below.

In addition there is a depressed railway track of standard gauge extending through the centre of the shed for the full length of the pier. This depression brings the floor of the cars even with the freight deck level, and greatly facilitates the loading and unloading of all goods in transit. There is also a heavy removable gangway run on the east side railroad track which is provided with adjustable landing gangways on each side between itself, the ship, and the promenade. The passen-

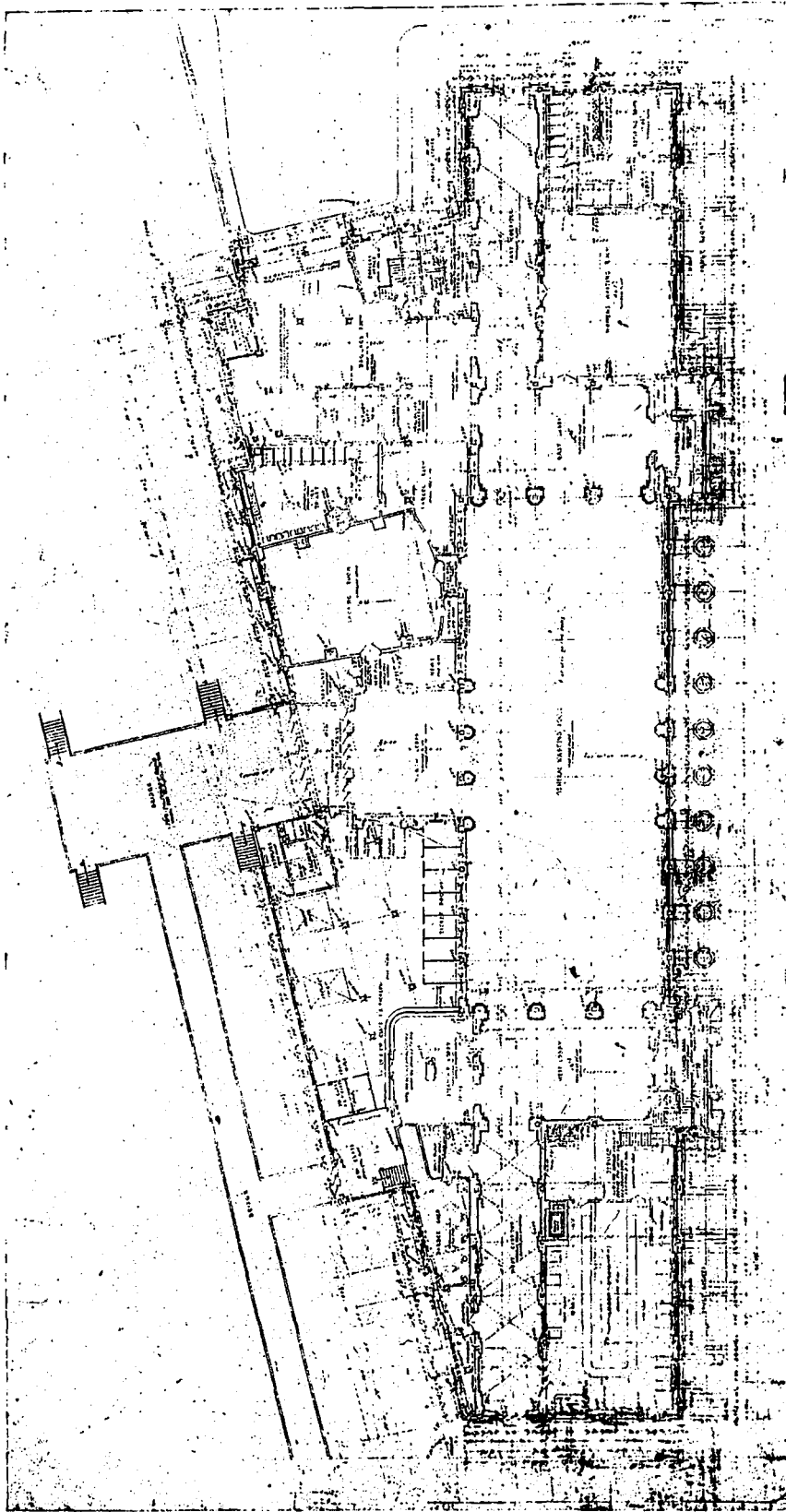


MAIN ENTRANCE, C.P.R. STATION, VANCOUVER, B.C.

ger bridge, which was originally on the east side of the pier, has been removed to the west side. The space formerly occupied by



MAIN WAITING ROOM LOOKING TOWARD TICKET BOOTHS, C.P.R. STATION, VANCOUVER, B.C.



BAROTT, BLACKADER & WEBSTER, ARCHITECTS.

GROUND FLOOR PLAN, C.P.R. STATION, VANCOUVER, B.C.

it has now been converted into several offices.

The freight handling equipment includes three freight elevators and two adjustable freight slips. These slips are crossed by the east side track, and consequently it has been necessary to work out an arrangement which allows this section of track to operate on a turntable. When the slip is up, the track is locked in

place and supported rigidly on the pile bents. When the slip is down, the track is given a quarter turn, so that the rails lie parallel to the slip axis, and can be readily trucked over. Each slip is operated by two worms and gears on a common shaft with endless hand-chain attachments. The slips are supported by steel hooks, which drop back when the slip is to be lowered, by means of a lever pulled from the deck level.

The centre depressed track is fitted with an electrically driven car-haul, with a capacity of ten loaded cars. Its use will avoid the presence of any steam locomotives inside the pier, with their attendant fire risk and smoke.

Recently discussing the question of standardization in reference to the designing of railway buildings, Mr. C. Gordon Mitchell, architect, representing the Canadian Northern Railway, said: Standardization at first glance appears very attractive from the economical viewpoint; but does it bear close scrutiny? Firstly, standardization suggest similar condition and demands a unit system of designing. Can a unit system be applied successfully throughout? I am of the opinion that it can only be applied partially, even to what might appear to be stereotyped building of the commercial class—*e.g.*, workshops, warehouses and freight sheds. The

chief objections, in my opinion to standardized buildings are as follows: In every case where a building is necessary the conditions are different. In attempting to make the standard suit the varying conditions it will mostly be found that so many variations occur that little of the standard plan remains, and possibly better results will be obtained by ignoring it.

History and Properties of Paint *

THE use of paint for decorative and for preservative purposes dates far back into history; but in the brief space at our disposal we will only consider some of the more prominent types of modern paints and their most important properties.

Paint is described, in a general way, as the mixture of finely divided particles of solid matter called the "pigment" in a liquid called the "vehicle." Asphalt paint is merely solid asphaltum dissolved in benzine or some other vehicle.

The pigment functions to hide the surface over which the paint is applied, to resist the action of weather and wear, and to give color. The selection of the most suitable pigment, or combination of pigments, depends very largely upon the relative importance of these functions under the conditions for which the paint is intended to be used.

The vehicle functions as the carrying and cementing body, and dries and binds together the solid particles of pigment in somewhat the same way that Portland cement and water unite sand and broken stone to form concrete.

The types of paints best known are three, differentiated by the vehicles used to carry and cement their pigments. The most important are the oil paints; but the enamel paints are now used quite extensively, and cold water paints are daily becoming more popular for interior walls.

Asphalt paint is really a varnish. The varnishes differ from the paints in that they do not ordinarily have a pigment, though occasionally a little is added to give color, and we then approach what is known as "enamel paint."

The oil paints consist of pigment ground in a paint mill with oil as a vehicle, to which is added a small proportion of Japan drier to cause a fairly rapid solidification when the paint is applied.

Linseed oil, which is pressed from flaxseed, is the best known vehicle used in the oil paints. Until recent years it was employed for all the better paints of this type, but it has the defect that a film of it is readily penetrated by water.

Other vehicles, as substitutes and improvements, were diligently sought, because of this unfortunate non-waterproof property of linseed oil. Among others, fish oil, Soya bean oil, and corn oil have been carefully tested and successfully used under certain conditions, but the greatest advance has been made by using China wood oil.

China wood oil, when properly manufactured, is very resistant to water, and it is largely employed at the present time in the manufacture of both paints and varnishes.

The enamel paints consist of pigment ground in a vehicle of varnish which consists ordinarily of gum or resin, oil and turpentine. The evaporation of the turpentine leaves the gum and oil as a strong cementing medium for the pigment. Some of these enamels are very serviceable and resistant to weather, and the coating dries with an excellent gloss.

Cold water paints consist of pigment combined with gum, caslin, etc., that dissolves in water to form the vehicle at the time of application. The evaporation of the water leaves the gum to serve as the cementing medium for the pigment. Some paints of this type have very fair weather resistance.

White lead pigment is one of the oldest and best known. It was originally made from pieces of metallic lead called "buckles," that were corroded to form the white powder termed "basic carbonate," and known as "white lead." This process is largely used at the present time, though other methods have been adopted to shorten the period required for manufacture and to improve the product. White lead, as first produced, is purified, dried and powdered before being sent to the paint mill.

White lead paint, when the pigment is properly ground with an oil vehicle of good grade, has very great covering and hiding qualities. Unfortunately it also has certain disadvantages. It is very poisonous, and on exposure to weather it has the property of "chalking." When one's hand is rubbed over a board which has been painted with it for a year or more, the hand becomes coated with a white powder.

Chemical action between the white lead and the oil causes the change in a white lead paint film; and this action is so marked that in the course of a few years the house which has been covered with an excellent quality of white lead paint may be but poorly protected, especially if it is exposed to salt sea air.

Fig. 1 shows the general appearance of this condition when examined with a magnifying glass, while Fig. 2 shows the condition, in contrast, of a better proportioned paint subjected to exactly the same exposure and use.

Zinc oxide pigment is another which is well and favorably known. Owing to its non-poisonous properties it is more desirable than white lead for interior work. This pigment used alone is also unsatisfactory, as it produces a brittle coating that is liable to crack, as illustrated by Fig. 3.

Other pigments commonly used are red oxide

*Lecture delivered by Robert Job, vice-president Milton Hersey Company, Limited, before the Extension Course on Industrial Chemistry at McGill University.



Figure 1.—White lead paint showing chalked condition.

and by far the best results have been obtained with paints in which suitable pigments have been properly combined.

Little was known about the reactions between pigments and vehicles, or the reasons for good or bad service of paints made from given materials, until comparatively recent times. Certain bad combinations were shunned from sad experience. It was learned, for instance, that white lead paint mixed with ultramarine blue will darken, owing to the formation of black sulphide of lead, and that a sign coated with white lead paint will sometimes change from white to yellow within an hour if exposed to the sulphur fumes from a locomotive.

The study of paints was given great impetus about the year 1890 through the published investigations of Dr. Charles B. Dudley, for many years the able, widely known and respected chemist of the Pennsylvania Railroad. In his studies, among other things, the properties of paint materials were systematically investigated, and what was learned brought about radical changes in the composition and manufacture of paints.

The Pennsylvania Railroad gained much valuable information as the result of Dr. Dudley's work. It was clearly realized, for example,

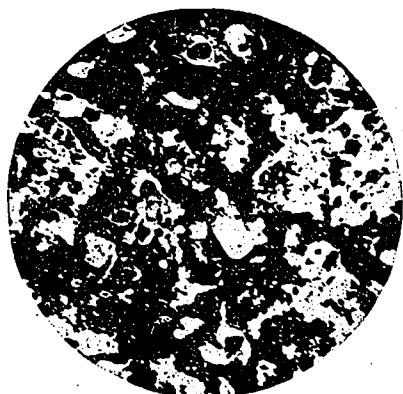


Figure 4.—Short-lived coarse-particled pigment paint.

of iron, ochre, sienna, ultramarine, Prussian blue, chrome yellow, lamp black, and many besides too numerous to mention.

Co-operation is as effective in promoting efficiency with pigments as with people,



Figure 3.—Zinc oxide paint showing cracked condition.

that the effectiveness of a paint did not by any means depend upon its cost per gallon or pound. As a matter of fact, it was proven that some of the most durable paints could be obtained at a minimum cost.

Other railroads were not slow to follow the lead of the Pennsylvania, one of the first to start on this work being the Philadelphia and Reading, now known as the Reading Railway. The results of some of these investi-

gations were presented by the writer before the Franklin Institute, and elsewhere.

The size and form of the particles of the pigment were shown to have a great influence upon the life of a paint coating, though this subject had not previously received any attention. A brief description of a case that clearly illustrates this point may be of interest:

Two bridge paints had been used upon the lines of the Reading for a period of about ten years. These paints were made by the same manufacturer, and contained almost the same proportions of the same materials. Though they were exposed side by side and under like conditions all along the road, one of them became known for its good service, and the other for very poor service. The life of one was twice that of the other.

The difference between the service rendered by these paints was so marked that we determined to get at the real causes, so as to bring the quality of all our paint deliveries to the same high standard of durability represented by the better paint.

The discovery that the main difference between the two paints was in the relative size of the particles of the pigments results from this investigation. In the long-lived paint these particles ranged from two to ten ten-thousandths of an inch in diameter, with comparatively few of the maximum sizes, while in the short-lived paint the diameters ranged from two to one hundred and eighty ten-

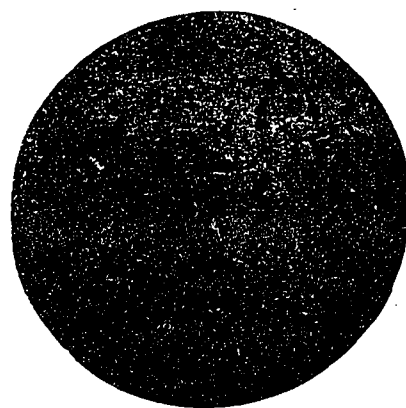


Figure 2.—Better proportioned paint in contrast.

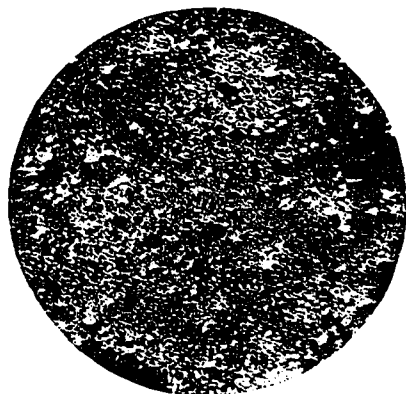


Figure 5.—Long-lived, fine-particled pigment paint.

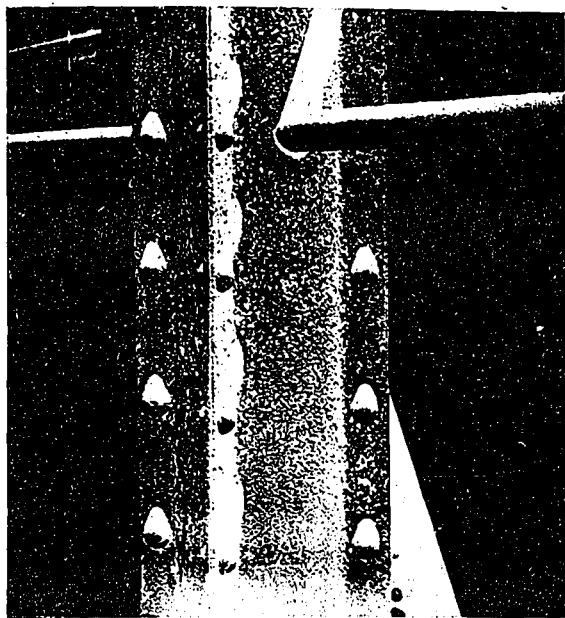


Figure 6.—Coarse and fine particled pigment paint in contrast.

thousandths of an inch. The average diameter, as nearly as we could estimate, of the particles of the pigment of the satisfactory paint was four ten-thousandths of an inch, against eighty ten-thousandths of an inch for the unsatisfactory paint; and, as the volumes of spheres are to one another as the cubes of their diameters, it follows that the average particle of the pigment of the good paint was eight thousand times smaller in volume than that of the bad.

The composition of these two paints was about twenty-five per cent. oxide of iron combined with inert matter, such as clay and gypsum, as a filler, ground in pure linseed oil, with a small proportion of Japan drier, as a vehicle. The details of the investigation may be found in the journal of the Franklin Institute for July, 1904.

The reason why this difference in the size of the particles of pigment makes so marked a showing in the service of the two paints is that where the particles are coarse, relatively large oil spaces surround them; and as linseed oil is by no means waterproof, as we have mentioned, the effect of the weather is soon noticed in such paints.

Surface tension also operates in favor of the paint having the finer-particled pigment, on the same principle that causes fine sand, when wet, to hold together, where coarse sand or gravel will not.

Fig. 4 shows the appearance of a paint film of the short-lived coarse-particled pigment paint, and Fig. 5 shows that which had fine-particled pigment and was long lived.

Fig. 6 shows a portion of a bridge after the paints upon it had been exposed for four years. The upright column had been coated with the bad paint, and the horizontal railing with the good. Fig. 7 is another part of the same bridge

in which the upright post was coated with the good paint and the horizontal railing with the bad. In both pictures and in both positions, the paint with the fine-particled pigment is seen to be in good condition, while the other is not.

These tests demonstrate that some of the most durable paints were composed of the simplest and least expensive of pigments, and created a good deal of interest because the findings ran counter to the preconceived ideas of many who had assumed that in order to be really good and give long service a paint must be composed of one of the more expensive pigments such as white lead, and that those which contained the so-called "inert materials" were to be looked upon as "doped" products.

Because of misbranding and wholesale and indiscriminate adulteration, the manufacturers were, in some cases, to blame for this. For example, we have seen a supposedly oil paint that contained thirty per cent. of water. Another paint labeled "pure white lead" contained no white lead. Many other cases could be cited, and it is small wonder that such abuses led to a public outcry and legislation that was sometimes carried too far.

It became necessary, because of these conditions, to determine the truths about the properties and characteristics of the different paint materials, and the work was finally undertaken by the Scientific Section of the Paint Manufacturers' Association of the United States.

A fence was built at Atlantic City, and several hundred panels were coated with paints of different formulae in order to determine the value under exposure to the weather at the sea shore of the more important materials used as pigments, and also to show the most durable combinations of the various pigments under such conditions. Exposures were made on both iron and steel panels as well; and, subsequently test fences were erected in other parts of the country in order to get varying climatic conditions.

The tests were made under the supervision of the American Society of Testing Materials, and



Figure 7.—Coarse and fine particled pigment paint in contrast.

a vast fund of information regarding the service value of various compositions and combinations was obtained. Materials that many considered as adulterants not long ago are now known to have a definite value in the design of high grade paints.

Misrepresentation still exists under the stress of competition, but the general plane of the paint industry is distinctly better for the simple reason that the principles of manufacture, the relation between cause and effect as applied to paints, and the properties of paint materials are all far more thoroughly understood than was the case even at the beginning of the twentieth century.

It will be clear from what has now been said that in order to be serviceable, a paint must be composed of a pigment that is of a character well adapted to the conditions under which it is to be used, that this material must be in the most effective physical condition, and must be carried in a vehicle which will form an effective bond between its particles and at the same time be as nearly weatherproof as possible.

The spreading quality is a factor that should be very carefully borne in mind when purchasing paints. That having the pigment composed of the most finely divided particles, other things being equal, will spread farthest.

Specific gravity is another important factor, and should be studied accurately by the purchasing agent who is buying by the pound. The paint of the least specific gravity will be the greatest in bulk; and it is bulk, not weight, that counts in determining the spreading capacity of paints.

The labor cost of applying the paint is usually far greater than the cost of the paint itself; and it is important to remember this as a special incentive for the purchasing of the most durable paint for the purpose.

Specifications for various types of paints were the natural outcome of all the foregoing investigations and experiments with paints and paint materials. Such specifications have been drawn by the writer and others to cover paints for use under many different conditions, and these can be filled by any manufacturer who is willing to give care and attention to the work. Some of them, in fact, now carry these preparations in regular stock.

By purchasing wisely under carefully drawn specifications, real competitive prices that represent the true market value of the paint materials plus a reasonable allowance for the costs and profits of manufacture, can be secured.

Marked economies have been effected by some of the principal railroads and by many smaller users of paints, through lowered costs and increased service as a result of working along these lines.

Large purchasers know they can not afford to do otherwise than buy according to specifications specially drawn to cover the needs of the service. It would be much to the advantage of many of the smaller purchasers who use quantities that would warrant the small expense connected therewith, if they would do likewise.

Final testing is, of course, absolutely necessary, for it is useless to buy according to specifications, or even on promises, unless the paints actually delivered are tested to determine whether they are as specified or represented.

The Art Museum's Lighting System

(Continued from page 141)

In order to comply with the first demand, the brightness of the floor was reduced to its proper value by using woods of a dark color having a very low reflection factor. This, by the way, will be materially improved as the floors age and darken in tone.

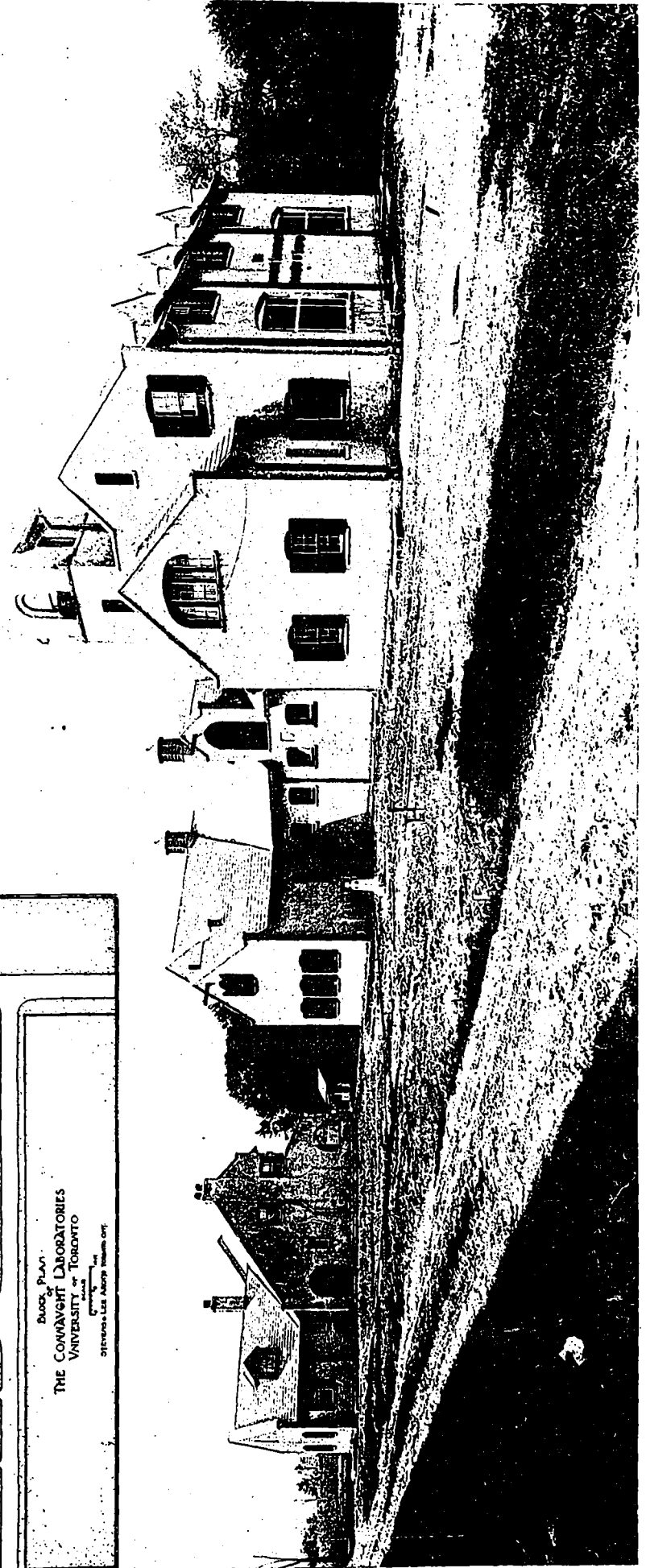
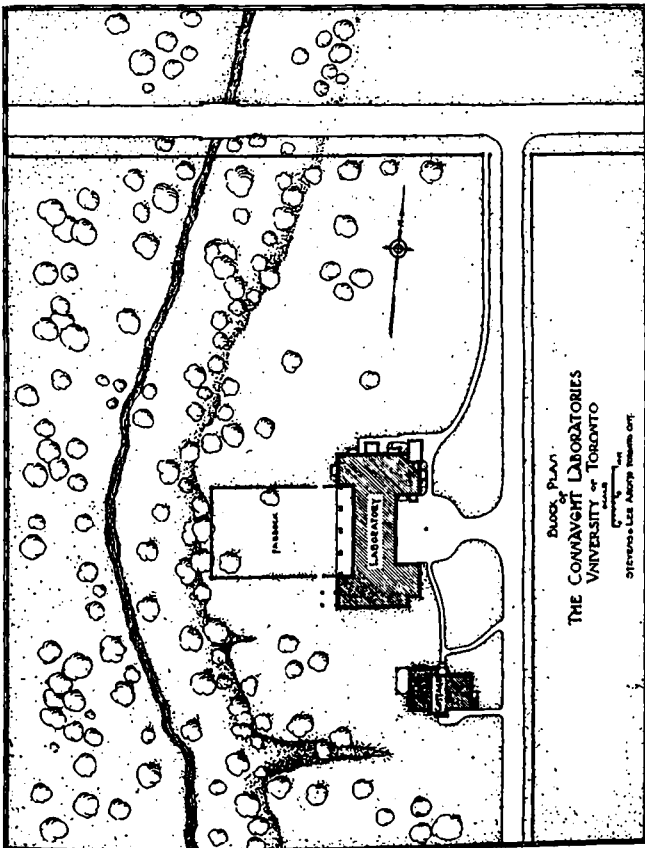
In order to comply with the second demand, it was necessary to use a glass which was not too diffusing, and while bending the ray slightly, did not alter its direction. Syenite, an irregular crystal, was found to be most generally satisfactory, as it not only concealed the beams, etc., in the attic space so that the daylight effect was uniform, but it eliminated any unavoidable irregularities in the illumination on the walls.

In order to comply with demand number three, the simple law of reflection was applied. The average eye level may be taken as five feet above the floor, and it can be quite easily seen that at this height there would be little, if any, specular reflection.

The entire lighting equipment was concealed in the attic space, or, as it may be more properly termed, light-loft, as had it not been for the lighting requirements, this space would have been materially reduced.

The artificial daylight was produced by means of which is known as the mazda C.² lamp, which produces light almost approximately that of daylight.

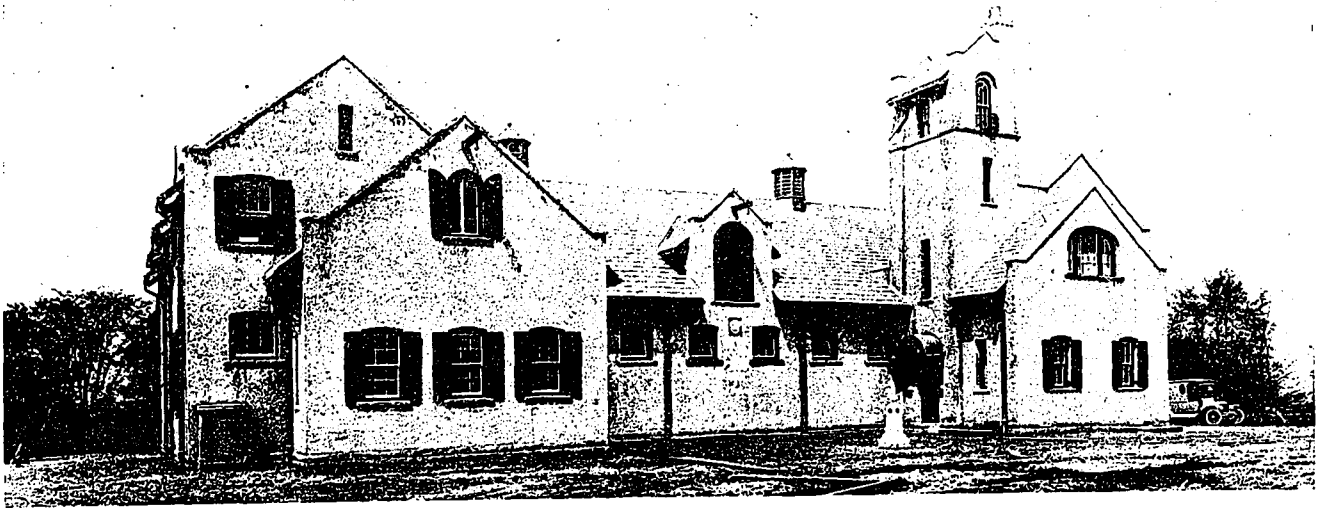
The artificial daylight units were placed in the light-loft as shown in the accompanying photograph. The units, of which there are one for each three to four feet of lineal wall space, consists of a special projector unit placed above the skylight as the photograph illustrates. A special holder was designed which made it possible to adjust each unit to the desired angular and focal positions. Very great care was necessary to adjust these units in order to secure satisfactory illumination of the principal wall area, and in order to facilitate this the lamps were slightly frosted to give more spread reflection.



GENERAL VIEW AND BLOCK PLAN.

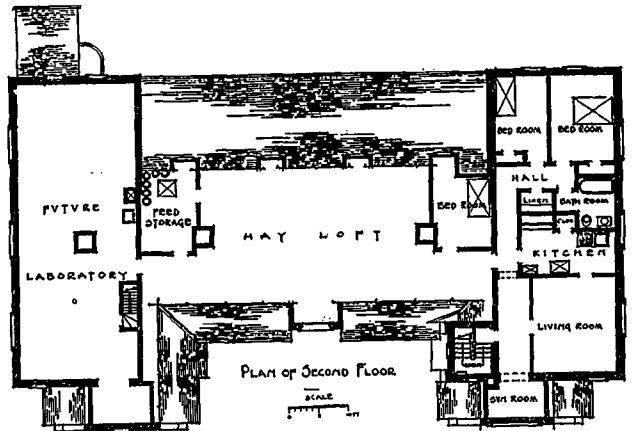
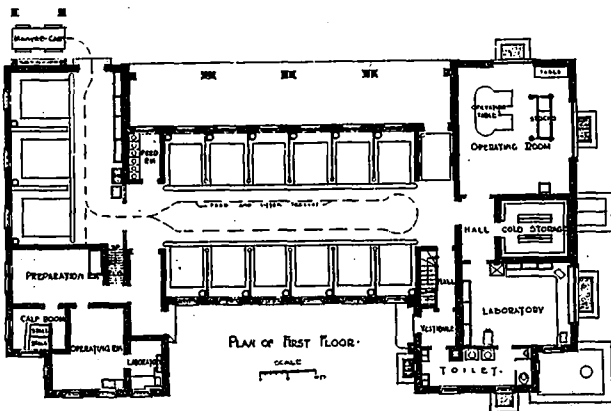
THE CONNAUGHT LABORATORIES, UNIVERSITY OF TORONTO.

STEVENS & LEE, ARCHITECTS.



MAIN BUILDING, CONNAUGHT LABORATORIES, UNIVERSITY OF TORONTO.

STEVENS & LEE, ARCHITECTS.



Connaught Laboratories, University of Toronto

THESE buildings, constructed through the generosity of Col. Albert E. Gooderham, and presented by him to the University of Toronto, are of special interest at the present moment. Here are made the antitoxins used by the Province of Ontario for free distribution to those in need of them, who cannot afford to pay, such as tetanus, typhoid, diphtheria, etc. These serums are also used to immunize our soldiers against the ravages of disease, great quantities being used both here in Canada and also being sent overseas for use at the front, where many thousands of lives have been and are being saved from the deadly lockjaw by the immediate injection of the tetanus antitoxin in the front line trenches. Horses are mainly used for the propagation of the serums. There was an initial provision for fifteen of these, but on account of the war and other causes, the demand has become so great that there are at present over fifty horses on the farm, the surplus being provided for in the old barn and temporary stables at the rear of the property.

There are at present two buildings, the main

building housing the stables, laboratory and other service rooms, and a cottage, which is provided to house part of the staff. The main building is built of fireproof material throughout, with the exception of the roof beams and boarding, which are of wood. The walls are of interlocking tile, with stucco slap-dash finish on the exterior. The floors are of steel and concrete, and the roof is slate. The interior walls of the stables are lined to a height of six feet with a vitrified glazed brick. This terminates in a coved granolithic base flush with the brick. The walls of the operating room and laboratories are finished with hard wall plaster and enamel paint.

On the ground floor are twelve stalls and three box stalls. In the case of the former, the divisions are of cast-iron posts and pipe rails, and of the latter vitrified brick. The feed buckets are nickel-plated and supported in iron rings, and are removable for cleaning. The feed room is provided with bins for the different kinds of feed, and chutes from the upper floor where the main supply is kept. A manure trolley, hung



VIEW SHOWING ARRANGEMENT AND EQUIPMENT OF STALLS, CONNAUGHT LABORATORIES, UNIVERSITY OF TORONTO. STEVENS & LEE, ARCHITECTS.

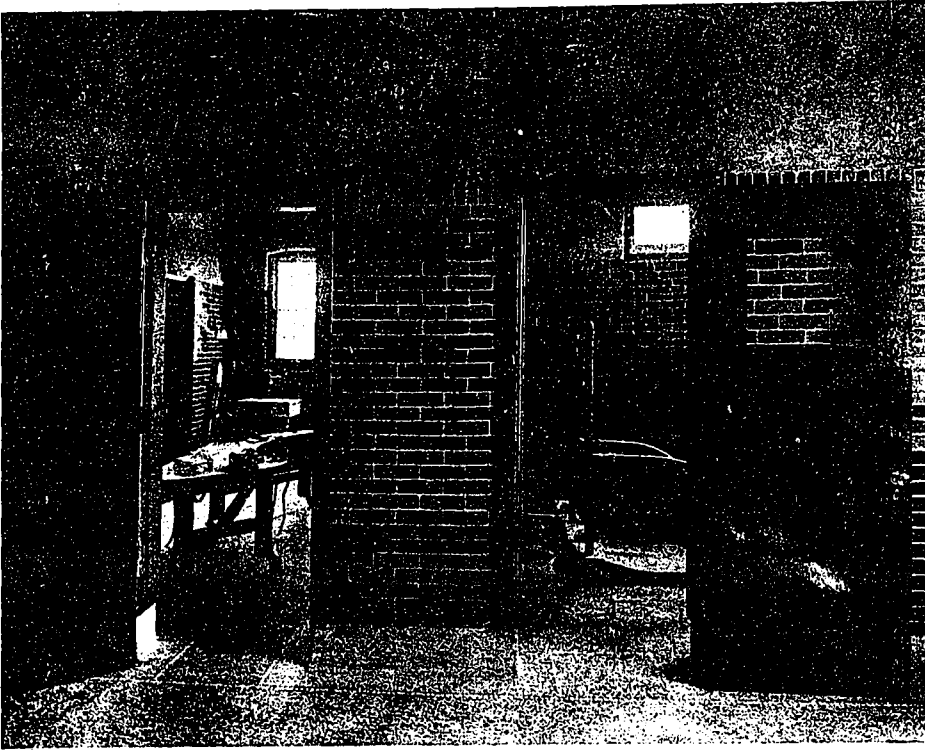
from the steel beams above, carries the manure outside, where it is dumped directly into the manure pit. In front of the box stalls is a small unit for making of smallpox vaccine. This consists of two stalls for calves and a preparation room, where the calves are bathed and cleaned, an operating room with tilting table, and a small laboratory for the vaccine work only. On the north side of the building is the operating room. Here the bleeding of the horses is done. This room has a terrazzo floor and coved base, together with a surgeons' sink, having elbow valves. There are also stocks and a tilting table to hold the horses quiet while being operated upon. Between this room and the laboratory is a cold storage room constructed of two thicknesses of two-inch cork tile, where the product is kept at a temperature of about forty degrees until it is ready for refining. This room is equipped with metal shelving. The laboratory is finished like the operating room, and is equipped with sinks, work tables and cupboards. Here also are the sterilizers and

other apparatus used in the work. In front of this is a wash room for the use of the staff.

On the first floor over the rooms just described is a suite for the laboratory man and his family, consisting of living room, kitchen, two bedrooms and bath. In the centre of the building are the hay loft and feed store. The south part of this floor is used as a laboratory for tetanus work. In the tower is the water tank, from which the water is pumped from an artesian well. The basement is excavated only under the north wing. Here is located the necessary machinery for the operation of the



VIEW FROM PADDOCK, CONNAUGHT LABORATORIES, UNIVERSITY OF TORONTO.



OPERATING ROOM, CONNAUGHT LABORATORIES, UNIVERSITY OF TORONTO. STEVENS & LEE, ARCHITECTS.

buildings. Heat is supplied from two upright hot water boilers by a two-pipe system to radiators. This also serves the cottage, to which the pipes are carried in split tile conduit under the ground. Domestic hot water is supplied from a jacket heater to the different fixtures.

All sewage is taken to the west of the buildings in cast-iron pipe, where is located a two-compartment septic tank with automatic valves. The ground drops away at this point, and on the lower level is placed the disposal bed in two sections, with a diverting chamber, so that each section may be used alternately. A small gas machine is used for supplying the Bunsen burners.

There is farm land of about fifty acres around the buildings. This is used for grazing and for the growing of feed of various kinds for the animals.

Electric light and power is generated by a modern automatic plant, consisting of a gas engine with direct connected generator, which starts itself automatically when required. There is also a battery to maintain a twenty-four-hour service without the engine constantly running. This engine also operates the compressor or the cold storage plant which serves the large cold room on the ground floor, and the small box in the kitchen on the floor above. The well pump is driven by an electric motor.

A Lesson From Halifax

In commenting editorially on the recent disaster at Halifax, the "American Architect" says that it developed many interesting things

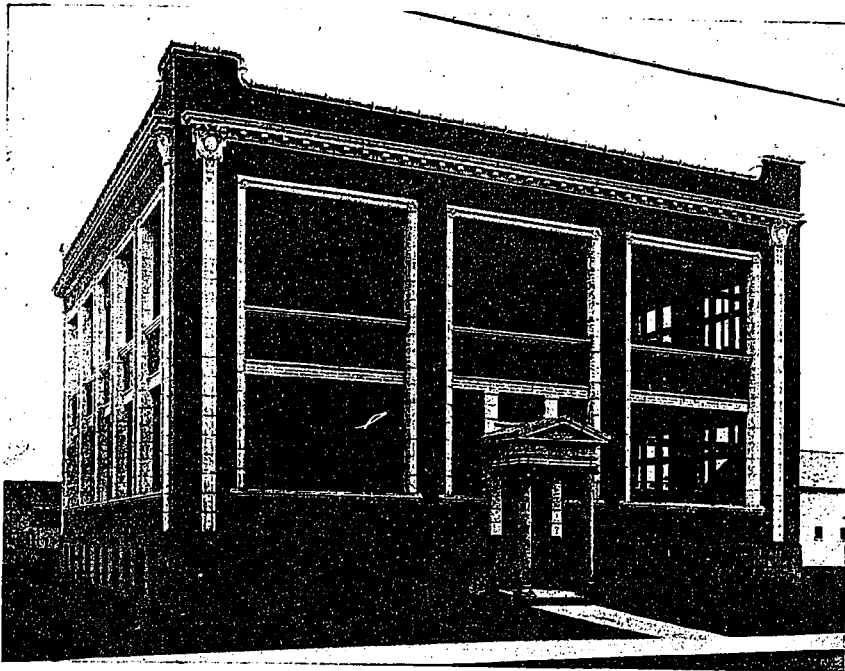
worthy of attention. That many hundreds of people should be made blind would not be expected, but such was the deplorable result. The calamity was the result of two explosions in the harbor; the first and lighter one caused many persons to go to the windows through curiosity, and the second was of sufficient force to blow the glass inward, resulting in the mutilation and blinding of hundreds of persons.

It would not be reasonable to expect buildings to be constructed so as to safeguard their occupants against the effects of such a visitation, as they are very fortunately of infrequent occurrence. The frequent occurrence of minor

disturbances, however, justifies the application of these lessons to minor uses. It can readily be seen that if all of the windows in Halifax had been glazed with wire glass the attendant mutilation and blinding, due to the use of ordinary glass, would not have occurred. The use of this glass as a precaution against damage caused by the usual accidents is a desirable thing.

The availability and value of wire glass as a fire retardant is well understood, and for such purposes municipal ordinances require its use. These requirements are often of limited scope, and then the rate of insurance, due to its omission, forces its use. But moving parts that are glazed, such as doors, openings into rooms where explosions can occur, automobiles, passenger coaches and other things subject to collision shocks and flying missiles, can be rendered much safer by the use of this material. In windows and doors that are liable to be entered by burglars this glass will afford a considerable resistance to such trespassers.

A new housing scheme is to be developed at Brantford, Ont., by the Dufferin Parks, Limited, of which the Dominion Steel Products Company is the holding company. A tract of land, comprising thirty-five acres, will be laid out according to plans prepared by H. Dunnington Grubb, landscape architect, and one hundred attractive homes will be erected, with all conveniences, at a minimum cost of \$3,000 each. These houses will be sold to employees of the steel works on the easy payment basis.



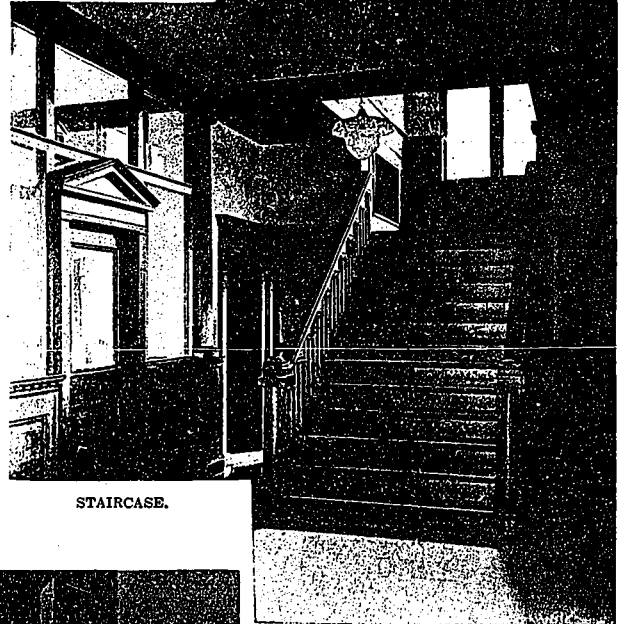
OFFICE BUILDING, BROWN COPPER AND BRASS ROLLING MILLS, NEW TORONTO.

New Offices of Brown Mills

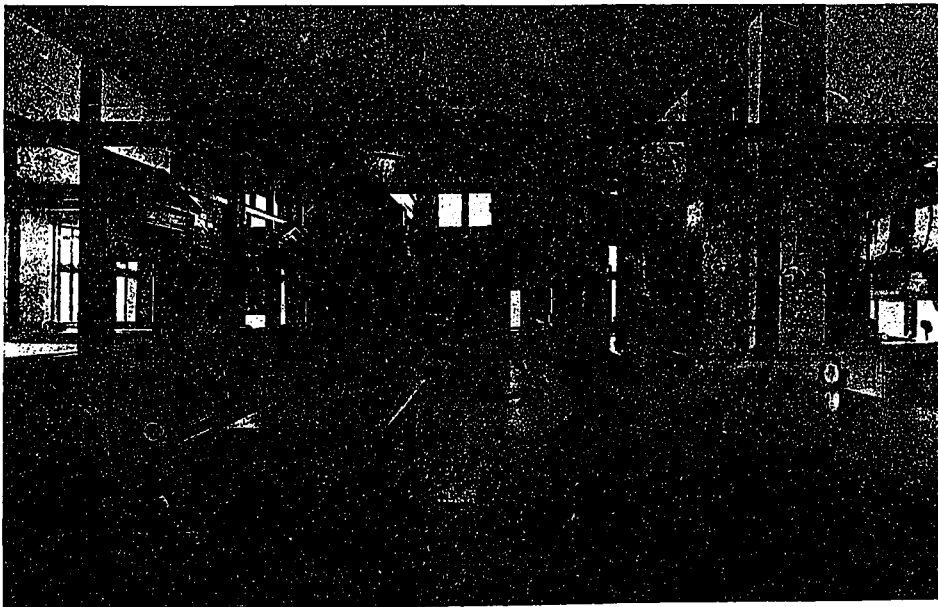
Further evidence of the growth which within a few years has transformed New Toronto into an important manufacturing centre, is seen in the office building recently erected for the Brown Copper and Brass Rolling Mills. This concern, which has been prominently identified with the town's industrial development, gives employment to a large number of hands, and has found it necessary within the past year to erect this building for the sole accommodation of its executive and business staff.

The new building stands directly on the Toronto-Hamilton Highway, and is of brick and hollow tile construction, with oak trim throughout. In addition to the modernly equipped plant completed about a year ago for the manufac-

ture of their products, the company has also been actively engaged in the development of a neighborhood housing scheme to provide dwelling accommodation for its employees. The office building is connected to the various working departments by an inter-phone system, which permits of the entire plant being brought directly under executive control. While the present plant is quite an extensive one, the company's business is constantly increasing, and it is understood that further additions are being planned with a view to their erection at a near future date.



STAIRCASE.



GENERAL OFFICE VIEW.

HENRY SIMPSON, ARCHITECT.

A New Wrinkle

A subscriber to "Concrete" writes that pencil drawings on tracing paper can be made twice as fast as with ink on cloth, but that the blue prints from same are very poor. This, however, can be overcome by using black carbon paper behind the tracing paper, placed so that the carbon impression comes on the back of the tracing. This reinforces the pencil drawing and permits of good blue prints being made.

Recent Industrial Buildings

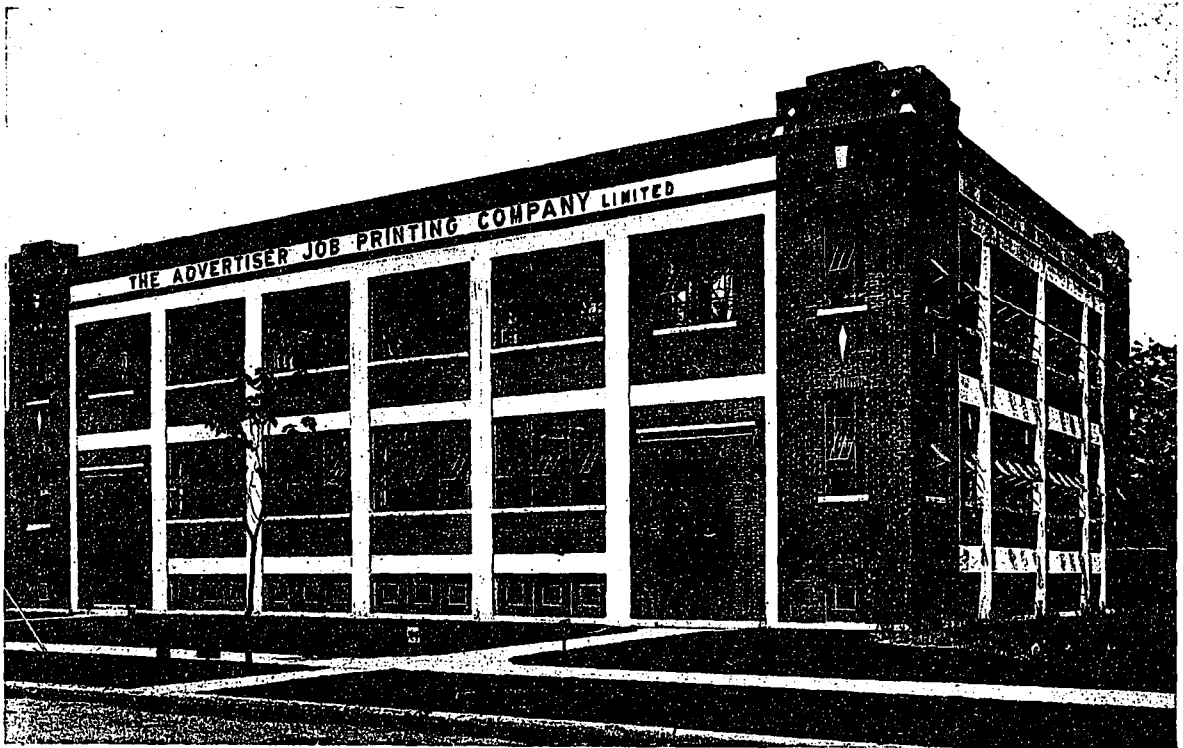
THE monolithic character of concrete makes it adaptable to virtually every type of industrial buildings, but particularly in the construction of printing plants does it appear to be an excellent choice. In structures used for this purpose there is always a more or less heavy floor load and considerable vibration due to the operation of heavy presses and other like machinery. Concrete properly reinforced adequately meets the former condition, and reduces vibration perhaps better than any other material. It is likewise adaptable, owing to the large paper stock usually carried in such buildings, in that it affords a desirable degree of fire protection.

In the Advertiser Job Printing Company's building, forming one of the two subjects illustrated herewith, the practical use of this material is clearly indicated in the exterior design. The lot on which the building stands is one hun-

dred feet square, which amply allows for a proposed future addition. The present structure is sixty by ninety feet, and it is the intention later on to build a thirty foot extension, making the premises ninety by ninety feet, and also to erect two more storeys to the superstructure.

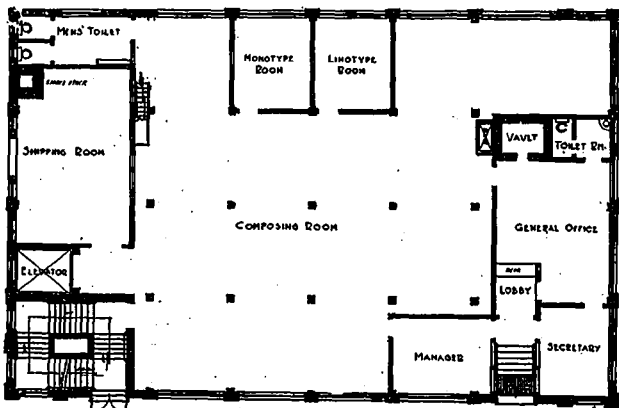
The construction throughout is of reinforced concrete with the exception of the outside brick walls. Wide column spacing gives sufficient space for the convenient installation of presses and other equipment. The floors have been designed to carry a live load of two hundred and fifty pounds per square foot. The ceilings are high, and with the walls and columns are enamelled white, making an excellently lighted interior.

The general and private offices, together with the composing, linotype and monotype rooms, occupy the ground floor; the cutting rooms and

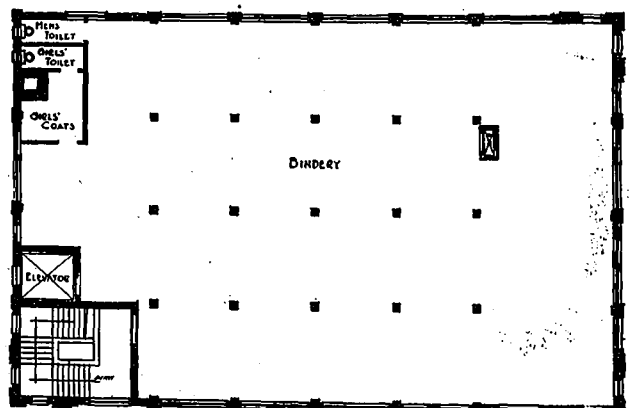


THE ADVERTISER JOB PRINTING COMPANY'S PLANT, LONDON, ONT.

WATT & BLACKWELL, ARCHITECTS.



GROUND FLOOR.



UPPER FLOOR.

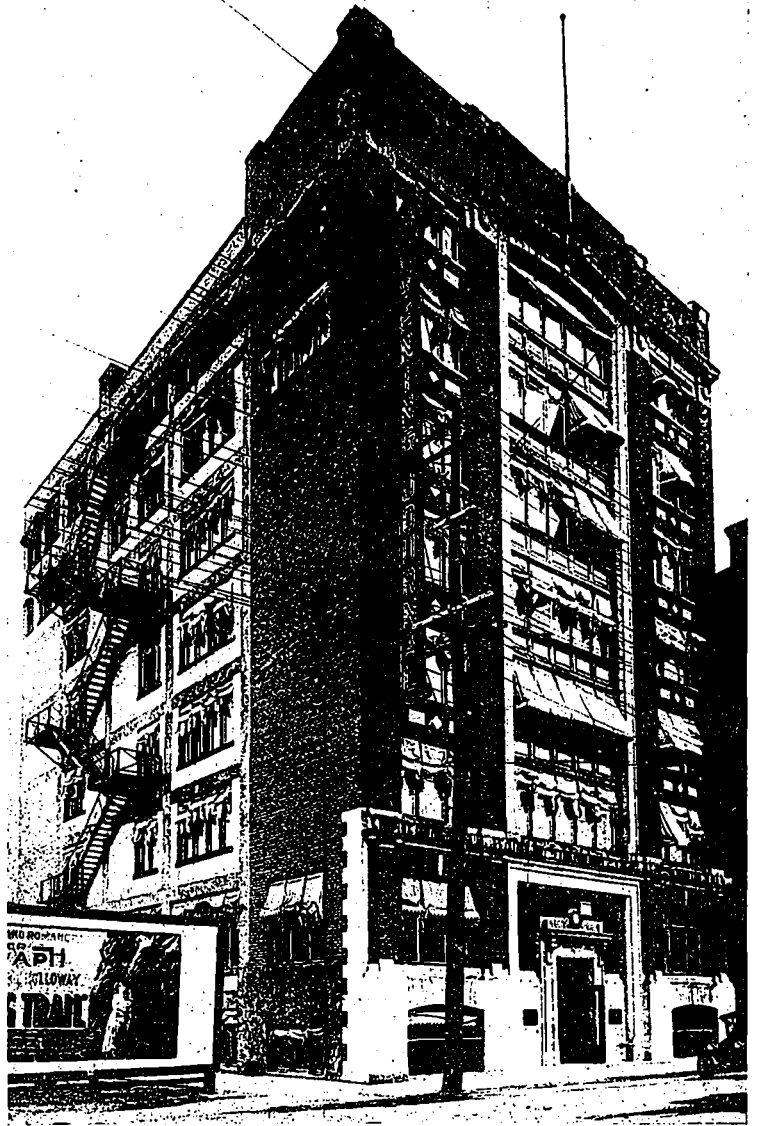


BUSINESS OFFICE.

bindery are on the second floor, and the presses are all placed in the basement where, owing to an extra ceiling and special form of construction, direct outside light is obtained to a degree which renders artificial illumination quite unnecessary.

The Journal Printing Company's plant at Ottawa is a nine-storey building of the same construction, only here concrete is not only used for the floors and columns, but for the side and rear walls as well. The accompanying interior illustrations show the business office, linotype and a section of the composing room. The scheme is simple and practical, necessitating but little expense for upkeep, and the general character of the building is such as to make the structure a good commercial investment.

Another quite recent industrial building is the new Palmolive Company's plant, To-

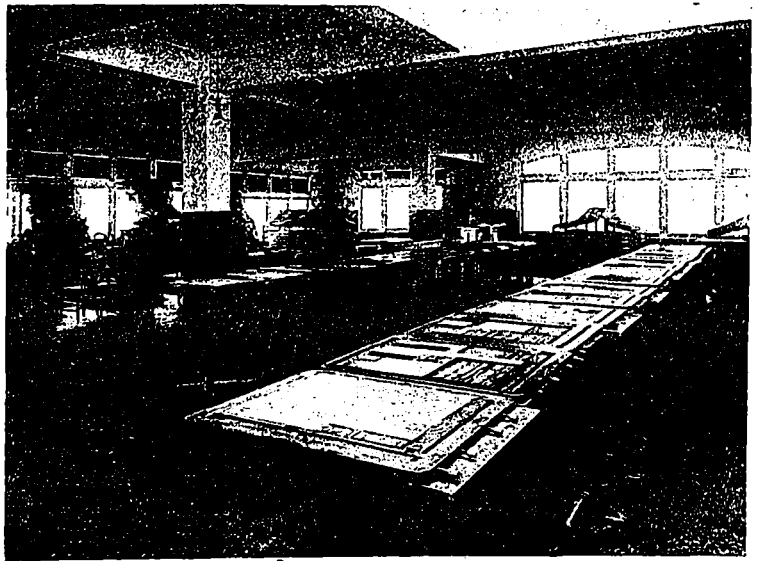


JOURNAL PRINTING COMPANY'S PREMISES, OTTAWA, ONT.
MILLSON & BURGESS ARCHITECTS.

ronto. In addition to employing reinforced concrete as a basic material, concrete in the



LINOTYPE MACHINES.



SECTION OF COMPOSING ROOM.

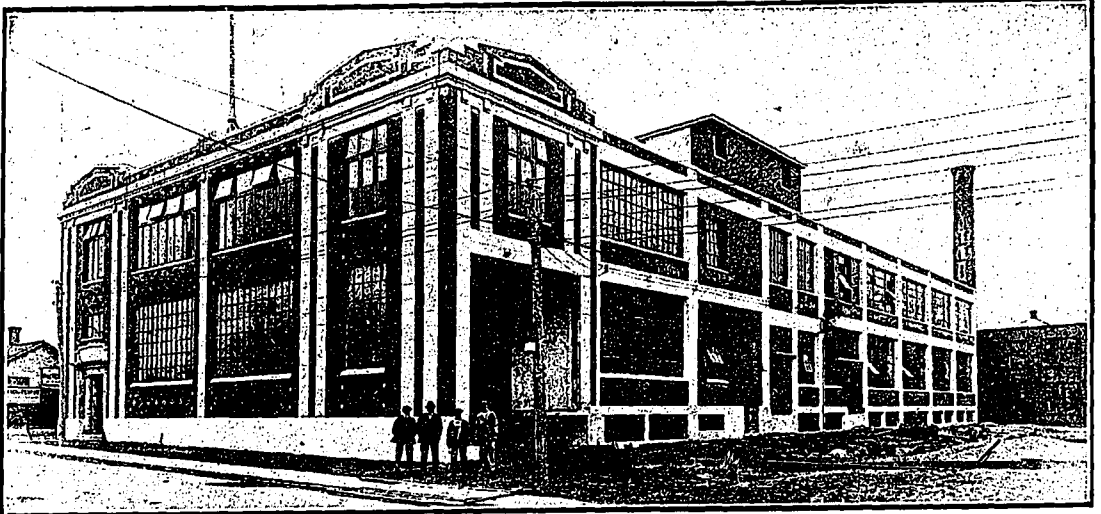
form of art stone is used to give a decorative effect to the exterior of the building where twin pilasters of the latter material form panels at either end of the principal facade.

The present building, which is on Natalie street,

is eighty by one hundred feet, and two stories and basement in height. Eventually four more stories are to be added to the superstructure, and a duplicate of the entire structure then built immediately on the adjoining property extending toward Carlaw avenue.

One particularly interesting feature of the plan is the railway track or siding for receiving and shipping goods which comes in under the building on a curvilinear line, the shipping room being on the same level as the floor of the cars.

The structure is of the flat slab reinforced



FACTORY OF PALMOLIVE COMPANY OF CANADA, TORONTO.

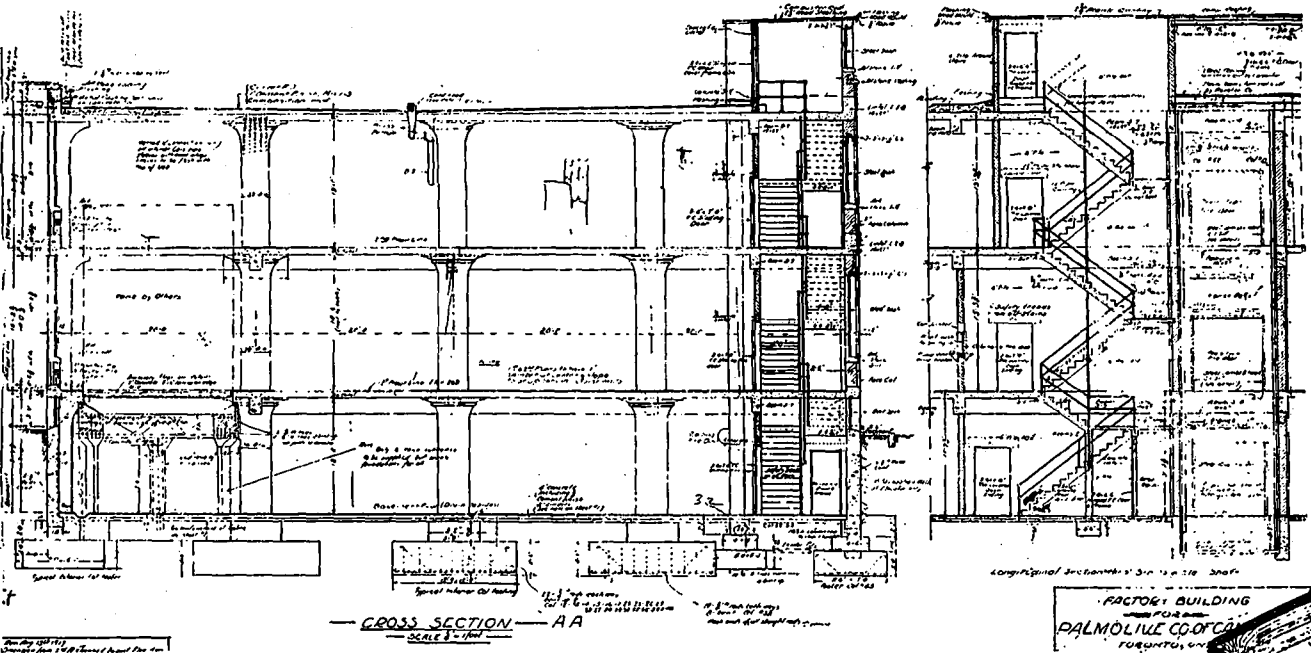
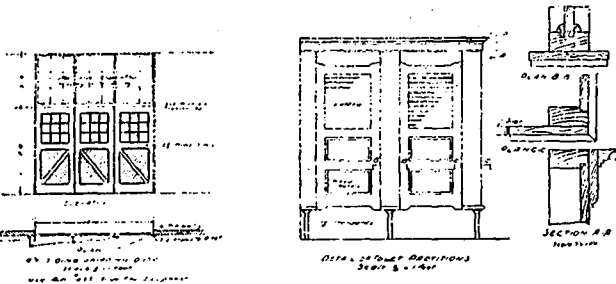
BERNARD R. PRACK, ARCHITECT.

type, with large wall areas of steel sash, allowing for a maximum degree of natural light. In the basement are ten soap kettles, necessary pumps and heating plant. The kettles extend up through the first floor. There is also an opening in the first floor for the large oil tanks.

On the second floor are the general offices at the front of the building, soap cutting, packing, perfume departments, etc. Box and barrel chutes carry articles to the shipping floor. The factory is equipped with passenger and freight elevators, sprinkler system, lavatories on each floor, etc.

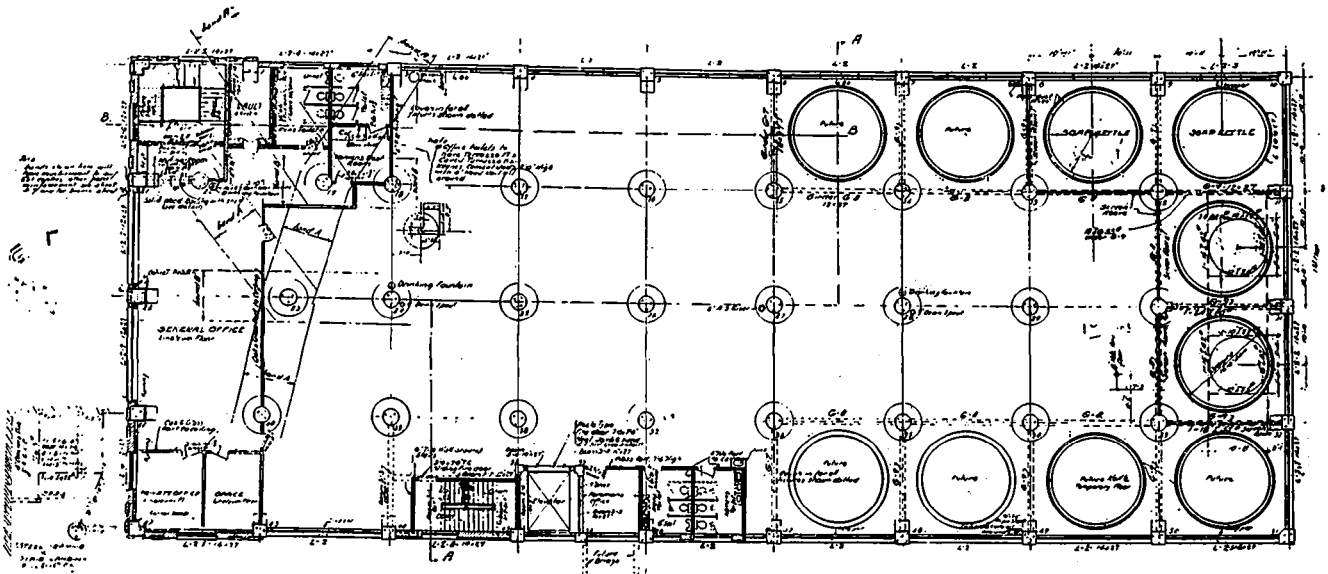
The building is covered with a composition roof of one inch concrete over a cinder fill which covers nine and three-quarter inch concrete. This nine and three-quarter inch concrete will be the floor of the third storey when the factory is extended.

A modern power house, twenty-six by forty-five feet, adjoins the main building.



PALMOLIVE COMPANY'S FACTORY, TORONTO.

FACTORY BUILDING
FOR
PALMOLIVE CO. OF CANADA
TORONTO, ONT.
ARCHT. B. R. PRACK



SECOND FLOOR, PALMOLIVE COMPANY'S PLANT, TORONTO.

The Tower of Babel

Recent translations of old Assyrian records would seem to indicate that the Tower of Babel was only one hundred and forty feet in height, but that it was built upon an elevated foundation, and was the loftiest object in the city of Babylon, a city of low buildings spread over a flat plain.

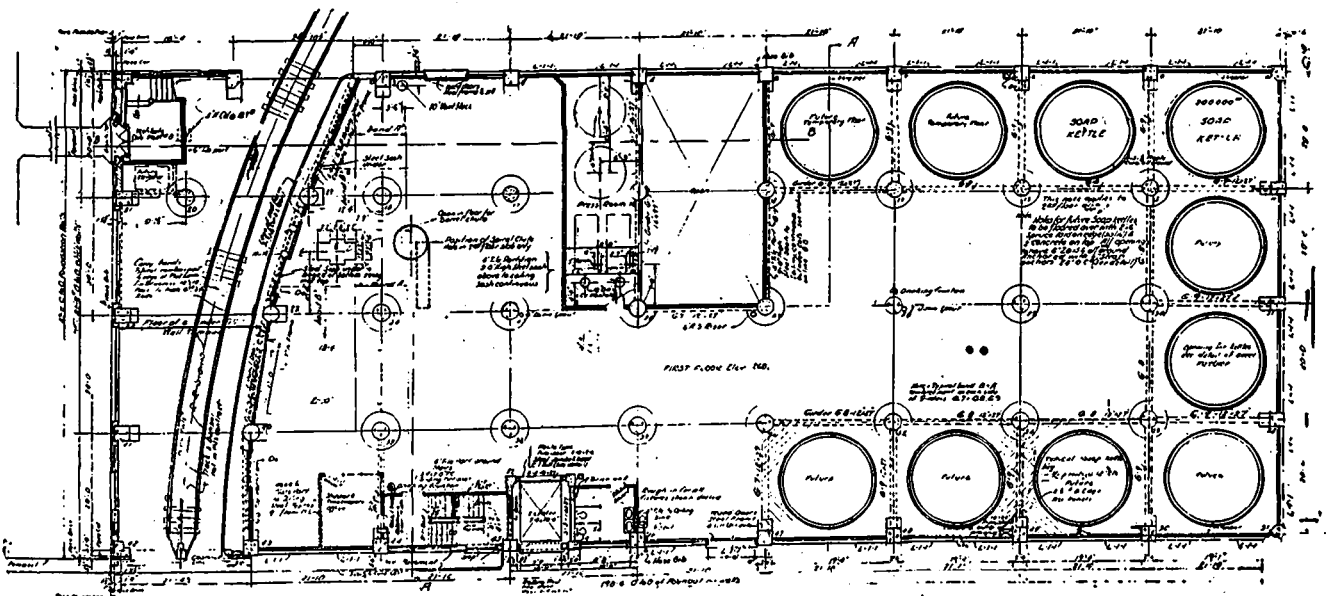
The tower was a temple, and the architectural pride of Babylon. The lowest of its seven storeys was two hundred and seventy-two feet square. The structure was built of the only available material, sun-dried brick. It was probably topped with an astronomical observatory, or rather one for the use of astrologists.

Babylon at that time, with a population of two million, was the metropolis of the world, and its great area, twice that of London, was encircled by a wall fifty-five miles in length. The Tower of Babel was a temple containing

the art treasures of the world, and it was in attempting to describe these that the tongues of men were confused.—“Illinois Society Bulletin.”



INTERIOR VIEW, SHOWING TYPE OF COLUMNS.



GROUND FLOOR PLAN, PALMOLIVE COMPANY'S PLANT, TORONTO.

CONSTRUCTION

A JOURNAL FOR THE ARCHITECTURAL
ENGINEERING AND CONTRACTING
INTERESTS OF CANADA



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ARCHITECTS AND THE WAR

In the course of his address before the recent convention of the American Institute of Architects, and which in every way was a masterly review of the activities of that body, the retiring president, Mr. John Lawrence Mauran, made the rather important statement that both the British and French Commissioners had warned the United States Government against committing the error of sending technically trained men to the trenches. The substance of the British Commissioner's statement, to quote direct, was: "We should indeed be fortunate if to-day we had in technical service one-tenth of the architects who laid buried in foreign soil." This is not to be construed as exempting architects from the hazardous duties of war, but rather as indicating that their services are needed both for immediate and related work brought about by conditions which are the direct outgrowth of the war and which will have to be continued even subsequent to its conclusion. In other words, it places an appraisal on technical skill as representing one of the most important and necessary assets of a nation, and recognizes the value of services which governmental authorities can ill afford to ignore. There is at least evidence of the British Government giving some measure of recognition, where at the beginning of the war the profession was practically excluded from

any consideration whatever. From the yearly official report of the Council of the R.I.B.A., recently published, we learn that a number of architects have been appointed to positions in various departments of the Government, notably the Local Government Board, the Ministry of Munitions, the Ministry of Reconstruction, the Ministry of Works, the Board of Trade, and the Ministry of National Service. According to the Council's report, Mr. Ernest Newton, A.R.A., has been transferred to the Ministry of National Service, where he is in charge of the branch dealing with building licenses, and where the President of the Institute is filling the position of Technical Adviser to the Building Section. Also, that various inspectorships in Mr. Newton's department are held by architects. Moreover, on the nomination of the President, which was made at the request of the Local Government Board, Sir Ashton Webb has been appointed representative of the Institute of the Advisory Council set up by the Government to consider the questions of building construction and methods of securing economy and despatch in the building of working-class houses that will be needed after the war. Another instance is the appointment of H. D. Searles-Wood as Adviser to the Board of Trade on the Reconstruction of the Building Industry; while the same party, together with Professor Beresford Pite, Mr. S. Perkins Pick, and Mr. W. R. Davidge, have been appointed to give evidence on Building By-laws before a committee of the Local Government.

This perhaps might not appear to represent much at first thought, but the very fact that architects of such prominence have been called upon to help out on the problems with which the Government has to deal, seems to be most important. It at least implies a more favorable condition, and gives them an opportunity to impress upon the authorities the real value of professional advice and service by virtue of the appointment which they hold.

Canada could also profit by making full use of the architectural and technical skill at its command, and it would indeed be an advantage to both the Dominion and the provincial authorities and a genuine benefit to the country if a complete survey was taken on this point. This country is as yet in its early throes, and there is a period of great upbuilding and constructive work ahead. The success with which this development will be carried out will depend on the men who are entrusted to do the work. The best results will come from a proper recognition by the Government in conserving the opportunities for technical practice in Canada for its bona-fide subjects who are qualified to do the work and whose direct interest in the country entitles them to every consideration that the Government can bestow.

Advertising and The Signing of Buildings

THE fifty-first annual convention of the American Institute of Architects, which was recently held at Philadelphia, dealt, among other things, with two subjects which have also received a certain amount of attention by members of the profession in Canada. These relate to the question of advertising and what is termed the signing of buildings.

The former subject, to quote from the "American Architect," which reports the proceedings quite fully, proved an all-absorbing question, and was strenuously debated. According to this contemporary, an opportunity was afforded the onlooker during this discussion to study the various types of temperamentality that has, in recent years, been developed in those who practice architecture. Naturally the most energetic and persistent advocates of a revision of the present code as referring to advertising were men representing the Chapters of the Middle West, where the demand for revision had its origin. These men very forcefully, in a most practical way, and with characteristic Western abruptness, laid their case before the convention. The Eastern men, with good logic and a fine sense of parliamentary usage, advanced their arguments. While it could be noted that, judged by rules governing debate, there was difficulty in arriving at a fine point of decision between those for and against this measure, the impartial observer could detect that the argument of the Western element was based on a logical and clear-headed interpretation of the things that surround architectural practice now; while those from the older sections of the country, while equally strong, were based on a shrewd conservatism and a disposition to believe that old or present rules governing advertising should not be disturbed without the most-careful consideration. The outcome of the debate between two such groups of equally matured opponents, although schooled in different localities of the country, was one of considerable interest, as it foreshadowed, in a sense, the probable attitude of the majority, not only toward the question under debate, but also toward other important matters that will come up for action during the forthcoming year.

The debate centered upon that part of the report of the Committee on Advertising calling for restriction of advertising contained in Section 4 of the Canon of Ethics, which calls advertising unprofessional and imposes a penalty for its use. This canon was repealed. By vote of the convention Article 10 of the Advice on Practice was referred back to the Board of Directors to be phrased so that it would be in harmony with such repeal.

Reduced to simple terms, this action on the

part of the convention practically removes the ban on advertising, and permits architects to place their services before the public in such proper manner as their education and a due regard for their professional dignity might suggest. While no steps were taken to replace the discarded canon with one declaring for advertising, by accepting the report of the committee, the Institute goes on record as favoring advertising by its members. This report says in part:

"Is there any valid reason why, in this age of democratic endeavor, the American Institute of Architects should cling to this or any other relic? Is it not time that we consider carefully, not only the abolition of the canon on advertising, but how many more of the worn-out rules, undemocratic distinctions and un-American assumptions that we can get rid of?"

It pointed out that by elevating the dignity of advertising in their code of ethics the worst feature to be anticipated would be "advertising too generally, prompted by honest, if stupid reasoning—a result not without advantages, for in more general use of the harmless sort, the vicious sort would lose its effectiveness, due to the comparative isolation it now enjoys because of the sweeping restrictions in our canon."

SIGNING OF BUILDINGS.

Closely related to the report on advertising, and inevitably bound up with any discussion of it, is the request made by the Illinois Society of Architects, and later reinforced by several Chapters of the Institute, relative to "signing of buildings" in course of construction, embodied in the following resolution:

"Resolved, That the Board of Directors of the Illinois Society of Architects request the Board of Directors of the American Institute of Architects to consider and report at the next convention of the Institute upon the advisability of amending Section 13 of 'A Circular of Advice Relative to Principles of Professional Practice' regarding 'signing buildings,' so as to provide that it is recommended that every member of the Institute display upon every building under construction his name and rank in the Institute, with the further suggestion that a committee be appointed to recommend the form of sign to be used by all members of the Institute."

The Board did not deem it necessary or desirable to comment at length on this suggestion, believing it was better for the *pros* and *cons* to be developed from the floor of the convention, and so it was referred to the convention without recommendation.

PROFESSIONAL TREATISES.

Another closely related matter is that in-

volved in the addition to Section 9 of the same "Circular of Advice," which the Board of Directors at its meeting in January, 1918, voted to present to this convention for consideration. Section 9 is entitled "On accepting commissions or favors," and now reads "The architect should not receive any commissions or any substantial service from a contractor or from any interested person other than his client." The addition the Board suggests is as follows:

"The issuance by an architect of a professional treatise or a monograph of his work, in the form of a book or pamphlet, which is supported by advertisements, whether privately printed or published through regular channels, tends to lower the dignity and standing of the profession and is to be condemned."

The Board believes there is no sound argument to the contrary and advises such amendment of the circular.

REGISTRATION LAWS.

On this subject the Directors' Report drew attention to the fact that fourteen States have passed laws for the regulation of the practice of architecture, four having done so since the last convention, and also that there are others having similar laws in preparation. At the fiftieth convention it was

"Resolved, That the regulation by law of the practice of architecture is neither advocated nor opposed by the Institute, which believes that the desirability of such legislation is a matter for each State to determine for itself."

While the Board still holds to the second part of this resolution, and does not believe that the Institute should at this time actively advocate the passage of a registration law in every State, it is in agreement with the present committee in feeling that the Institute should without further delay adopt a standard form of registration law to serve as a model for future legislation, and to determine a standard of academic training and practical accomplishment, which should be required of those admitted to practice under the title of architect.

The committee presented for the consideration of the convention a first draft of a model law. The determination of minimum requirements for educational and practical proficiency, according to the report, would be far more difficult than the drafting of a good model registration law. It is a fit subject for the joint labors of the Committees on Education and Registration, and it is the hope of the Board that the next convention may have for consideration not only a definite set of values but a practical method for testing them.

More Color For To-day's Architecture

War ravages are largely responsible for the almost total absence of color in the present-day

exterior architectural embellishment, according to Leon V. Solon, fellow of the Royal Society of British Artists and of the British Ceramic Society, in a recent address at the Art Institute of Chicago.

Mr. Solon spoke on "The Greek System of Architectural Polychrome" before the Illinois Chapter of the American Institute of Architects. He said that, contrary to the general assumption, the classic Greeks, instead of working pure white or gray outdoor material, had an elaborate system for utilizing color effects, but that the knowledge had been lost for centuries owing to the general destruction of Greek temples and other public buildings during the Teutonic drives, which practically overwhelmed Greek civilization in the third century A.D.

Despite the hampering effects of the present military upheaval, Mr. Solon said, researches were now bringing to light perfection of the classic Greek color system, and he predicted a wider interest in color for architectural purposes.

Influence of Conquest on Building

Wherever Arabian conquerors have prevailed, declares a writer in the "Magazine of Decoration," they have utilized the conquered artists and artisans to create household furnishings and all the decorative objects for their mosques. Their principal mosques were designed and built by Christians. Even the holiest of all Islam's buildings, the Kaabah at Mecca, was built by a Coptic architect named Dokhoun, according to the Arabian historian, El-Umany, and a great portion of the building materials employed were originally prepared for a Christian church the Copts had intended to construct in Abyssinia. Mahomet himself worked as a mason on the Kaabah, and possibly as an overseer of the rebuilding of the great Moslem shrine at Mecca. But Mahomet labored under Christian direction on this work. The original shrine had been half tent and half constructed of inflammable materials. It was burned down two years before Mahomet began preaching, and before Islam was established.

A most important fact for students of Oriental art to remember is this very curious and remarkable circumstance that the most holy of Moslem temples was erected by a Coptic captive, who gave lessons in church architecture to the mighty founder of Islam's power. This Christian architect, named Dokhoun, who laid out the general plan for Moslem mosques which finally prevailed from Cordova in the west to the furthest cities of mysterious India, was one of the oppressed, unnamed great artists and craftsmen of a misunderstood and unappreciated misnamed epoch in the great history of art.

Canadian Building and Construction News

BUSINESS BUILDINGS

Collingwood, Ont.—Tenders have just closed for alterations and improvements to the proposed new premises of the Merchants Bank of Canada. The work will consist of remodelling hotel building into modern banking offices. Hogle & Davis, Montreal, and John Wilson, Collingwood, are associated as architects on the job.

London, Ont.—Plans have been prepared and work will start shortly on the erection of the proposed addition to the premises of the Bank of British North America, Market Square. Cost, \$25,000. J. N. Moore, Richmond street, is the architect.

London, Ont.—It is understood that work will proceed shortly on the proposed three-storey building to be erected for the Huron & Erie Mortgage Company, 442 Richmond street. The structure will be three storeys, of brick and stone, with marble interior work and modern equipment. Cost, \$30,000. Watt & Blackwell, Bank of Toronto Bldg., are the architects.

Ottawa, Ont.—Taylor & Horwood, architects, Castle Bldg., have completed plans for an additional storey 65' x 54' to office building of Elgin Realty Company. Alex. Christie & Son, 359 Elgin Street, are the general contractors.

Ottawa, Ont.—Architect J. E. Ewart, Booth Building, has let the following contracts for the proposed stores and offices to be erected for the H. H. Brenan Estate, at a cost of \$25,000: Masonry, T. C. James, 140 Flora Street; carpentry, W. G. Anderson, 126 Sparks Street; plastering, Murphy & Morrow, Billings Bridge.

Ottawa, Ont.—Contracts have been awarded the following parties in connection with the erection of a \$75,000 store and office building for A. Fournier, Wellington Street: painting and glazing, W. J. Carson, 293 Laurier Ave. West; plumbing and heating, J. A. Langelier, 310 Wellington Street; plastering, Murphy & Morrow, Billings Bridge; roofing, McFarlane-Douglas Company, 250 Slater Street; electrical work, S. Lewis, 168 Carlier Street.

Toronto, Ont.—The Merchants Bank of Canada is contemplating the erection of a modern four-storey building on King street west, near Yonge. The building will cost \$200,000.

Watford, Ont.—Work has started on the erection of a new building for the Merchants Bank of Canada, to cost \$25,000. Sheppard & Calvin, Excelsior Life Building, Toronto, are the architects. The following contracting firms are doing the various trades: Masonry and carpentry, Schultz Bros. Ltd.; Brantford; structural steel, Hamilton Bridge Works, Hamilton; cut stone, Ritchie Cut Stone Company, Hamilton; roofing, Brantford Roofing Company; plastering, Taylor & Nesbitt, Toronto; painting and glazing, Fred G. Roberts, Toronto; plumbing and heating, Anquish & Whitefield, Brantford; electric wiring, Harris & Marson, Toronto; bank fittings, Canadian Office & School Furniture Company, Preston; electrical fixtures, F. C. Henderson, Toronto; linoleum, Robt. Simpson Company, Toronto; hardware, Canada Hardware, Ltd., Toronto; vault doors, J. & J. Taylor, Toronto.

CHURCHES AND SCHOOLS.

Brantford, Ont.—The Grace Church congregation will erect a Sunday School and Parish Hall to cost \$30,000. Plans for the structure are now being prepared.

Fort William, Ont.—The Board of Education has just closed tenders for the erection of a reinforced concrete Collegiate Building to cost \$75,000. R. E. Mason, Victoria Block, is the architect.

Halifax, N.S.—Work is to start shortly on repairs to the various city schools, aggregating in cost to approximately \$100,000.

Hamilton, Ont.—Architects Scott & Wardell, Sun Life Building, have completed plans for a church to be erected on Barton street east for the R. C. Polish congregation. The structure will be 60 x 100 feet, of steel, concrete and stone construction. Cost, \$50,000.

Oakville, Ont.—Architects, Sheppard & Calvin, Excelsior Life Bldg., Toronto, have let the following contracts in connection with the erection of a students' residence to cost \$35,000 for the Appleby School, Lake Shore Road: Masonry, J. Robert Page, 18 Toronto St., Toronto; carpentry, A. Weller & Co., Ltd., 54 Tecumseh St., Toronto; plumbing and heating, A. H. Read, 692 Shaw St., Toronto; sheet metal, W. E. Dillon Co., Ltd., 183 George St., Toronto; plastering, R. C. Dancy, 153 Spadina Road, Toronto; wiring, Harris & Marson, 81a Parkway Ave., Toronto; linoleum, R. Simpson & Co., Yonge St., Toronto; painting and glazing, G. Clemence & Son, Bronte.

Pabos, P.Q.—Architect Pierre Levesque, 115 St. John street, Quebec, P.Q., has awarded the contract for a new presbytery to be built for the Roman Catholic parish at this place, to J. H. Morin & Son, Trois Pistoles, Quebec. Cost, \$11,200.

St. Romuald, Que.—P. Levesque, Architect, 115 St. John Street, Quebec, has completed plans for alterations to the Roman Catholic Church at this place. Cost \$10,000.

Windsor, Ont.—Plans have been completed for the erection of a Sunday School in connection with All Saints' Church. Cost \$30,000.

CLUBS AND HOSPITALS

Fort Qu'Appelle, Sask.—Tenders have just closed for the erection of an infirmary building, four help cottages, four convalescent pavilions, greenhouse, poultry house and piggery, with connecting tunnels, conduits, and piping to be erected at The Saskatchewan Sanitarium. Estimated cost \$200,000. Storey & Van Edmond, Regina and Saskatoon, are the architects.

Toronto, Ont.—It is announced that the Club House of the Royal Canadian Yacht Club, recently destroyed by fire will be rebuilt at once. The loss on destroyed structure is estimated at \$100,000. Fully insured.

Toronto, Ont.—St. Andrew's College in North Rosedale is to be expropriated by the Dominion Government for the Military Department. The present property comprises twenty-five acres and several valuable buildings. It is understood that it is the Government's intention to use these for hospital purposes and also to erect new buildings, involving an expenditure in all between \$1,000,000 and \$2,000,000.

Factories and Warehouses

Dundas, Ont.—A. B. Nicholson, Ltd., Bank of Hamilton Bldg., Hamilton, Ontario, has the contract for a large reinforced con-

crete grain elevator at Dundas for the Kerr Milling Company, Limited.

Forest, Ont.—Plans have been completed for an addition to cost \$5,000, to be built to the flax mill of Howard Fraleigh.

Galt, Ont.—Newlands & Company have acquired additional property on Chapman Street with the intention, it is understood, of enlarging their factory.

Galt, Ont.—Tenders have just closed for the erection of an addition to the plant of the R. McDougall Company. The structure will be three-storeys, 120x64 ft., and will form a continuation of the present pump shop and also give additional accommodations for machine shop purposes.

Galt, Ont.—The Galt Brass Works Company will erect an addition to their plant on Macadamized Road to accommodate a new department to be devoted to the manufacture of vitro lavatory tanks. These tanks are now being manufactured in Cluff Bros., plant, Toronto, but this department is to be transferred to the local works. The new addition will comprise a finishing room, one storey, 50x100 ft.; a press room, 40x42 ft. and a two-storey structure, 22x22, to accommodate the elevators and stairways. J. E. Evans is the architect and tenders have just closed.

Hamilton, Ont.—Contractor W. H. Yates, Jr., 24 Leeming Street, has started work on the erection of an additional brick storey, 75x80, in connection with the factory of Wagstaffe Limited, Maple and Gage Avenues. Cost \$20,000. A. W. Pene, Clyde Block, is the architect.

Lachine, Que.—The Crane, 836 North Michigan Ave., Chicago, intend to establish a manufacturing plant at this place.

Leamington, Ont.—The Imperial Tobacco Company, Montreal, intends to erect a new factory at this place, to cost \$50,000.

London, Ont.—Work is to start immediately on the plant of The T. M. Knowles Company.

London, Ont.—Plans have been prepared for a brick and concrete factory addition, 80x100 ft., to be built in connection with the plant of the London Art Woodwork Company, London.

London, Ont.—Contracts have been awarded for the erection of a three-storey 40x60 brick addition to the Peerless Hosiery Company's factory, Adelaide Street. Cost \$10,000. A. E. Nutter is the architect.

London, Ont.—The saw-mill of D. H. Gillies & Company, Bathurst and Adelaide streets, recently destroyed by fire, is to be rebuilt at once. The company will require new machinery, boilers, steam plant, and everything in the way of saw-mill equipment.

Ottawa, Ont.—Alex. Garvock, 136 Lewis Street, has been awarded the contract for the erection of a reinforced concrete factory to cost \$50,000, for A. L. Florence & Son. Millson & Burgess, Union Bank Bldg., are the architects.

Peterboro, Ont.—Tenders have closed and work is to start shortly on the erection of a building of brick, steel and terra cotta construction for the Robt. Neill Company, Ltd. Cost \$40,000.

Springfield, Ont.—It is the intention of the Springfield Mill Company to erect a brick storage to cost \$20,000.

Summerland, B.C.—The shareholders of the Vernon Fruit Union, have decided to form a company to be known as the Vernon Storage Company, Ltd., for the purpose of erecting a big fruit warehouse to accommodate the growing needs of the union. The building will be 250x150 in size, with a frost proof basement and first floor. It will be capable of storing upwards of 250 cars of fruit. Building operations will start at an early date.

Toronto, Ont.—The buildings of the Galena Signal Oil Works, Royce Avenue, recently destroyed by fire, are to be rebuilt at once. H. L. Kelson is the general manager.

Toronto, Ont.—A new \$25,000 warehouse is being built on Oriolia Street for the Bowes Company, 74 Front St. East. H. N. Dancy & Son, C.P.R. Bldg., is the mason contractor.

Toronto, Ont.—A permit has been issued to the Swift Canadian Company for the erection of an addition to a cattle holding pen, at the corner of Keele Street and St. Clair. Cost \$3,000.

Toronto, Ont.—An American concern, represented in Toronto by the Holden-Morgan Company, has purchased three and three-quarter acres in Ward One, as a site for a large ammunition factory. The necessary buildings are to be erected at once and will be ready in about sixty days' time. The machinery equipment will cost in the neighborhood of \$360,000, and it is understood that 105 millimeter shells will be manufactured.

MISCELLANEOUS

Guelph, Ont.—Tenders were received up to May 1st by City Clerk, T. J. Moore, for resurfacing and paving certain streets in city of Guelph.

Norwood, Ont.—E. G. Laing will receive tenders up to June 1st for forty-five thousand first quality cedar shingles, delivered at Norwood, Ontario.

Ottawa, Ont.—Tenders will be received until June 15th for supplying and laying 17,500 sq. yds. of brown or green super-quality, battleship linoleum in connection with the reconstruction of the Parliament Buildings, Ottawa. Tenders to be addressed to John A. Pearson, Architect; J. O. Marchand, Associate, Centre Bldg. Parliament Buildings, Ottawa.

Walkerton, Ont.—The Saugeen Electric Light & Power Company will receive tenders until May 25th for the construction of a concrete dam to replace their former wooden dam across part of the Saugeen River on the company's property at Southampton. The company will construct a stone coffer upstream above the proposed work, and will furnish electric current for pumping so long as its plant shall continue to run by water power.

PUBLIC BUILDINGS

Ottawa, Ont.—Tenders will be received until 4 p.m., May 27th, for the construction of a Dominion Government office building, O'Connor Street, Ottawa. Plans on file at the office of the chief architect, Department of Public Works, Ottawa; the Overseer of Dominion Buildings, Central Post Office, Montreal, and with the Clerk of Works, Postal Station F., Toronto.

RESIDENCES

Hamilton, Ont.—Work is starting on the erection of two brick residences to cost \$3,000 each for J. McNaught, 477 Wilson Street. The contractors for the various trades are as follows: Plastering, H. Trewolla, 729 Cannon Street, E.; plumbing, J. H. Kerr, 32 Sherman Ave. North; electrical work, F. Thornton, 174 Balmoral Avenue. The owner will do masonry, carpenter work and roofing.

London, Ont.—Thos. Redge, 286 Huron Street, has the contract for remodelling residence of Edward Shea, 572 Wellington Street. Cost \$3,000.

Ottawa, Ont.—W. Villeneuve has the general contract for erecting a brick veneer residence, 1½ storeys, for W. C. Leech, 140 Spadina Avenue. Cost \$2,500.

Toronto, Ont.—The three-storey brick and stone residence of E. Taylor, 140 Carlton Street, is being converted into apartments, at a cost of \$8,400.

Toronto, Ont.—A permit has been granted to H. Bell, 1847 Dufferin Street, for the erection of three attached stores and dwellings on the north side of St. Clair Avenue, to cost \$10,000.

Reinforcing, Trussed Concrete Steel Co.
Terra cotta, Atlantic Terra Cotta Co.
Tile, Denison Interlocking Co.

C. P. R. Terminal, Vancouver
Architects, Barrot, Blackader & Webster.
Elevators, Otis-Fensom Elevator Co.
Generators, Canadian Westinghouse Co.
Glass, Pilkinton Bros.
Heating, American Radiator Co.
Ice machines, Linde Canadian Refrigerating Co.
Ornamental iron work, Mitchell Co.
Paints, Sherwin-Williams Co.
Roofing, Standard Paint Co.
Steel, Coughlan & Son.
Stone, trim, Bedford Stone Co.
Ventilating fans, Sheldons, Ltd.

CONTRACTORS and SUB-CONTRACTORS

As Supplied by The Architects of Buildings
Featured in This Issue

Connaught Laboratories, University of Toronto

Boiler, Warden King, Limited.
Carpentry, Geo. Sparling.
General contractors, Hoyby Bros.
Electric equipment, R. A. Lister & Co.
Heating, Fiddes & Hogarth.
Hollow tile, Sun Brick Co.
Ornamental iron, Dennis Wire & Iron Goods Co.
Plastering, R. C. Dancy & Sons.
Refrigerator, John Hillock & Sons.
Refrigeration equipment, Linde Canadian Co.
Sheet metal, Geo. Duthie & Sons.
Structural iron, Hepburn & Disher.

Brown Copper & Brass Rolling Mill

Architect, Henry Simpson.
Boilers, Dominion Radiator Co.
Brick, Milton Pressed Brick Co.
General contractors, Hoyby Bros.
Interior woodwork, Jas. McKenzie.
Radiators, Dominion Radiator Co.
Terra cotta, Federal Terra Cotta Co.
Vaults, J. & J. Taylor.

Palmolive Soap Company's Building

Art stone, Cockburn Lumber & Concrete Co.
Brick, Milton Pressed Brick Co.
Electric equipment, E. W. F. Salisbury.
Elevator, Otis-Fensom Elevator Co.
Fire doors, A. B. Ormsby Co.
General Contractors, Russell, Navin Construction Co.
Hollow tile, National Fireproofing Co.
Painting, J. Cohen & Son.
Plastering, E. C. Cates.
Plumbing, Sheppard & Calvin.
Radiators, A. Welch & Son.
Reinforcing, Baines & Peckover.
Roofing, Bird & Son.
Sash, Steel & Radiation Ltd.
Stone, Geo. Oakley & Son.
Structural iron, Dennis Wire & Iron Goods Co.
Vaults, J. & J. Taylor.
Ventilating system, Geo. Matheson.

Norlite Building, Ottawa

Boilers, Weil Bros.
Electric wiring, McCallum Electric Co.
Electric fixtures, McDonald & Willson.
Elevators, A. B. See Electric Elevator Co.
Galvanized iron, McFarlane-Douglas Co.
General contractors, Doran & Devlin.
Interior finish, James Hill.
Marble and tile, Italian Mosaic and Marble Co.
Painting and glazing, J. B. Duford, Ltd.
Marble, Missisquoi Marble Co.
Plastering, Frank Hunt.
Plumbing and heating, Gauthier & Co.
Plumbing fixtures, Cluff Bros.
Radiator traps, C. A. Dunham Co., Ltd.
Radiators, Gurney Foundry Co.

Art Museum, Toronto
Cut stone, Indiana Quarries.
Electric equipment, Crouse Hinds Company, Squad D Company.
Electric lighting, Geo. J. Beattie & Co.
Elevator, Otis-Fensom Elevator Company
Floors, David E. Kennedy Company.
Floors, Geo. W. Koch.
Glass, Jos. McCausland & Son.
Hollow tile, Denison Interlocking Tile.
Marble, Vermont Marble Company.
Metal skylights, Architectural Bronze & Metal Co.
Roofing, Geo. Duthie & Sons.
Stone contractors, Witchall & Sons.

THE AUTOMATIC TELEPHONE

The need of adequate telephone service has become more emphasized under war conditions than ever before. In this issue are shown cuts and a description of the new office building erected in New Toronto last year by Brown's Copper & Brass Rolling Mills, Limited. This concern has installed a complete private automatic telephone system throughout their offices and works and are now able to keep all departments in instant touch without in any way delaying or interfering with their outside telephone service.

The two interior views of the office both show the location of the telephone switchboard behind a plate glass panel at the side of the stair landing. The motor generator set and storage battery are located in the basement immediately below and the charging of the storage battery is automatically controlled from the switchboard.

Twenty desk telephones are located throughout the office building and from the office building to the plant a lead covered cable is run on a private pole line. Distribution cable is run along the outside wall of the factory on the street side branching into every building to serve the telephones in that section. The factory installation in itself includes thirty desk telephones serving all departments.

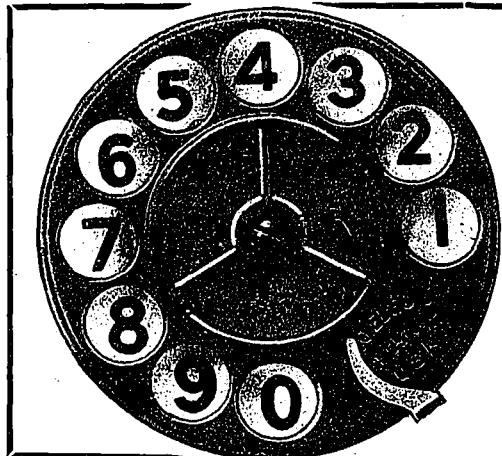
The garage telephone is approximately 3,000 feet from the switchboard, but when talking from it to any other part of the plant the voice transmission is just as clear and distinct as if the two phones were in the same room. This is easily understood when it is known that the same equipment is being used for long distance work in Western Canada.

In connection with the automatic telephone, the automatic code system is installed by which the executives can be instantly located no matter where they are in the plant. This code system, it is claimed, is the only one on the market that is tied into the telephone system so that a code call on the separate code bells or horns throughout the plant can be put on from any telephone and answered from any other telephone, thus starting and stopping the code bells and making instant connection for talking. In service, calls are being answered in from 10 to 25 seconds.

To anyone not familiar with automatic telephones their operation is marvellously quick and sure. Take off the receiver at any telephone, dial two figures, and instantly the phone at the other end is being automatically rung, or if busy, the busy signal is given to the calling party and he is locked out from the number he called.

In short the outstanding advantages of the automatic telephone are speed, accuracy, secrecy, availability, service. It is possible to call any phone in three seconds. There is no such thing as getting the wrong number, no false busy signals. Also it is impossible for a third party to "butt in" or "listen in" on a conversation. It is also claimed that an automatic telephone can do anything that a manual phone can do, and when that is done can go a half further in giving extra service to meet the special needs of any business. It gives service twenty-four hours a day seven days a week without an operator.

The system was installed by Signal Systems, Limited, Toronto, who are representatives for Eastern Canada of The Automatic Electric Co., of Chicago, the makers of the equipment.



PAX The Automatic Telephone
For Private Plant Service

Brown's Copper & Brass Rolling Mills Co., Ltd., New Toronto, 50 Line

Massey-Harris Co., Ltd.	Toronto	100	"
Gutta Percha & Rubber, Ltd.	Toronto	100	"
John Bertram & Sons Co., Ltd.	Dundas	100	"
Lake Superior Paper Co.	S. Ste. Marie.	100	"
Electro Metals, Ltd.	Welland ...	50	"
McIntyre Porcupine Mines	Schumacher..	50	"
Hamilton Hydro Electric System	Hamilton ...	25	"

SIGNAL SYSTEMS, LIMITED
26 QUEEN EAST TORONTO, ONT.

Made in Canada



Free Roof Insurance for 20 Years

You are proud of that new plant—proud of its modern construction, its efficiency, its output. It represents a big investment of money and enterprise.

Of course it is insured against fire. But how about the roof? Is your investment there insured?

If you cover your building with a Barrett Specification Roof you will get such insurance in the shape of a 20-Year Guaranty.

Our experience has proved that a roof laid strictly according to The Barrett Specification will last much longer than twenty years without repairs of any kind, and our new plan of issuing the 20-Year Surety Bond Guaranty gives owners the benefit of that experience.

Here is our offer:

On all roofs of fifty squares or more, in all towns of 25,000 or more, and in smaller towns where our Inspection Service is available, we will give

A copy of The Barrett 20-Year Specification, with roofing diagrams, sent free on request.

a 20-Year Surety Bond Guaranty, provided the roof be laid strictly according to The Barrett Specification of May 1, 1916, and by a roofer approved by us.

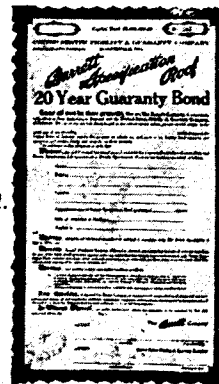
This bond exempts the owner from all expenses of maintenance and repairs for a period of twenty years.

We claim only the right to have an inspector on the roof during construction to insure strict compliance with the Specification.

The risk is ours, the gain is yours.

Leading architects, engineers, and roofing contractors throughout the country are familiar with and indorse our plan.

A line to our nearest office will bring any information you may desire concerning this proposition.



The **Barrett** Company
LIMITED

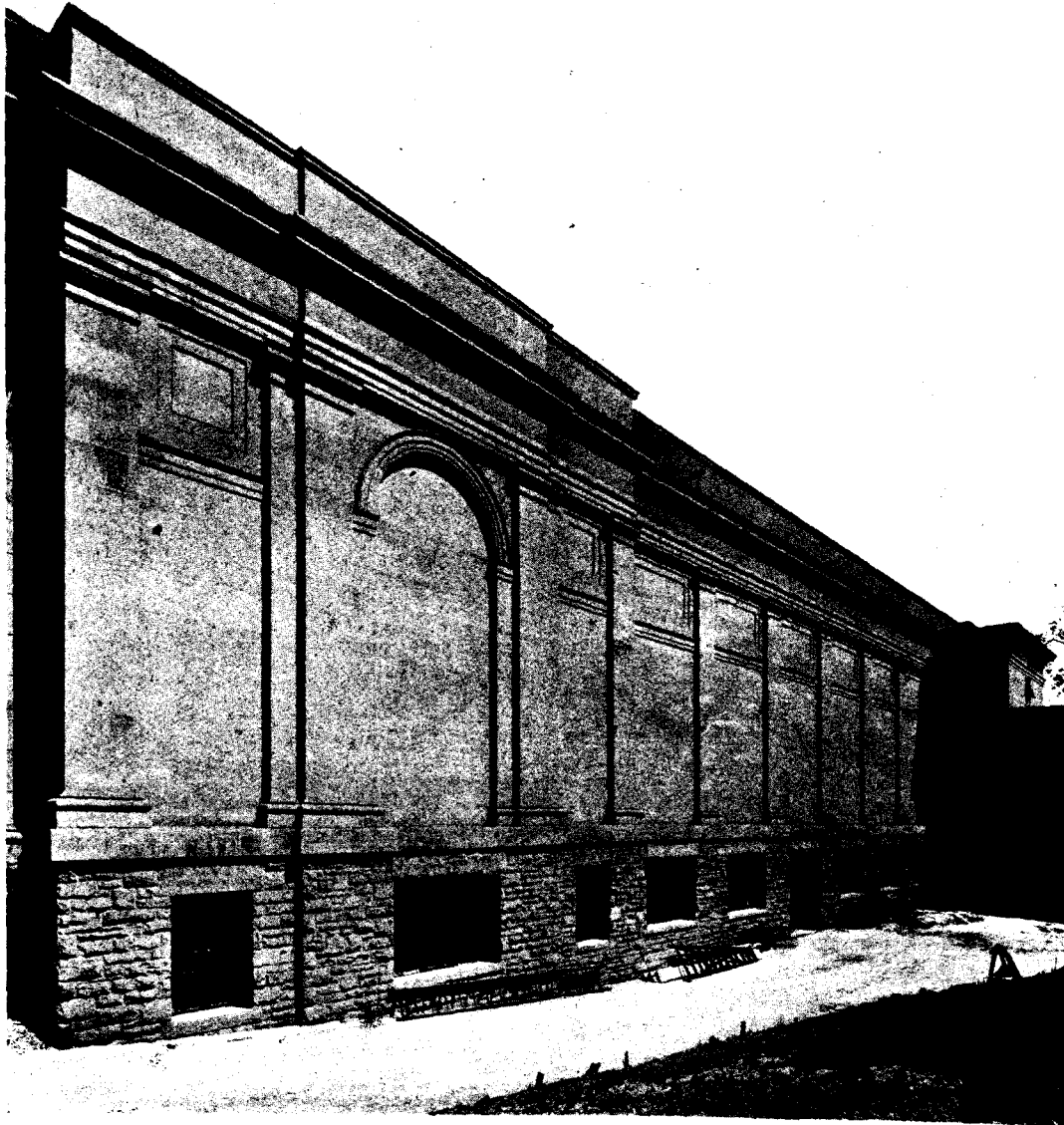
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ST. JOHN, N.B.

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Permanent Wall of Art Museum, Toronto, Ont.

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All of the Cut Stone and Mason Work on this building, featured in this issue, was executed by us.

We specialize in buildings of this character, and shall be pleased to furnish estimates on Cut Stone and building construction work of all kinds.

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