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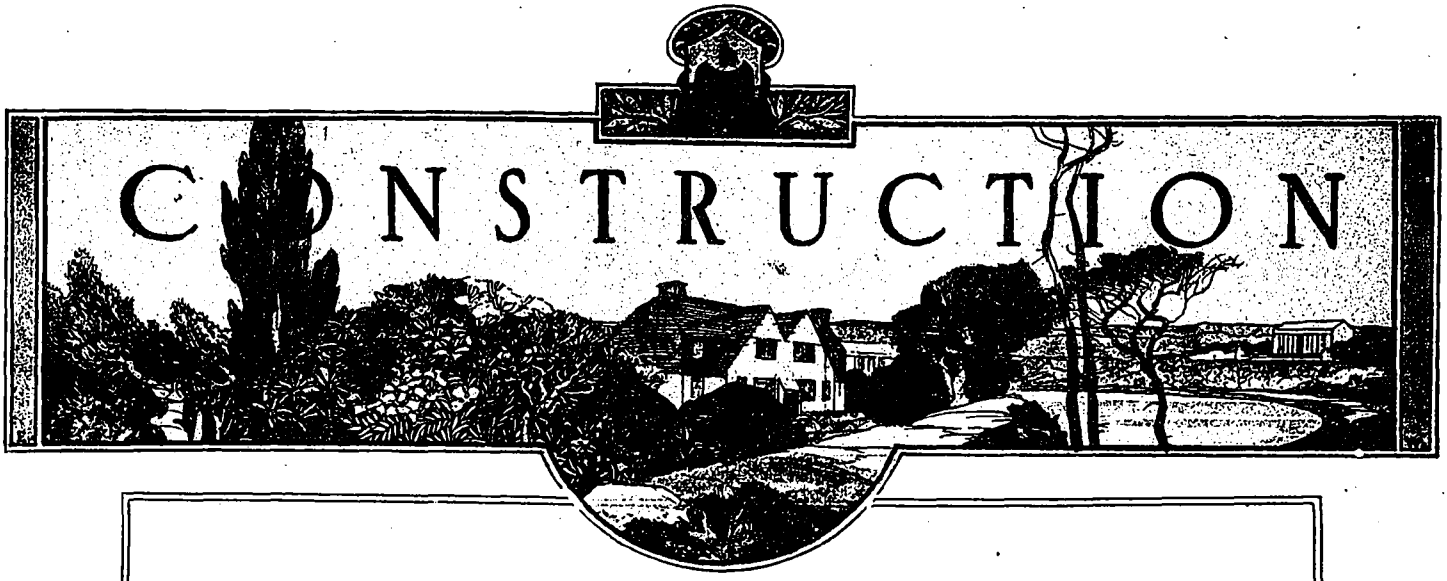

April, 1917 Vol. 10, No. 4

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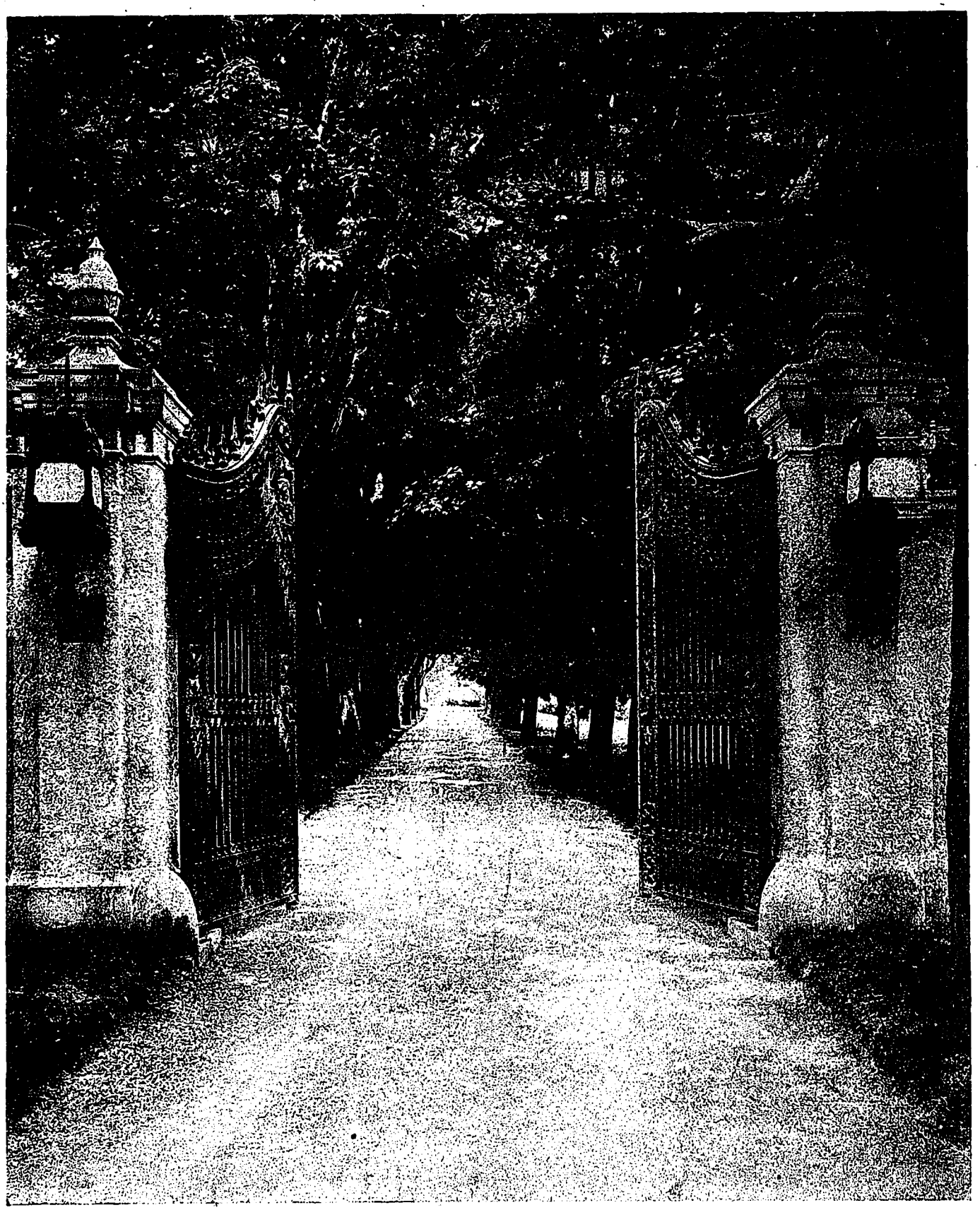


ENTRANCE AT COBOURG, ONTARIO.

AN ARTISTIC DESIGN, WHICH, WITH THE STATELY TREES LINING THE DRIVE-WAY, IMMEDIATELY CONVEYS THE THOUGHT OF STRENGTH AND SECLUSION.

New Customs Examining Warehouse, Ottawa

A Six-Storey Fireproof Building, Gothic in Treatment, Harmonizing With Other Fine Structures of the Capital.

THE new Customs Building, Ottawa (illustrated on page 114), has been built from designs prepared by the Department of Public Works, Ottawa.

The building, which is Gothic in treatment, is situated between Sussex street and Mackenzie avenue, with the main frontages to these streets, and extends the entire length of the block between George street and York street, a distance of three hundred and thirty-two feet by a depth of eighty-eight feet, and is six storeys and basement in height, with a central tower comprising two more storeys.

The building throughout is fireproof. The outer walls are faced with stone backed with brick and lined with terra cotta blocks.

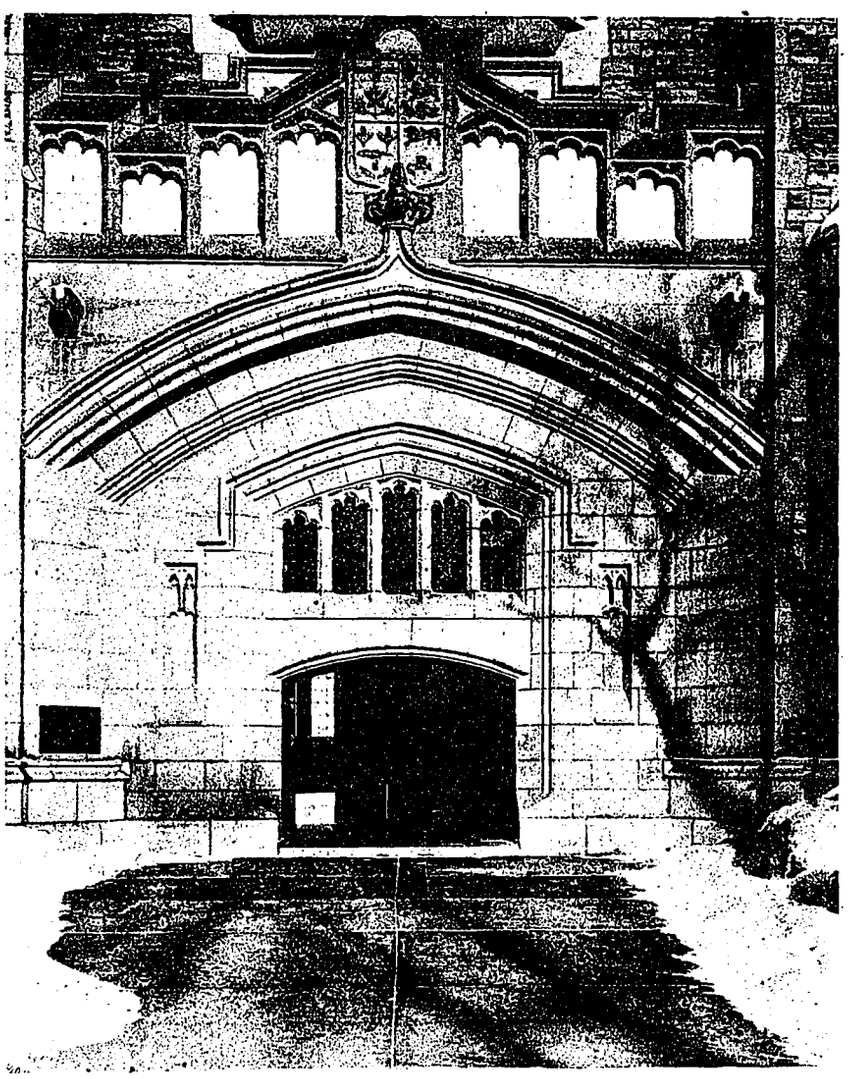
The lower storey next Sussex street and the ends are faced with granite, the remainder being Nepean stone with Wallace stone trimmings.

The floors are of reinforced concrete having a hardwood finish in all offices, with marble and marble mosaic in halls, staircases and corridors.

The partition walls are formed of terra cotta blocks and the ceilings of metal lath finished in plaster.

All halls, corridors and staircases are finished with a marble dado and plaster above.

The three main entrances to the offices are on Mackenzie avenue on the first floor level.



ENTRANCE TO CUSTOMS EXAMINING WAREHOUSE.

The ground floor on the Sussex street level is used as an examining warehouse, the entrances for goods being at the rear of the building reached by a covered driveway under Mackenzie avenue.

The remainder of floors are used for departmental offices.

The interior of the warehouse has been finished with a grey silicate brick.

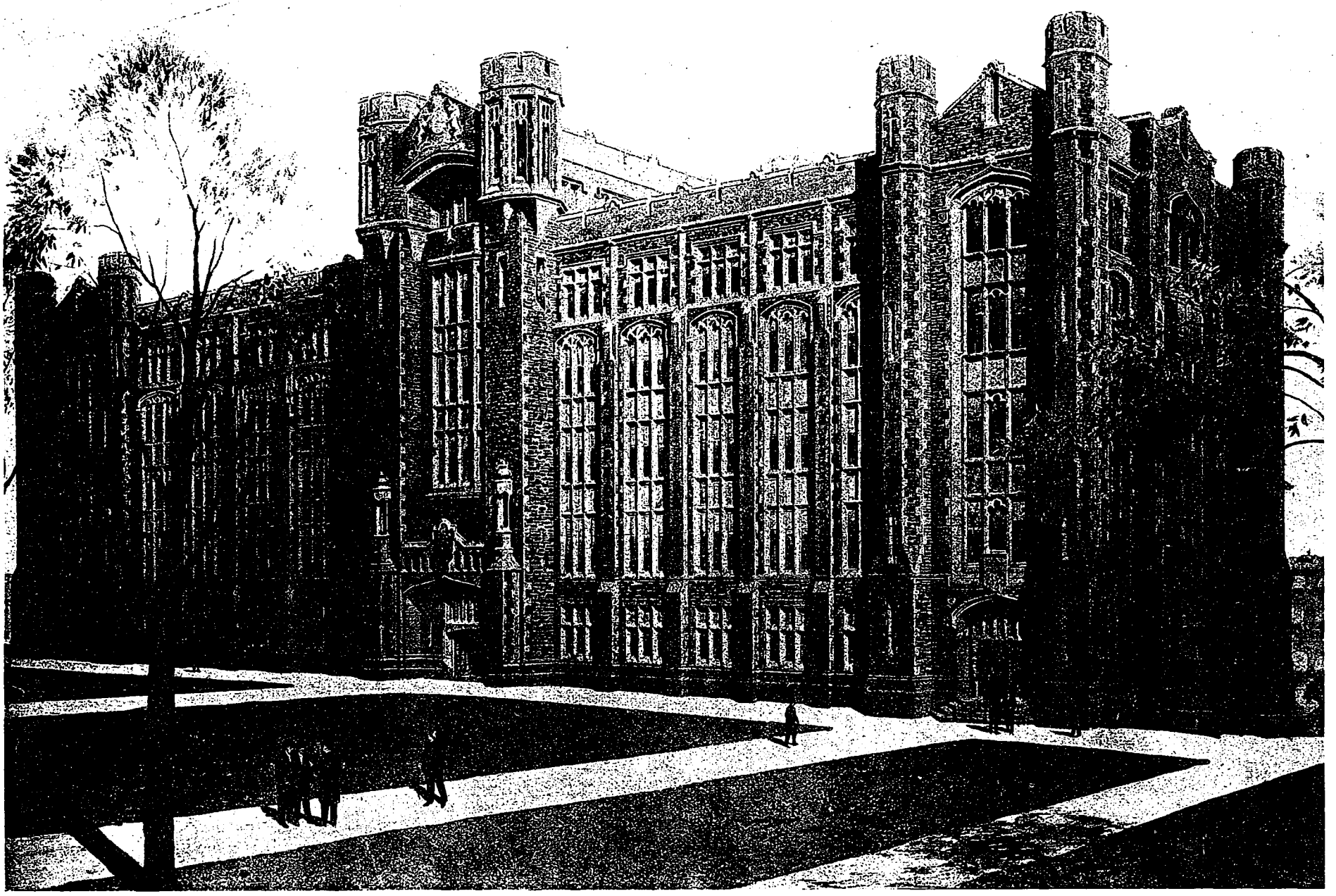
In the main hall facing the central entrance on Mackenzie avenue is a spacious marble and bronze staircase which rises to the top floor. Wide corridors extend on both sides from the central hall giving access to the various offices and which terminate at staircase at both ends.

This is typical of all office floors, making a splendid working and well balanced plan, all rooms and corridors being well lighted.

The building is equipped with three fire hydrants and hose on each floor, and has an up-to-date vacuum cleaning system installed throughout the entire structure.

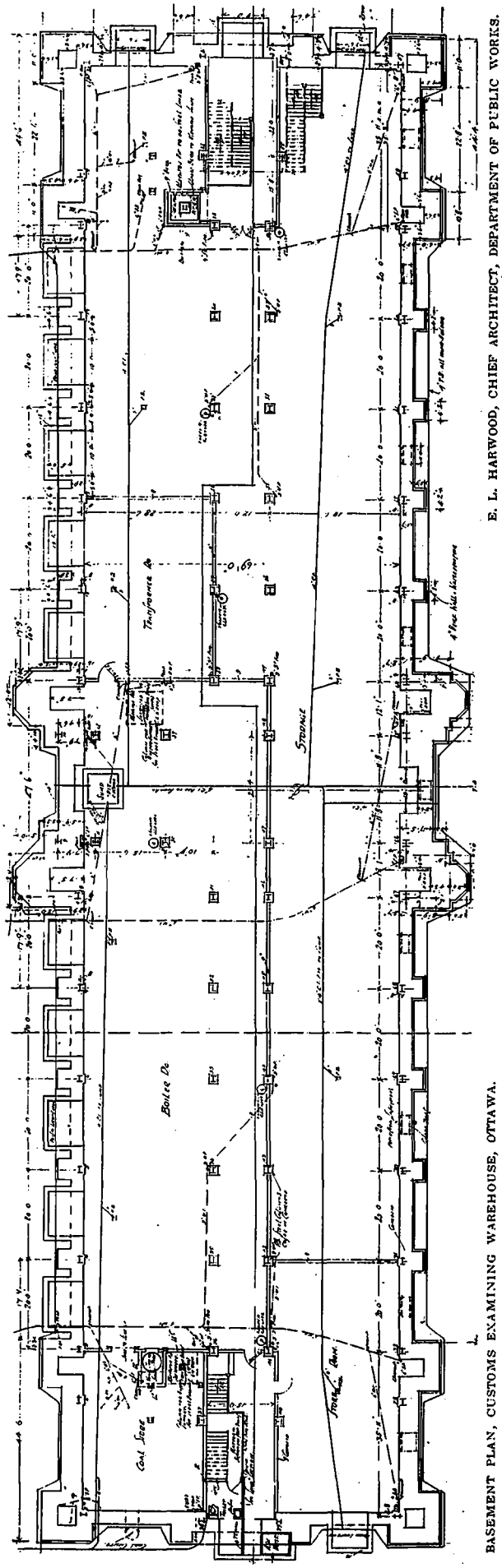
Three passenger elevators are provided for the staff, one in centre and one at each end of building.

The building is heated by a gravity hot water system. The power consists of five return tubular boilers, these supplying live steam to six units of feed water heaters which in turn supply

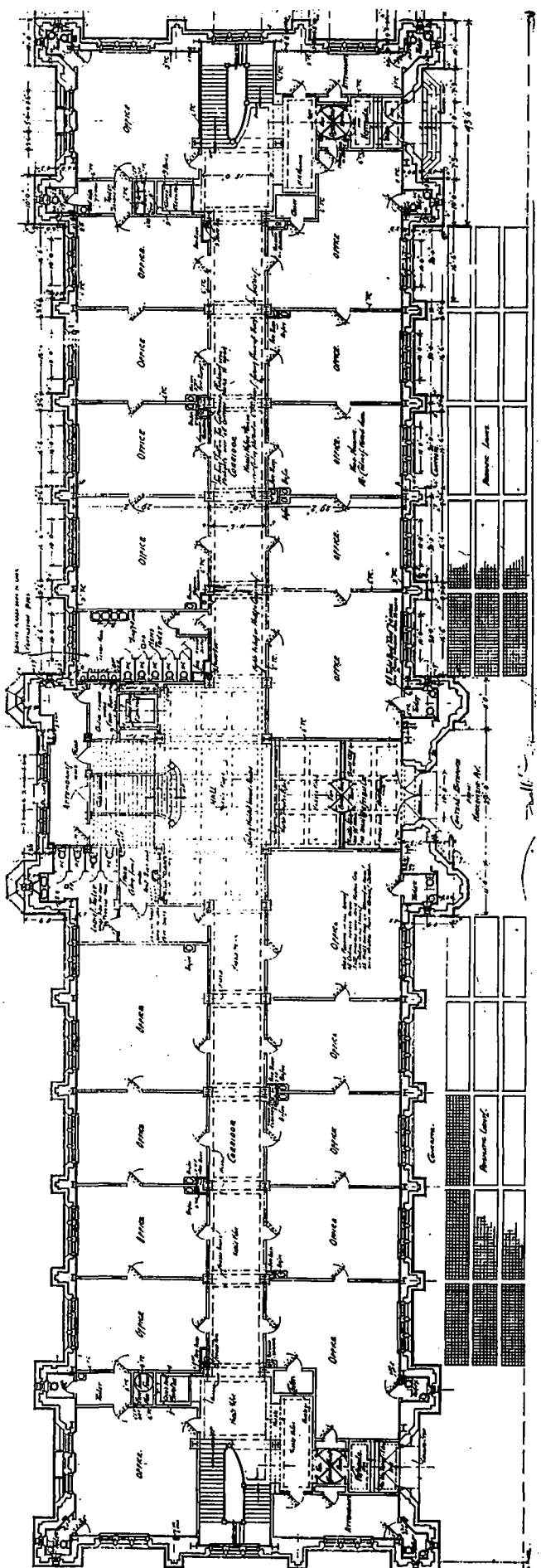


CUSTOMS EXAMINING WAREHOUSE, OTTAWA, ONTARIO.

E. L. HARWOOD, CHIEF ARCHITECT, DEPARTMENT OF PUBLIC WORKS.



BASEMENT PLAN, CUSTOMS EXAMINING WAREHOUSE, OTTAWA.
E. L. HARWOOD, CHIEF ARCHITECT, DEPARTMENT OF PUBLIC WORKS.



FIRST FLOOR PLAN, CUSTOMS EXAMINING WAREHOUSE, OTTAWA.
E. L. HARWOOD, CHIEF ARCHITECT, DEPARTMENT OF PUBLIC WORKS.

MAIN ENTRANCE HALLWAY, CUSTOMS EXAMINING WAREHOUSE, OTTAWA.

hot water to the radiators in the different offices, halls, etc.

A plenum system of ventilation is provided, two fans being installed in tower supplying four changes of fresh air to the offices through concealed ducts above corridor ceiling. The toilets are ventilated through an exhaust fan placed in pent house on roof.

To Mr. E. L. Harwood, chief architect, Public Works, Ottawa, credit is due for this imposing addition to our public buildings.

VIEW OF TYPICAL HALL, CUSTOMS EXAMINING WAREHOUSE, OTTAWA.

Municipal Hospital Accommodation

In his letter to the editor, which appears herewith, Mr. Emile E. Delay has aptly drawn attention to facts which have a pertinent bearing upon this important subject. The Provinces of Alberta and Saskatchewan have already enacted legislation empowering municipalities to provide hospital accommodation, and on account of the interest shown by the public, we reproduce the explanation of the subject as published by the Saskatchewan Bureau of Public Health in the "Public Service Monthly":

"To provide adequate and efficient hospital accommodation, especially in rural districts, has been a problem which has been growing more and more acute, and how best to supply the need in the most effectual and simple way has exercised the thought of the officials of the bureau for a considerable time.

"The enacting of the present Act, therefore, is the result, and it is hoped that by making the adoption of it simple and easy, no difficulty may arise to prevent any limited number of municipalities uniting for the purpose of having in their midst a hospital suitable, ample and comfortable for the needs of a defined area.

"Any two or more contiguous or adjoining municipalities may co-operate for the establishing of a hospital, and the process is made so plain that ratepayers should have no difficulty in understanding their position.

"The procedure is, that wherever two or more (preferably more) municipalities consider that a hospital is required and desirable in their district, the councils meditating the establishing of such an institution should pass resolutions to that effect and then arrange for a meeting of representatives

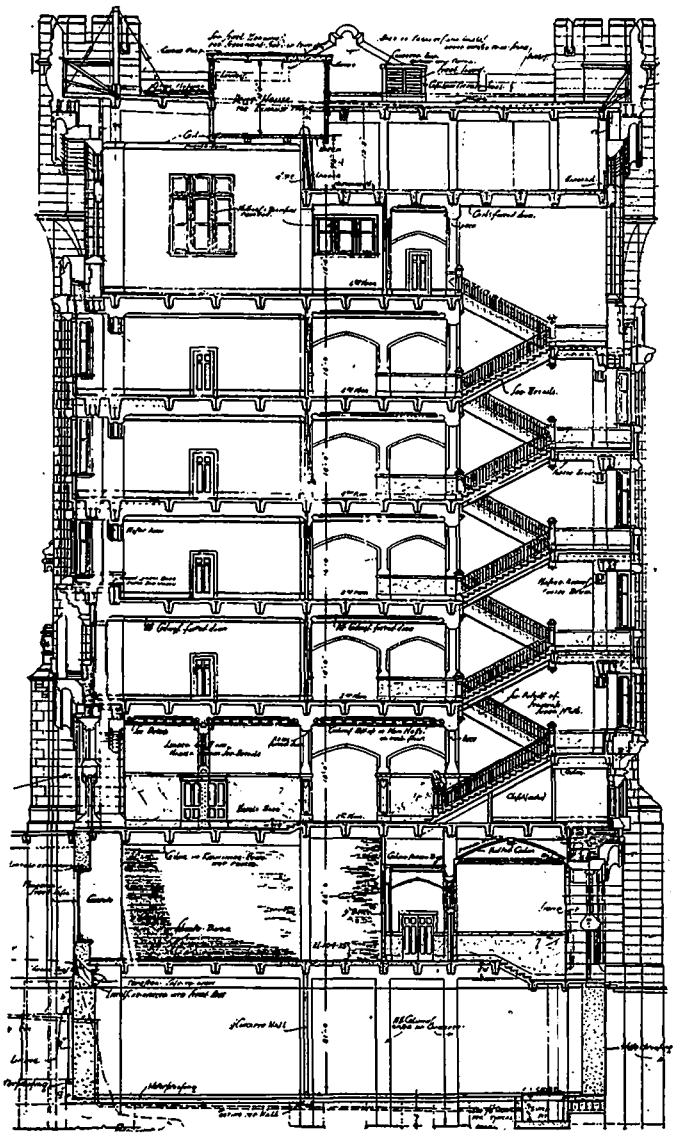
from each council intending to join in the scheme, for the purpose of signing an agreement to unite.

"When this is accomplished, the various councils will then prepare a by-law for submission to the electors for their approval to establish a union hospital in accordance with the provisions of The Hospital Act. Fifteen (15) days' notice is required before the poll can be taken.

"When the by-laws have been passed the agreement becomes operative and the councils then appoint one of their own number and one ratepayer—not a councillor—as representatives of the union hospital board.

"The appointed representatives of the several councils will then meet as the hospital board, elect a chairman and vice chairman, and appoint and employ a secretary-treasurer at such remuneration as may be decided upon.

"The board shall then, upon organization, prepare a scheme providing for a site and building suitable for the district, together with the necessary equipment, furniture, etc., giving an estimate of the amount required for capital expenditure. This estimate shall be submitted to the Local Government Board for its approval and decision on the sums to be raised, when the councils of the various municipalities may pass the necessary by-laws for providing the sums required.



SECTION THROUGH CENTRAL TOWER, CUSTOMS EXAMINING WAREHOUSE.

"Let it be clearly understood that the union hospitals are to be for the accommodation, care and treatment of residents in the districts uniting, and that a medical certificate for admission must be obtained, or a certificate from the secretary-treasurer with the consent of his council, emergency cases excepted.

"The whole scheme is one of self-help, similar to that for insurance, the municipality taxing the whole for the benefit of the whole. It is no charity or pauperizing scheme, but a self-protecting one, and one managed and controlled for the benefit of all unfortunate enough to require such service. The hospital is the birthright of all residents and is free to all, the fees for which will be paid by the municipality from which the patients are sent."

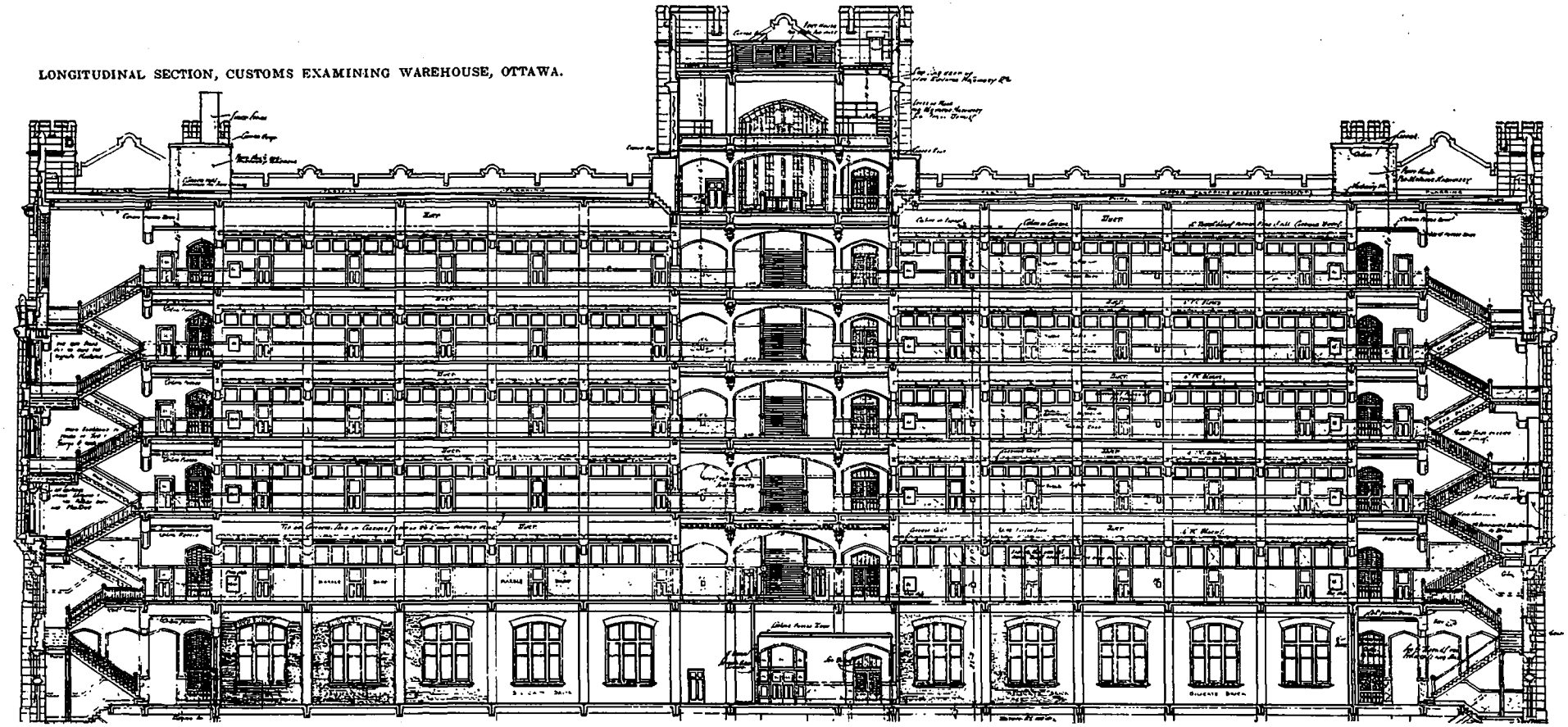
Editor of CONSTRUCTION:

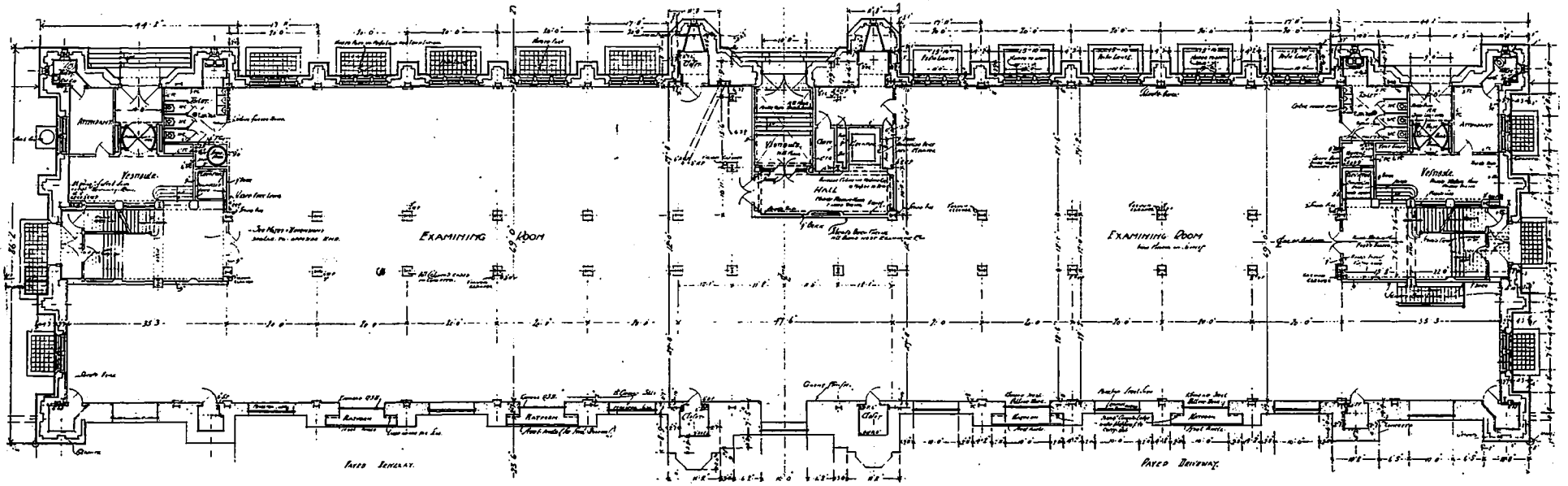
Dear Sir,—I have read with much interest the article in the December, 1916, issue of the "Public Service Monthly," published by the Government of Saskatchewan, pages 82 and 83, re Municipal Hospitals, proposing that one or many municipalities should join together to build hospitals.

These ideas have certainly a very generous object, and one which the public will un-

VIEW OF BOILER-ROOM, CUSTOMS EXAMINING WAREHOUSE, OTTAWA.

LONGITUDINAL SECTION, CUSTOMS EXAMINING WAREHOUSE, OTTAWA.





GROUND FLOOR PLAN, CUSTOMS EXAMINING WAREHOUSE, OTTAWA.

E. L. HARWOOD, CHIEF ARCHITECT, DEPARTMENT OF PUBLIC WORKS.

doubtedly applaud, but without prejudicing this important question which in the "Public Service Monthly" is dealt with only from the commercial point of view, it seems to me indispensable to point out that the organization of these hospitals should be promoted only by representatives elected by the municipalities interested in collaboration with persons *qualified* both from the medical point of view and from the technical, as the question of the details of construction of a hospital should be decided only by persons capable of advancing ideas based on a special study of this subject in order to avoid, at the very commencement of the undertaking, costly errors due to the lack of technical knowledge which subsequently are almost always irreparable.

It is possible that some persons may claim that they have technical knowledge which they do not possess, and if an efficient hospital could be built by enthusiasm, speech, good-will, or by reason of their own public standing, their efforts certainly would be beyond praise.

We, however, cannot build hospitals on these good wishes alone.

A hospital is a building that needs a varied and extensive knowledge in selecting the site, having due regard to water planning, salubrity, orientation and general sanitation before considering the details of the inside organization.

The size of the building depends largely upon the number of beds required for the sick, also the kind of sickness which would be treated there, and the accommodation required for the patients and the staff.

We must also consider the amount of money which the inhabitants of the municipality or municipalities are able and willing to provide.

There is the extent of the duties of the Commission elected who will be authorized to consult with qualified persons such as doctors and architects, who know the kind of building they can build in these circumstances, and who may be relied upon to avoid the errors which otherwise would incur extra and useless expense by inside arrangements defective and prejudicial to the patients.

The preparation of the plans necessary for a hospital requires on the part of the architect extended knowledge of hygiene, heating, ventilation, accommodation required for the different departments, facilities of communication, orientation of the several departments, and their best location as regards normal lighting, entrances, approaches, staircases, elevators, corridors, wards for infectious diseases, rooms for operations, sterilization, disinfection, baths, lavatories, kitchens, easy distribution of food, diet kitchens, provision stores, laundry and drying rooms, morgue, administration office with vault for books and valuables, consulting rooms, drug store, rooms for maternity cases with artificial incubators and baths; rooms for tuberculous patients, protected veranda with plenty of sunlight for sickness and recovery; garage for motor cars and ambulances, wheel chairs, accommodation for the permanent staff, orderlies, nurses, kitchen maids, porter, steam engineer, gardener, laundresses, linen closets, electrical machinery, soft water, warm and cold water, distributed automatically with pressure whereever desired, common water for the kitchen, W.C., fire hose, water for cleaning with, etc., hot water heating for small hospitals, and steam heating for large hospitals; chapel, refectories, garden for recreation, and kitchen gardens.

Above all, every service should be as complete as possible for giving the best efficiency, which is absolutely necessary in a modern hospital.

To arrive at this result, it is indispensable to have an architect who is really an architect, cooperating with a doctor who possesses the professional aptitude and recognized technical qualifications.

It is only by fulfilling these conditions that it is possible to arrive at a good result, and in writing this letter, I have in view only the good of the country where everybody and anybody must help to the best of his ability. In conclusion, I beg you to give this writing publication, for which I thank you in advance.

Yours faithfully,

EMILE E. DELAY,
Architect, E.D.P.,
Diplome per le Gouvernement Francais,
Regina, Sask.

Completion of Ten Storey Office Building at Calgary, Alberta

The Lancaster Building, Calgary, a ten-story office building, the steel frame and concrete floors of which were erected in 1913, is now to be finished as to the exterior and partly finished as to the interior at a cost of approximately $100,000. The building will be mainly of brick, the greater part of which, as well as the hollow tile to be used for backing in a part of the structure, will be of local manufacture. About fifty thousand facing bricks and two hundred tons of terra cotta will be imported from the United States, as will also probably about one thousand square feet of ceramic tiles. The plumbing fixtures and piping will also be of American manufacture, and the electric-lighting fixtures, panel boards, etc., builders' hardware, such as locks, hinges, etc., and some paints, are likely to be purchased in the United States.

The contracts for plumbing, heating, and electric-wiring installations have been awarded to Calgary firms. The elevators will be furnished by a Toronto firm.—U.S. Commerce Reports.

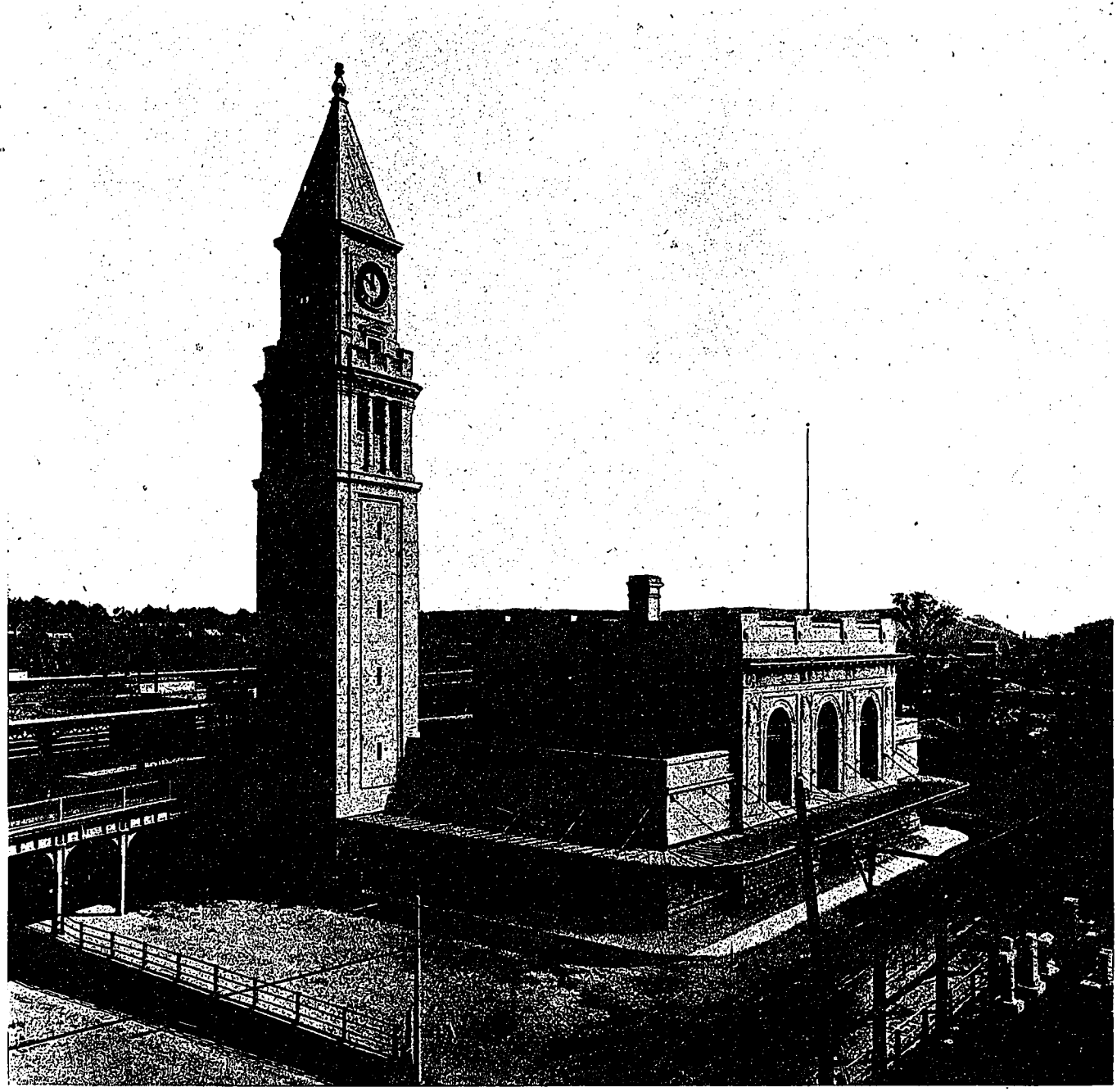
C.P.R. Station, North Toronto, Toronto, Ont.

Attractive and Efficient Design, Well Worthy Of the City to Which It Is An Entrance.

CERTAINLY the travelling public should be grateful to the railway that has provided this modern and handsome stone structure, and which offers every accommodation.

The style of architecture is well suited to the character of the surroundings, and is well worthy of the city to which it is an entrance. Location of main entrances and exits are so established as to facilitate the handling of passengers, and the areas available for baggage, mail and express have been so designed as to meet all demands that should be placed upon them. Durability, an essential in passenger station design, has not been sacrificed, and from the material and equipment used, this station should prove satisfactory for a long time to come.

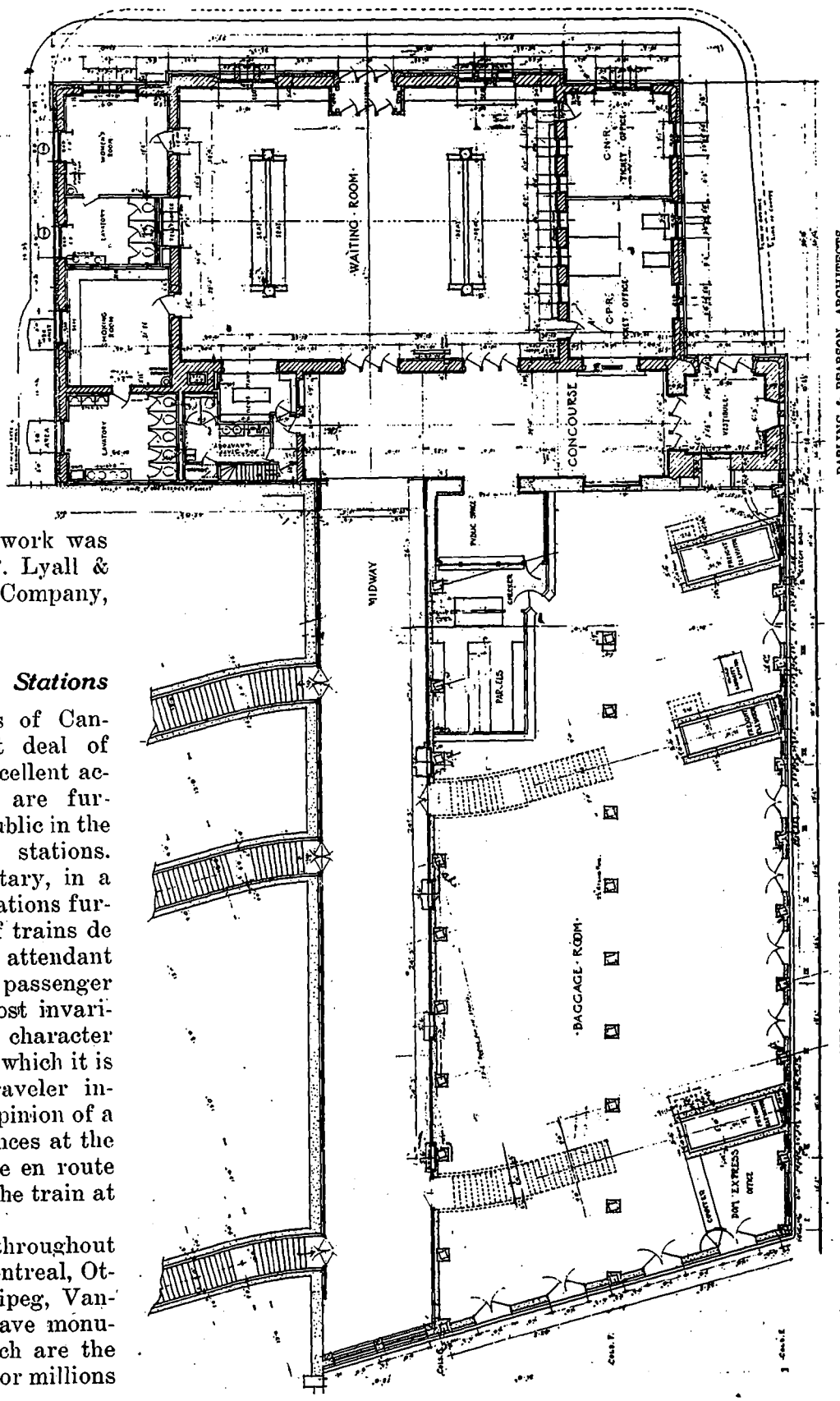
Canopies adjacent to and over the platforms provide a covered way to and from trains, and will add to the comfort of the traveller in his use of the station. The south and west side of the station have metal canopies extending over the sidewalks. A driveway twenty-eight feet wide along the Yonge street side gives easy access to baggage room, waiting room, and ticket office.



C. P. R. STATION, NORTH TORONTO, TORONTO, ONTARIO. DARLING & PEARSON, ARCHITECTS.

A subway under the six tracks provides for the continuation of Yonge street. The tracks pass over the baggage room section of the station, and the difference in level between the station floor and the tracks is but fourteen feet. Three staircases leading up to the platform are lined with white enameled brick. The main concourse, tower entrance, and waiting room have been walled with marble over the entire height. Both the direct and indirect methods of lighting have been used, producing a uniform and restful effect.

The station building is one hundred and fourteen by seventy-five feet, and the tower, an imposing view of which is obtained from the surrounding district, is one hundred and forty feet high and is surmounted by a terra cotta spire. Darling & Pearson were the architects, and the construction work was carried through by P. Lyall & Sons Construction Company, Limited.



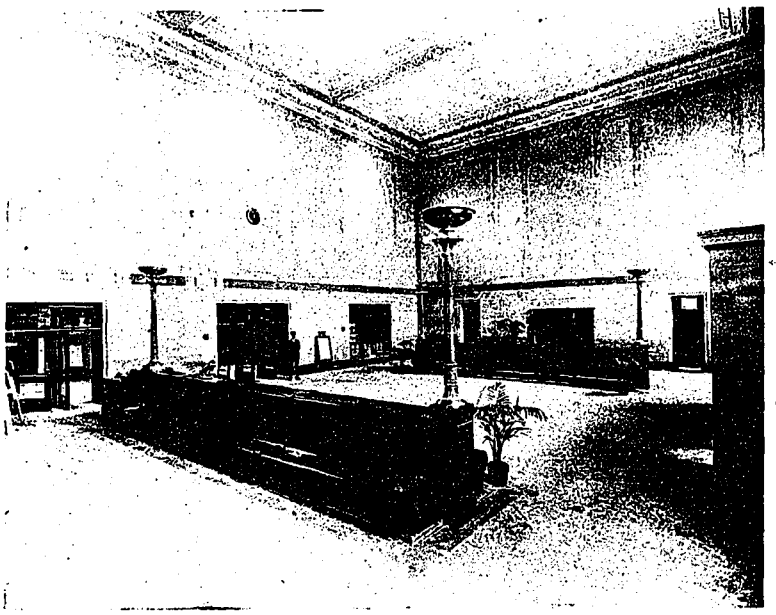
DARLING & PEARSON, ARCHITECTS.

C. P. R. STATION, NORTH TORONTO, TORONTO, ONTARIO.

Railway Passenger Stations

Railroad companies of Canada deserve a great deal of credit for the most excellent accommodations which are furnished the traveling public in the way of passenger stations. These are supplementary, in a way, to the accommodations furnished in the shape of trains de luxe, with all their attendant luxuries. The modern passenger station to-day is almost invariably an index to the character and size of the city in which it is situated, and the traveler instinctively forms an opinion of a city when he first glances at the railroad station, while en route or upon stepping off the train at his destination.

The large cities throughout Canada, including Montreal, Ottawa, Toronto, Winnipeg, Vancouver and others, have monumental buildings which are the gateways to the city, for millions of travelers. These buildings, from the standpoint of design and construction, compare favorably with any of the public buildings erected by the Provincial or municipal Governments. For these buildings, and the conveniences and accommodations which they offer, the traveling public should be grateful to the railroads. The more important terminals in the larger cities have been illustrated from time to time in our



GENERAL WAITING ROOM, C. P. R. STATION, NORTH TORONTO, TORONTO, ONTARIO.

architectural periodicals, and form an interesting study, both from the standpoint of the architect and engineer, as well as from the standpoint of the railroad operating official.

In these large terminals, the first problem to be solved is the question of trackage to the site of the building. This may involve the rearrangement or purchase of miles of right-of-way. The number of trains are estimated for the present and the future, and the number of tracks determined. Grades are established. Location of main entrances and exits established, areas available are assigned for handling of passengers, baggage, mail and express, and other problems of operation, such as train movements, storage of cars, handling of mail and express cars, coach yards, are determined. These are some of the phases of the operating department's problem.

After obtaining all data from the operating department relative to train movements, trackage, etc., the architect should determine from the inspection of the site, the character of the surroundings, including buildings, in order to intelligently treat the subject from an architectural standpoint. Too often the character of the surroundings is not taken into account—and the building of perfect design is incongruous in its setting. The style of architecture which is appropriate for a station in the charming park of a little city in the mountains, or amid the tropical foliage of the South, would be out of place in the wholesale or manufacturing district of some of our Canadian cities.

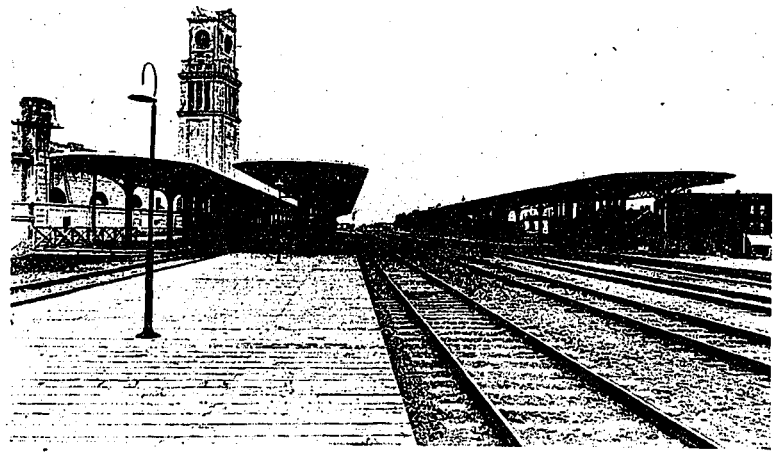
The railroad station must be worthy of the city to which it is an entrance. Its two principal elevations deserve, at least, equal treatment; the track side which the incoming passenger first notices when he steps from the train—and the town side, which frequently offer more important opportunities for distinguished treatment. The writer knows of plans which were prepared for a station building, for a city of perhaps 100,000 inhabitants, facing upon the city square, in which were some important public buildings. The architect had quite overlooked the fact that the station had any other front than the track front, and what was called the rear of the building—in reality its most important elevation, was designed of common brick, and without any architectural treatment. This necessitated a re-design of the building.

The object of the passenger station being to accommodate the maximum amount of business of various kinds which pass through its doors, all of these streams of travel must be routed in the shortest direct lines, without crossing or re-crossing. The architect must know the direction and volume of pedestrian, teaming, carriage, mail and express traffic. Also the facilities required for handling street cars, elevated

CONCOURSE, C. P. R. STATION, NORTH TORONTO, TORONTO, ONTARIO.

roads, subways, etc. For instance, if the passengers arrive at the station from a given direction, care must be used that cabs, mail and express wagons do not cross the path of passenger traffic, and a step further in this line of reasoning would indicate that mail, baggage and express rooms should be located so that passengers do not have to pass them on their journey from the street through the station to the train.

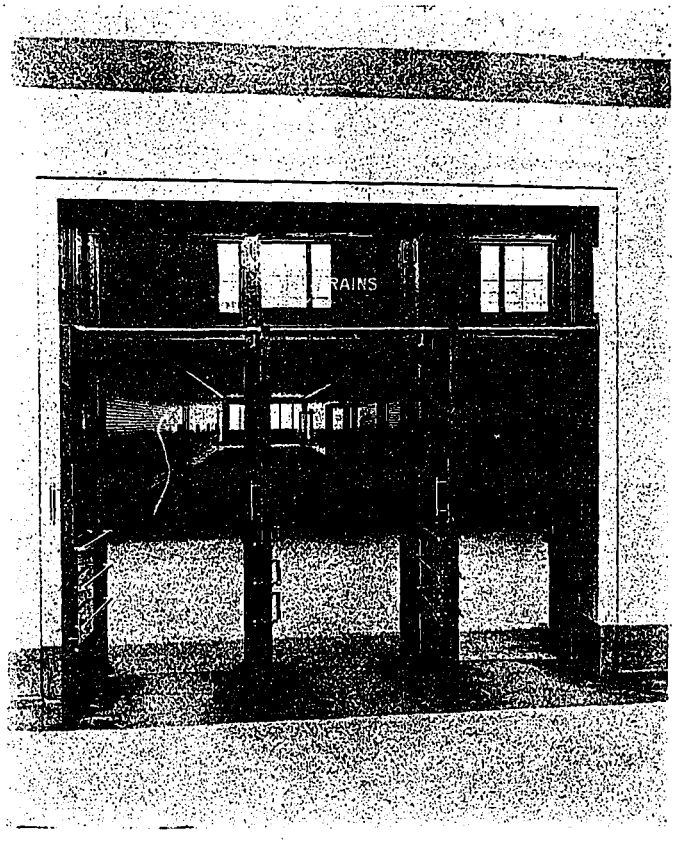
When all the facilities are provided for, as required by the character and volume of the business handled, and their inter-relation established in such a way that the above mentioned results are obtained, the next essential which every architect will appreciate, is to determine the proper size of the rooms, and, therefore, of the building. We have all gone through the painful process of providing for the ideal arrangement of facilities for a client, and been obliged to eliminate and reduce, and in a great many cases, it must be confessed, the architect is not entirely blameless. The same principle holds as true for a passenger station as for a residence or a hotel. The building which is too large is just as unsatisfactory as one which is too small, and a careful study of existing conditions will frequently result in modification of layouts, resulting in a building of maximum efficiency at minimum cost. This is fair to our clients—the railroad companies—who are as adverse to expenditure of money unnecessarily as is the man who is building a building for investment, and perhaps more so, because the direct returns of the enormous capital invested by the railroads in station buildings is without direct financial return or profit.



VIEW OF PLATFORM AND CANOPIES.

Durability is an essential in the design of a passenger station, because of the extremely hard service which every part of the building and its equipment receives. The sheet metal work must be better than the ordinary galvanized iron, because of the corrosive action of cinders which collect and form acid. Walls and roofs should be of a non-absorbent material to prevent discoloration by locomotive smoke. Interior trim and finish of waiting rooms must be of material and color which cannot be defaced. Seats or benches must be of quality to conform to the character of the building, without extremely high cost; standard patterns of benches can be obtained. Floors must be extremely durable, and easily cleaned. Doors must be of sufficient weight to prevent damage due to constant and rough usage. Ticket offices must be provided with wall space for ticket racks. Suitable grills, with counters and money drawers, for ticket selling. Operator's benches. Provision for semaphore operation. An unobstructed view of the track in all directions. Grills at windows to prevent robbery of agents. Space for storage of tariff file. Convenient arrangement of ticket windows, opening upon various waiting-rooms. It is a comparatively simple matter to provide one or two ticket windows for men and women's waiting-rooms.

The baggage, mail and express rooms present their problems; adequate and satisfactory scales must be provided, and suitably located. Storage platforms, check racks, and other facilities are required, always remembering the necessity for doors of adequate size, properly protected with jam guards. Baggage trucks, if



ENTRANCE FROM WAITING ROOM TO CONCOURSE.

not kept away from the building, will deface any structure, and curbs must be provided on any platform used by trucks. The floor level in baggage and express rooms, and its relation to the driveways and platforms, deserves consideration to facilitate handling of baggage, etc.

Canopies adjacent to the platforms providing a covered way to and from trains, are features which add a great deal to the comfort of the traveler in his use of the station. The operating official objects to the use of canopies adjacent to the tracks, and there are various laws which are specific in the clearances permitted. The use of the canopy usually detracts from the architectural beauty of the building proper.

Regardless of these objections, however, their use is becoming more general, and is appreciated by the traveling public.

The railroads are to be congratulated on realizing the importance of employing competent architects to design their passenger stations, as well as their other structures which deserve artistic treatment, and the architect should be glad of the opportunity of studying the special problem diligently, to the end that station buildings so designed may be a credit, not only to the railroad and to the city, but to the architect.

Coal Production in Canada in 1916

The Dominion Department of Mines has received from the principal coal operators in Canada, returns of their production for ten months supplemented in most cases with estimates for November and December.

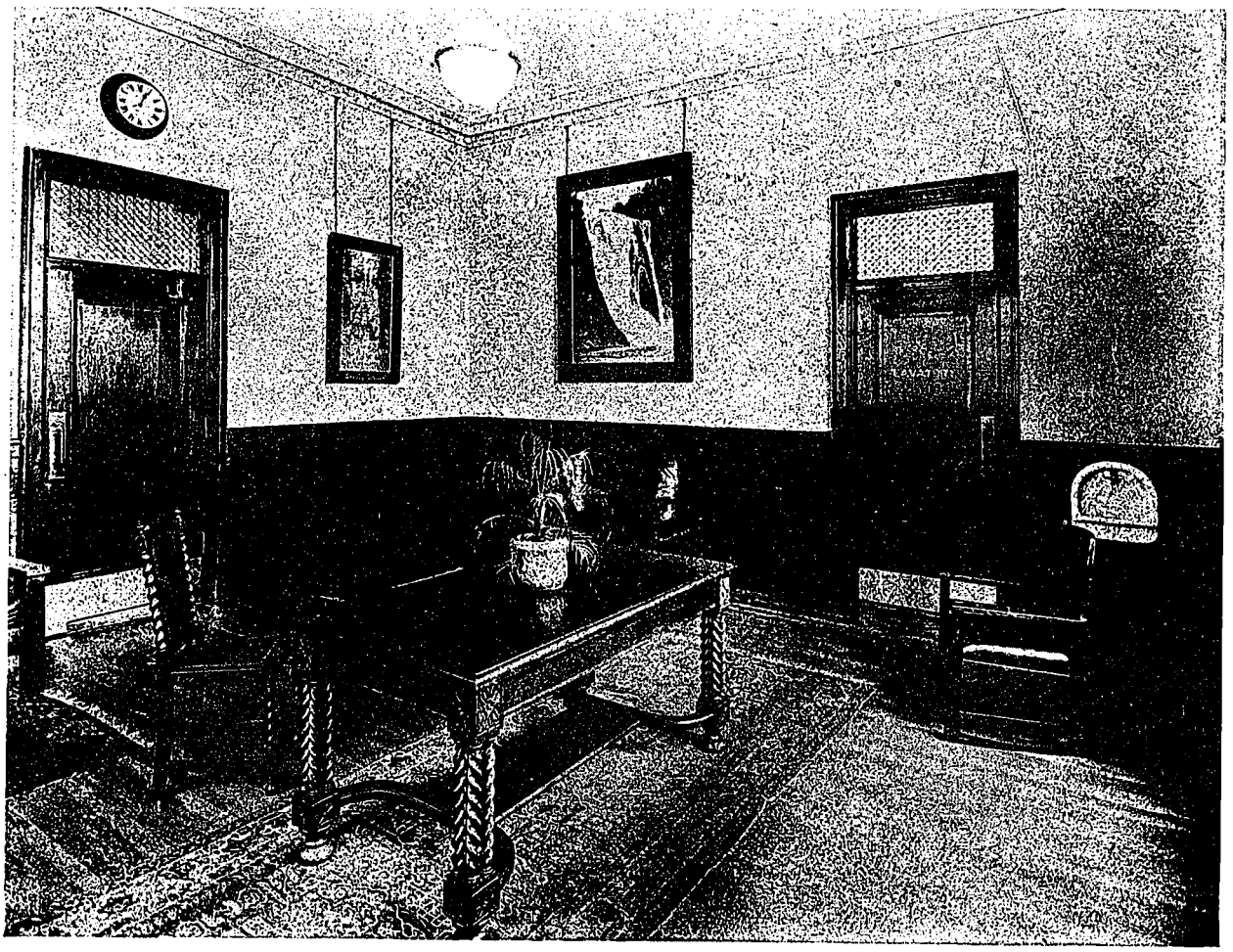
On the basis of the record available, it is estimated that the total production of coal in Canada during the calendar year 1916 will approximate 14,365,000 short tons (equivalent to 12,825,892 gross tons). The estimate is believed to be fairly close for Nova Scotia and British Columbia. In Alberta, however, there are so many small operators that final returns may show a wider variation from the estimates now made.

By Provinces, the estimate is as follows, the figures for 1915 being included for comparison.

Estimated coal production in Canada, 1916—in short tons:

	Production of Coal. 1915.	1916.	Increase or Decrease.
Nova Scotia	7,463,370	6,950,000	513,370
New Brunswick	127,391	135,000	7,609
Saskatchewan	240,107	260,000	19,893
Alberta	3,360,818	4,400,000	1,039,182
British Columbia	2,065,613	2,620,000	554,387
Yukon	9,724	.....	.....
Total	13,267,023	14,365,000	1,097,977

The 1916 production exceeded that of the two previous years, the increase over 1915 being about 8 per cent.



VIEW OF LADIES' WAITING ROOM, C. P. R. STATION, NORTH TORONTO, TORONTO, ONTARIO. DARLING & PEARSON, ARCHITECTS.

The Whalen Building, Port Arthur, Ontario

A Modern Office Building in the Centre of Port Arthur's Business District.

HAVING eight storeys and basement, built of reinforced concrete, sitting on a solid rock foundation, the building covers an area of one hundred by ninety-two feet, and there are one hundred and twelve offices in the building above the ground floor. The construction is modern and fireproof.

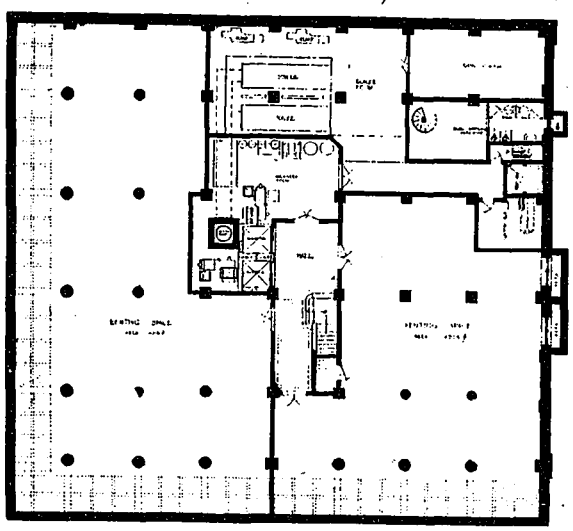
The building has a height of one hundred and ten feet above the sidewalk level, and is the outstanding landmark of the two cities. The building as a whole has been designed with an eye solely to solid business simplicity, a maximum of outside light and service, and the avoidance of using rentable space for ornamental effects. The exterior is of a light grey semi-glazed terra cotta, with trimmings of a light cream, with the base of Vermont granite. The window spandrels and mullions are of ornamental design, and constructed of cast-iron in copper green color, giving a beautiful finish to the exterior. The building as originally designed by the architects was to be of brick, and the decision to change to terra cotta was made by the owners when it was too late for the architects to amend their design to suit the change of material.

The main entrance corridor has a terrazzo floor, the partition walls are built of hollow terra cotta tile, and the base is of marble, while the ceiling is an artistic plaster design.

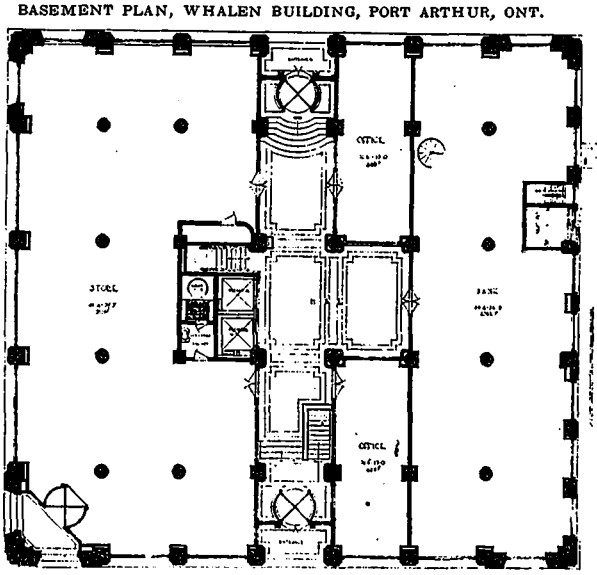
Three elevators are installed. Two high-speed passenger elevators, and the third a freight elevator.

The interior trim is of Honduras mahogany, the doors being inlaid with satin and orange wood. The corridors above the first floor have terrazzo floors, marble base and wainscoting. On each of the upper floors are two large fireproof steel vaults, containing twenty steel nests, and equipped with combination locks. All the sash are glazed with polished plate glass.

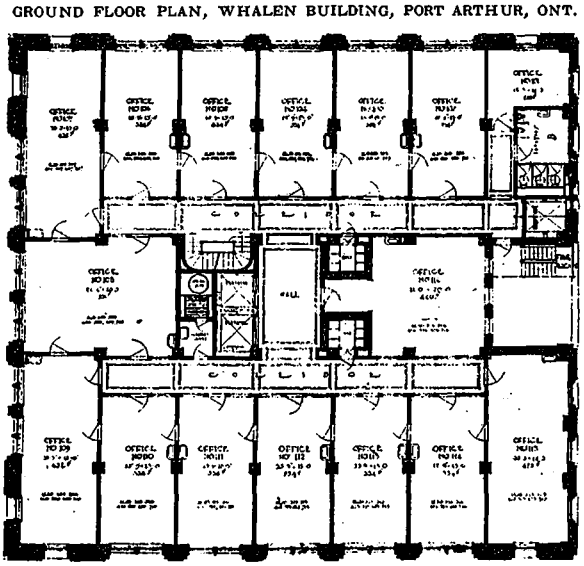
The building is heated by steam, and is thoroughly equipped with fire fighting apparatus. The architects for the building were David L. Brown and Hugh Vallance, Montreal, Que.



BASEMENT PLAN, WHALEN BUILDING, PORT ARTHUR, ONT.



GROUND FLOOR PLAN, WHALEN BUILDING, PORT ARTHUR, ONT.



TYPICAL FLOOR PLAN, WHALEN BUILDING, PORT ARTHUR, ONT.

The Increased Cost of Building

One of the most difficult questions which the architect is now called upon by clients to answer is in regard to the probability of a continuation of present prices of building materials and labor. Projects involving the construction of buildings are being delayed or held in abeyance on every hand by reason of the fact that estimates based upon prices current some months ago are in all cases being exceeded when actual tenders are submitted by builders. The client might naturally inquire of his architect whether there is prospect of a reduction in price within the next few months, and from information received we find that there exists a considerable difference of opinion on this subject. In one instance a State architect has recently advised the holding in abeyance of all construction except that considered absolutely necessary to provide accommodations for increased population in State institu-

tions. In another, we find an architect advising his clients that there is little likelihood of a material reduction in prices for some years to come. We are inclined to agree with the latter view. While, undoubtedly, the cost of construction work is abnormally high in comparison with prices which obtained to within a year of the present time, it seems doubtful whether any reductions which can be reasonably expected within two or three years will compensate for the delay in securing needed buildings of any character,—"American Architect."

WHALEN BUILDING, PORT ARTHUR, ONTARIO. DAVID L. BROWN & HUGH VALLANCE, ARCHITECTS, MONTREAL, QUEBEC.

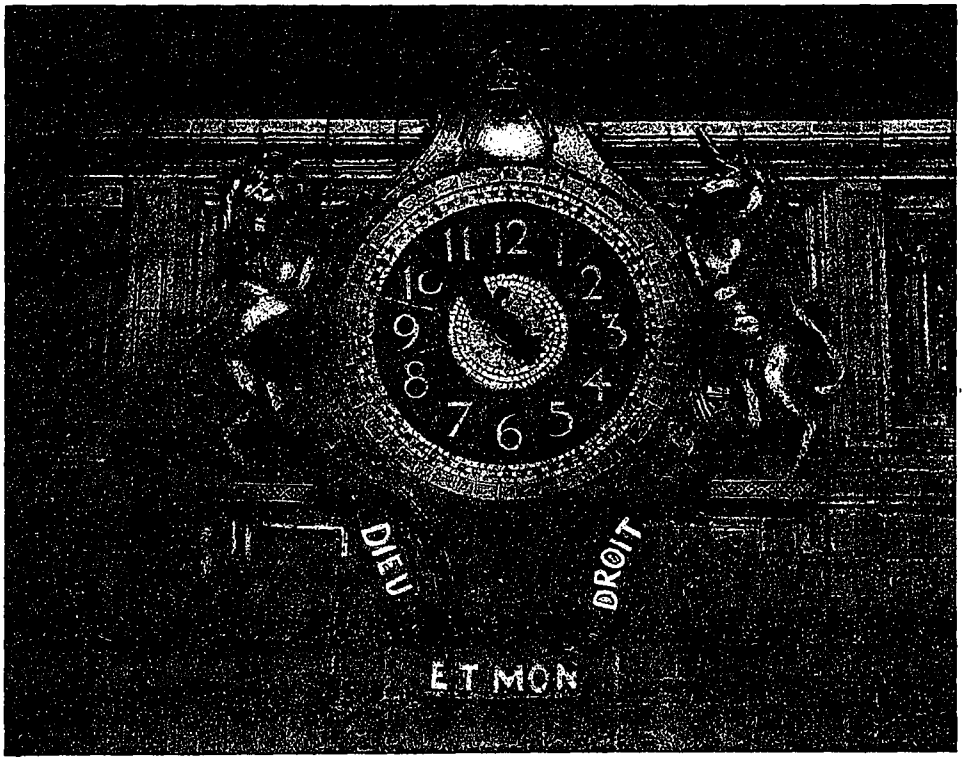
Interesting Application of Faience Decoration

A New Decorative Interior Effect of Pleasing Appearance Used on C.P.R. Station, Quebec.

THE passenger station of the Canadian Pacific Railway Company of Quebec contains a feature which may deserve special consideration from an artistic and architectural, as well as a practical technical standpoint.

The principal decorative effect of the interior has been obtained by the introduction of Faience tiling applied in a somewhat novel manner. When we call it "tiling" we strain the point to some extent, as much of the work should rather belong to the class of terra cotta. The architect, however, tried to combine the soft colors of Faience with the architectural forms, especially as the Faience enamels have a very interesting texture, which cannot be realized in the so-called polychrome terra cotta, for practical reasons.

To explain this point in a general way we state that terra cotta is burned in one firing which will only allow a very thin coating of enamel, which, to give the desired color effect must be opaque, while Faience is covered in a second burning with a very heavy enamel, which is semi-transparent, and retains a certain translucency for the surface. Accidental shadings and separations of coloring add furthermore to the artistic effect of Faience.



DETAILED VIEW OF CLOCK-FACE. THE ENTIRE FACING IS MADE OF FAIENCE.

The limitations, however, in Faience consist of the impossibility to manufacture it in the same large sizes or pieces as terra cotta, and it was therefore necessary to construct the various members in many pieces, which were manufactured and burned separately, and assembled at the building. Some of the larger decorative pieces—the cartouches, brackets, clock faces, etc., were modeled in the original form and afterwards cut into convenient sections. While the final effect was, of course, a matter of speculation, the result was entirely gratifying, as the mosaic character of the work, showing many jointings, is thoroughly in harmony with the texture of the walls of the interior, which consist throughout of so-called "tapestry brick."

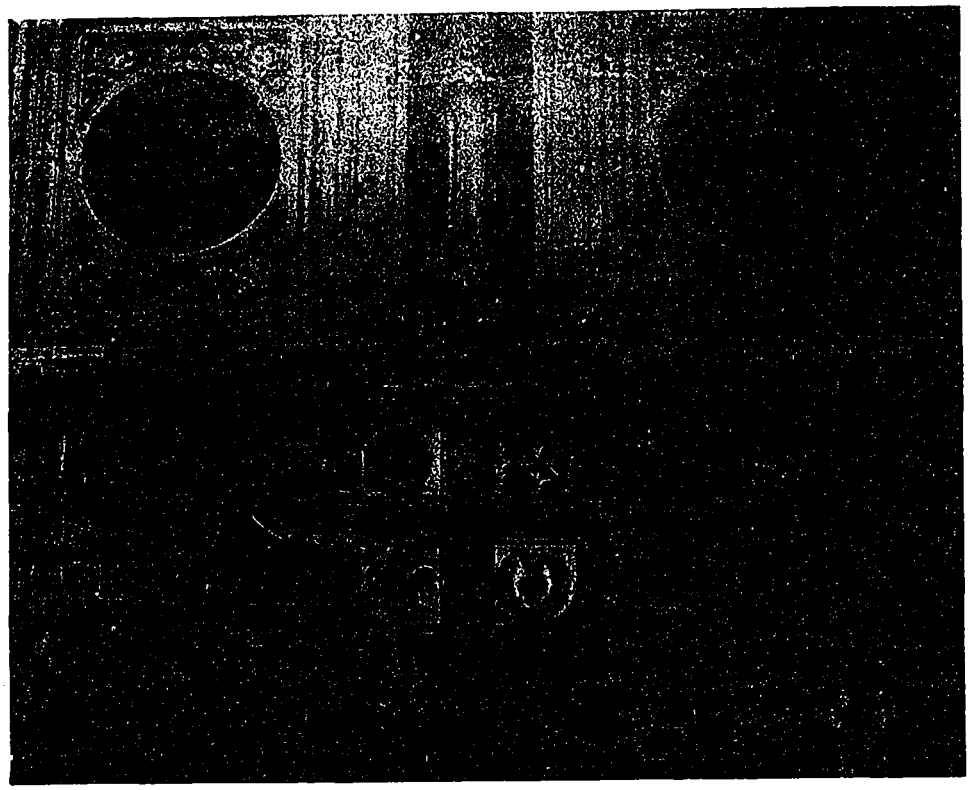
The large wall space of the concourse was furthermore decorated with innumerable Faience inserts in contrasting colors, which produces a very interesting texture.

The general tone of the Faience is a light, creamy buff. Cartouches and more decorative members are treated in polychrome and gold. The motives employed consist of English, French and Canadian emblems and escutcheons, and smaller illustrative details show symbols of transportation, agriculture, fisheries, etc. A very interesting feature is a well-conceived martial beaver surmounting a symbolic Canadian Coat-of-Arms at the entrance to the concourse.

The most conspicuous piece is a large clock-face in front of a balustrade. This piece may be called a fine work of the sculptor. It represents Lion and Unicorn rampant, sustaining a cartouche with the large clock-face, on which rests the Crown of England. The entire casing is made of Faience.

The dome is lined with Faience mosaic, which is set in sections to produce a fine architectural effect.

The entire work was done under the supervision of Mr. Harry E. Prindle, the architect of the building, who consulted constantly with the



DETAIL VIEW OF SYMBOLIC CANADIAN COAT-OF-ARMS SURMOUNTED BY MARTIAL BEAVER AT THE ENTRANCE TO THE CONCOURSE.

manufacturer of this work, and directed every detail. As the setting and assembling of the material offered special difficulties, much credit must be given the contractor.

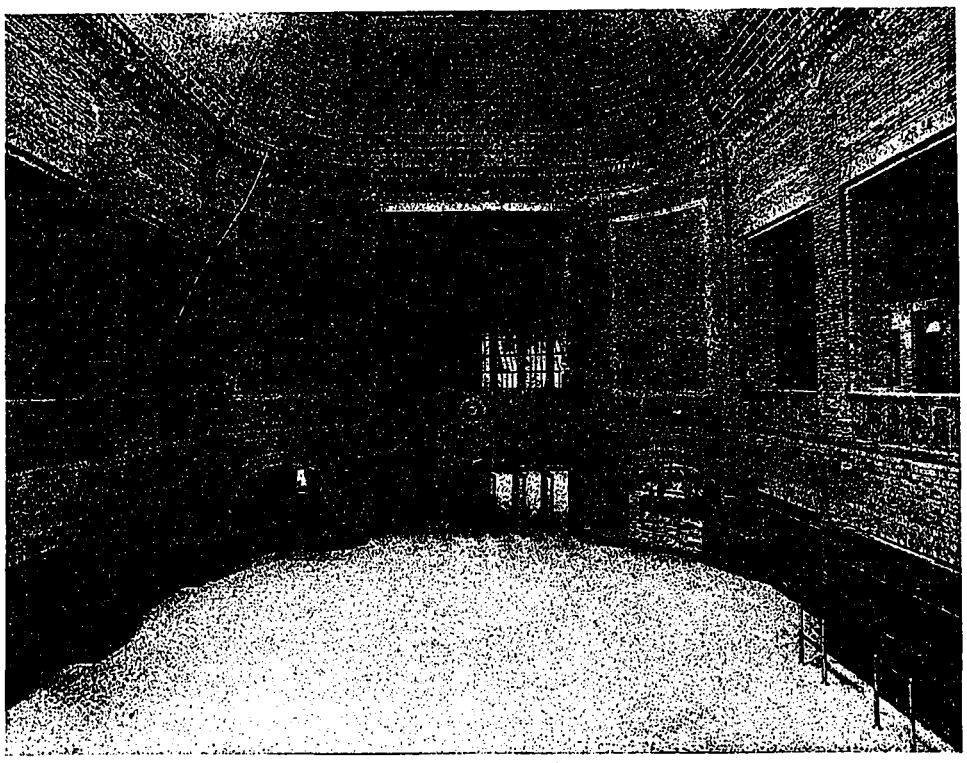
The Higher Cost of Painting and Decoration

By Arthur Seymour Jennings, F.I.B.D., in February (London, Eng.) "Builder."

Notwithstanding the high prices of materials and the difficulty of obtaining competent craftsmen at the present time, it is necessary that a certain amount of painting be done, principally in connection with outside work, with the object of protecting it. And some interior decoration must also be carried out, on the principle that, although in war time we are content to wear old clothes, there is a limit to shabbiness.

The question arises, What is the best course to adopt under existing conditions? My answer is, use specially-prepared paints ready mixed for application, but select them with great care. I am well aware that there exists among master painters a strong prejudice against such preparations, principally on the ground that they do not know what such paints contain. It is claimed that when pure white lead, linseed oil and turpentine are employed, the painter knows what he is using, and in the light of his experience with such materials is able to gauge the durability of the mixture with some amount of accuracy. Now, as a matter of fact, white lead, however pure it may be and excellent as it doubtless is for many purposes, is nevertheless not the best pigment to use under certain circumstances. An admixture of pigments, such as two-thirds of white lead, about one-third of zinc-oxide and a small proportion of inert material, gives far better results, but this opens up a wide question which need not now be discussed. The point is that the actual mixing of paint is the operation which necessitates the most expert experience. If a paint is imperfectly or improperly mixed a durable job is impossible. By using a first-class prepared paint one-half the difficulties vanish.

We take a first-class brand of ordinary oil paint, ready prepared for application and suitable for use either inside or outside, by way of ex-

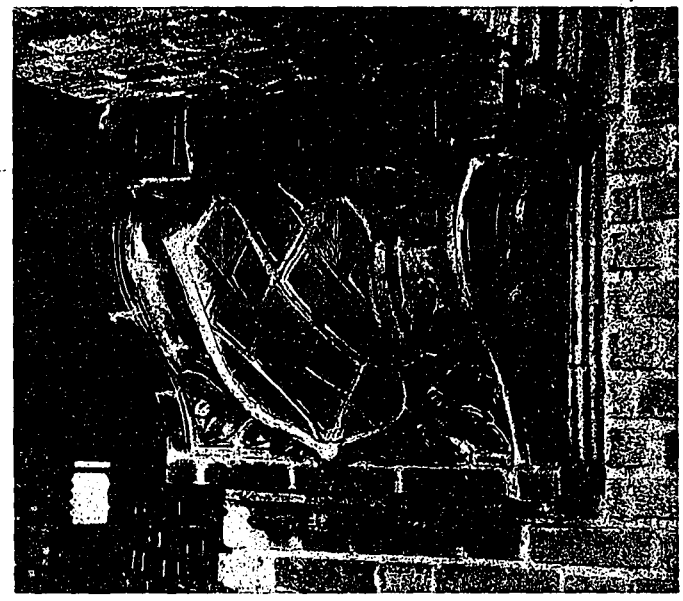


A PARTIAL VIEW OF DOME AND CARTOUCHES AND OTHER FAIENCE DECORATIONS.

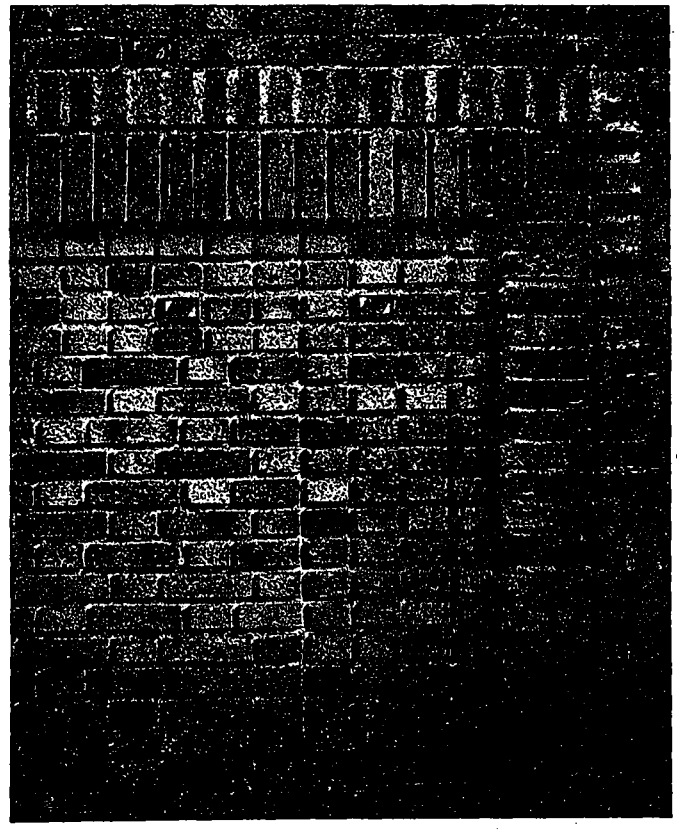
ample. The best paint of this description costs at the present time rather more than one mixed in the ordinary way from white lead, because it contains a proportion of zinc-oxide in its composition. That pigment, while adding considerably to the durability, is very high in price at the present time for reasons which will be readily understood. Such a paint, however, being of really good brand, is sure to be thoroughly well mixed by ingenious machinery, and is always entirely free from "specks" and "bits" which so seriously mar the work when an improperly mixed and strained paint is used. Another objection raised by painters to the use of ready-mixed paints is this, they claim that the quantity of thinners, *i.e.*, linseed oil and turpentine, must be varied according to the nature of the surface to which the paint is to be applied, and this is true enough, because it is obvious that a very absorbent surface will require the use of considerably more thinners than one which is not absorbent. Although the mixed paints contain a uniform quantity of thinners, it is an easy matter to pour off a part of the oil and turpentine which is always found at the top of the can should the work to be painted be of a very non-absorbent character, and it is equally easy to add a little turpentine and oil when greater fluidity is desired.

Contrary to the prevailing opinion, it is the preparatory work in painting that is really of much more importance than the finishing coats, because, if the foundation is bad, the job can never be made a good one. If, therefore, one had to deal with a staff of, say, half a dozen men, but only one or two of them were experienced, they should devote their time to the stopping and preparation of the wood and other work, and particularly to seeing that the paint is suitable in consistency for the job in hand. The experienced man will know the necessity of varying the amount of thinners in each coat not only according to the condition of the surface to which it is to be applied, but also in order to ensure that alternate coats are "sharp," *i.e.*, mixed with plenty of turpentine and comparatively little oil, and glossy, which means less turpentine and more oil. By alternating the coats in this way the most perfect adhesion between them is produced, and it is for this reason that in any ordinary painted work the coat immediately under the finishing coat is mixed to dry almost flat if the finish is to be glossy, and it is for the same reason that the work which is to be finished with enamel or varnish is always done with a flat coat immediately beneath such varnish or enamel.

The work having been properly prepared and the paint properly mixed, the application must be done with the best labor available, and if this is the work of an inexperienced man, who can, however, handle a brush, the great thing to impress upon him is the fact that he must well "brush out" the paint. In other words, he should use as little paint as he can to cover the required surface. If he will regard the paint as being very precious and use it accordingly, he will be likely to meet with some success. Amateurs almost invariably put far too much paint on their work, and this gives rise to runs, wrinkling and many other troubles. Varnish and enamel are applied on exactly the opposite principle; instead of using as little as possible, one puts on as much as the surface will take, carefully avoiding, however, any risk of runs. A simple but effective knack used by painters



DETAIL VIEW OF FAIENCE DECORATION IN POLYCHROME AND GOLD.



AN EXAMPLE OF TAPESTRY BRICK WORK, QUEBEC STATION.

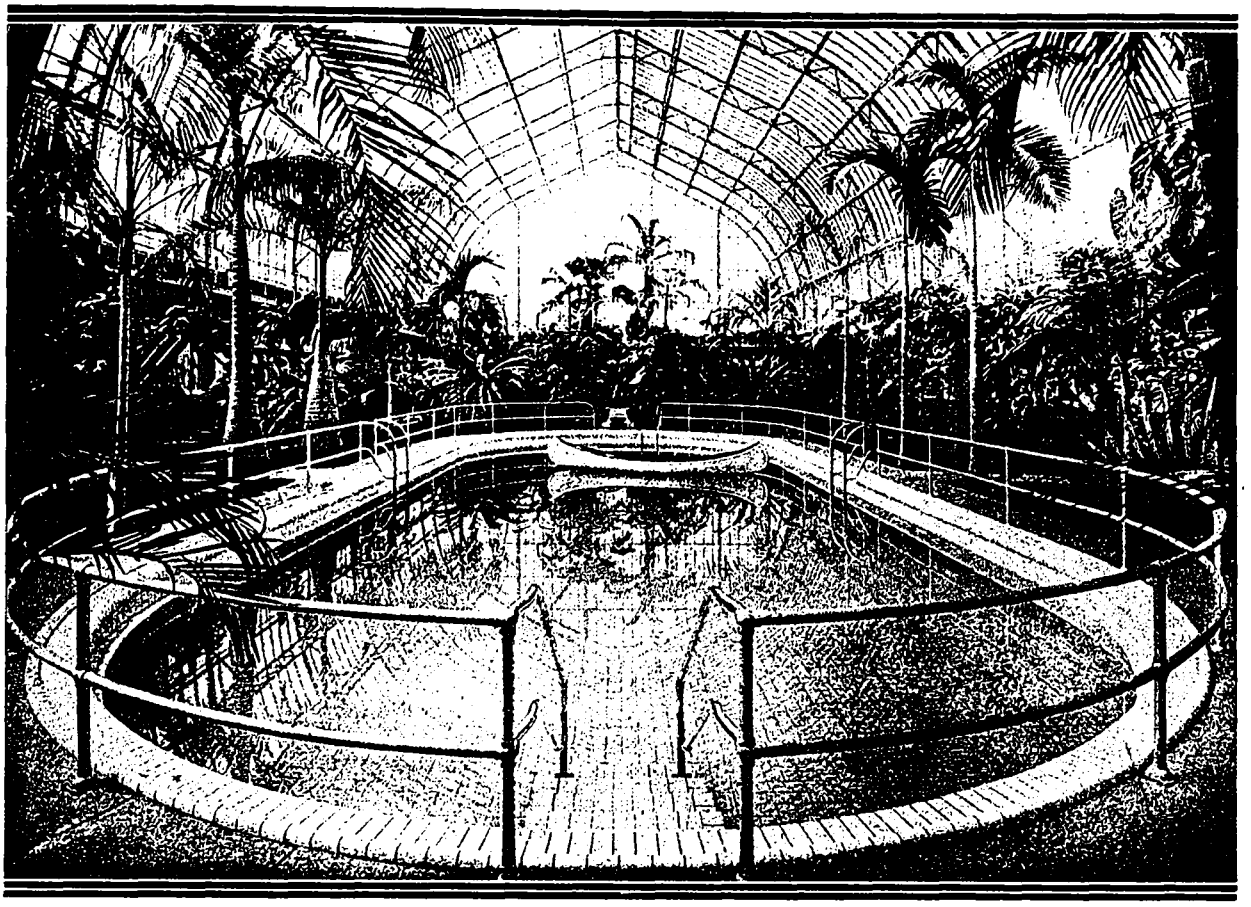
after painting or varnishing a door, particularly the latter, is to always complete the operation by drawing the brush from the bottom of the woodwork in an upward direction.

Perhaps no part of the exterior work of buildings in these days can be considered more important or necessary to be kept painted for protective purposes than iron, because, when once rust commences, it is very likely to spread rapidly. Exterior ironwork which forms part of buildings does not require the high degree of finish necessary for internal work. The success here depends upon two principal factors, the first a complete removal of all rust, and second, a selection of paint specially designed—I use the word advisedly—for the purpose of protecting iron or steel. If the ironwork is badly rusted in places, it may be necessary to burn off all the old paint and to follow with a thorough scraping, in order to get a clean surface. The use of wire brushes is strongly recommended for this purpose. They may be had in varying degrees of flexibility and in several shapes, such as that of an ordinary housemaid's scrubbing brush, while others are in form very much like a large tooth brush.

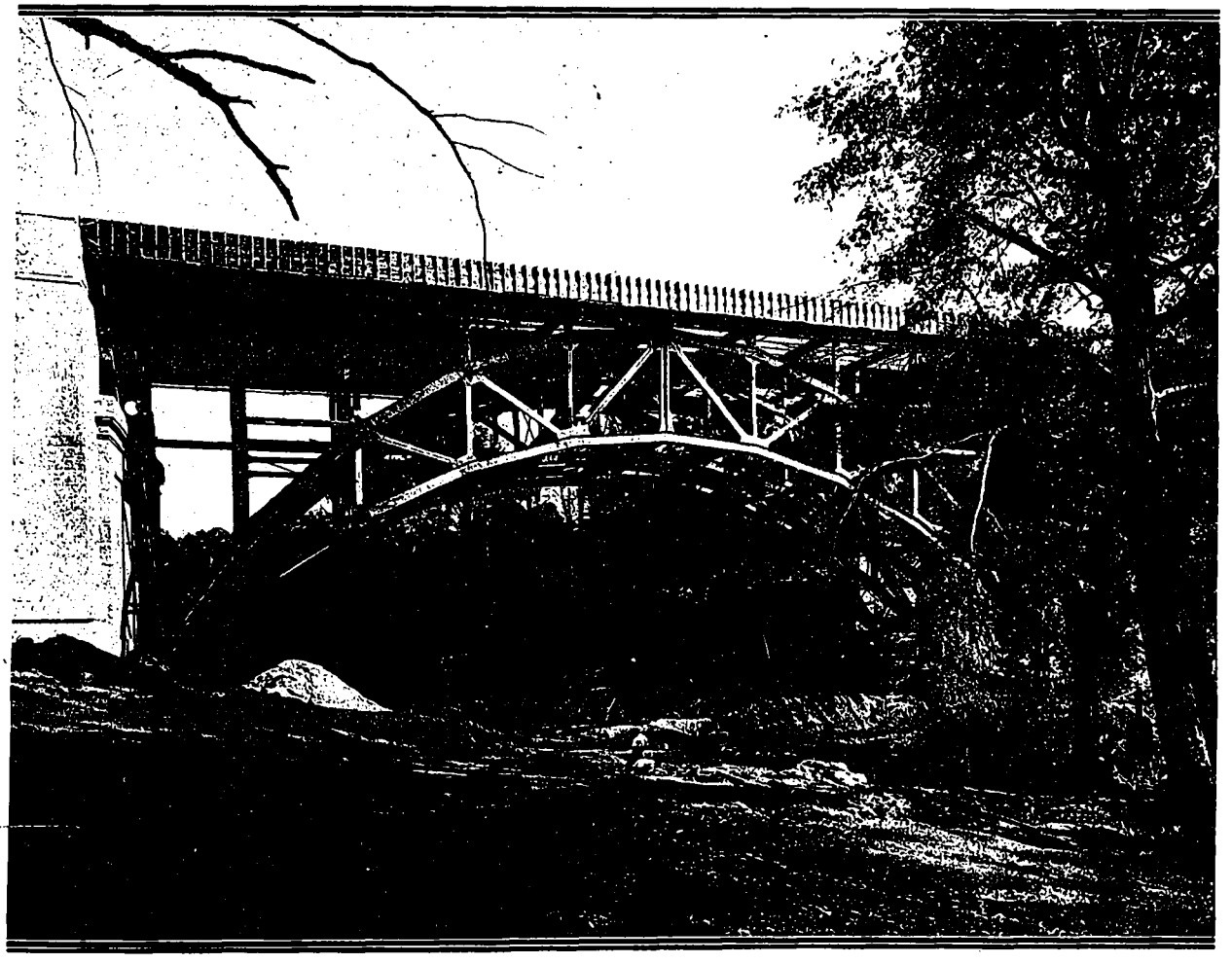
As to the paint which is best calculated for the preservation of iron when exposed to the weather, much difference of opinion exists. Some architects and builders prefer red lead to anything else, and add a little lamp black to tone down the color when it is necessary, others again much prefer iron-oxide, while graphite has also many experienced men in its favor. Here again the subject is too large to treat at length in this article. The writer's opinion is that the best paints are those which are specially prepared for application to iron; there are many excellent brands on the market which are the result of observations conducted for many years. They almost invariably consist of an admixture of pigments specially selected for the purpose, and are more expensive than either of the paints already mentioned. When it is considered, however, that the cost of applying a paint is at least twice that of the cost of the paint itself it will be seen that there is no economy in using anything but the very best paint that can be manufactured for the particular purpose in hand.

Tungsten Production From Canadian Ores

Considerable interest has been aroused by the details recently published as to the production of tungsten in England from ores mined in the Dominions. Tungsten is an essential ingredient of high-speed steel, and previous to the war Germany had practically a monopoly of the supply. This is no longer the case, a powerful British company having been formed to develop the industry for Imperial use exclusively. Tungsten is an exceedingly refractory substance with a melting-point higher than that of any other metal, its fusing temperature being about 3050 degrees centigrade. It is that characteristic that makes it suitable for electric-lamp filaments. It is so hard that it will scratch glass, and it is unaffected by most acids, while it does not rust; and tungsten drawn wire is stronger than the strongest steel piano wire. Until the electric furnace made possible the production of pure tungsten from the ore it was not available for commercial purposes, and it is only within recent years that methods have been evolved for producing pure metallic tungsten, and more recently for drawing it into wire. Tungsten as ordinarily supplied is exceedingly brittle, and it was long considered impossible to make it ductile so that it might be drawn into a wire. However, untiring research in the Mazda Lamp Laboratories was eventually crowned with success, and the seemingly impossible became an established fact. In the early stages of the development of drawn tungsten wire its production was attended with the greatest difficulty. At first a piece of a few feet long was a wonder, but now a piece a mile long, and of absolute uniform diameter, is commonplace. A filament of drawn tungsten wire can now be made far more accurately and of more uniform quality than the old carbon filament. It is acknowledged that the discovery of the process of rendering tungsten ductile is one of the greatest scientific discoveries of recent times. Since tungsten has been available in ductile form its uses have greatly multiplied. It is coming into general use as a contact material for electrical apparatus, for special electrical furnaces and for other purposes where a high melting point is essential. Another interesting use for tungsten is for targets in X-ray tubes. Dealing more specifically with the use of tungsten for the filaments of incandescent electric lamps, it will be realized how great is the value of this improved form of filament when it is stated that from the latest Mazda half-watt type lamps an equal amount of light can be obtained by its use for a power consumption of approximately one-eighth that needed when carbon filaments were the only type available. The light given by the half-watt type of lamp with this filament is exceedingly brilliant, and closely resembles daylight. In view of the present need for economy the drawn tungsten wire filament for electric lamps is of national importance. It is interesting to note, by the way, that the supply of tungsten for filament making does not interfere with national requirements in connection with high-speed steel, etc., as the amount required by comparison is extremely small—a handful of the bright steel grey powder, with peculiar metallic lustre, being sufficient for the manufacture of a thousand or more electric-lamp filaments.



A PALM GARDEN POOL IN SAN FRANCISCO, CAL.



BLOOR STREET VIADUCT, TORONTO—ROSEDALE SECTION.

Practical Perspective Methods For Office Use

An Interesting Article With Accompanying Illustrations by Robert Fuller Jackson.

THE use of perspective drawings in architects' offices is so general and important that no draftsman's training can be considered complete without a fair knowledge of the subject. Unfortunately, most draftsmen dislike perspective work and never attain proficiency in it, because as ordinarily taught it is unnecessarily slow and tedious. The purpose of these articles is to explain some methods and devices by means of which the work of laying out perspective drawings may be materially lessened. These methods are not original, but they are far less known than they should be, in view of their great value to the profession.

In approaching the subject, a few definitions are necessary. The following is a list of the terms and abbreviations most generally used, with an explanation of their meaning. While this is the general use of these terms, they vary somewhat in different treatises on the subject.

PICTURE DIAGRAM—the image projected upon the picture plane seen in elevation from the front side, including the perspective projection of the object, called the picture.

P.P.—PICTURE PLANE—vertical plane of projection on which the picture is made.

S.P.—STATION POINT—the observer's eye.

C. of V. or C.V.—CENTRE OF VISION—the point directly opposite the eye and level with it.

VISUAL ANGLE or ANGLE OF VISION—the angle determined by the extreme limits of the object included in the picture from the observer's eye.

C.L.V. or C.L.—CENTRE LINE OF VISION—formed by the vertical plane through the S.P. with horizontal planes in plan, and with P.P. in the picture diagram seen in elevation.

RECEDING LINE—one that is not parallel to P.P.

VANISHING LINE—one that goes to a V.P. in perspective.

V.P.—VANISHING POINT.

D.P.—DISTANCE POINT—the V.P. of a line at 45 degrees to P.P. in plan.

D.V.P.—DIAGONAL V.P.—or V.P. of the bisector of an angle of 90 degrees in any plane.

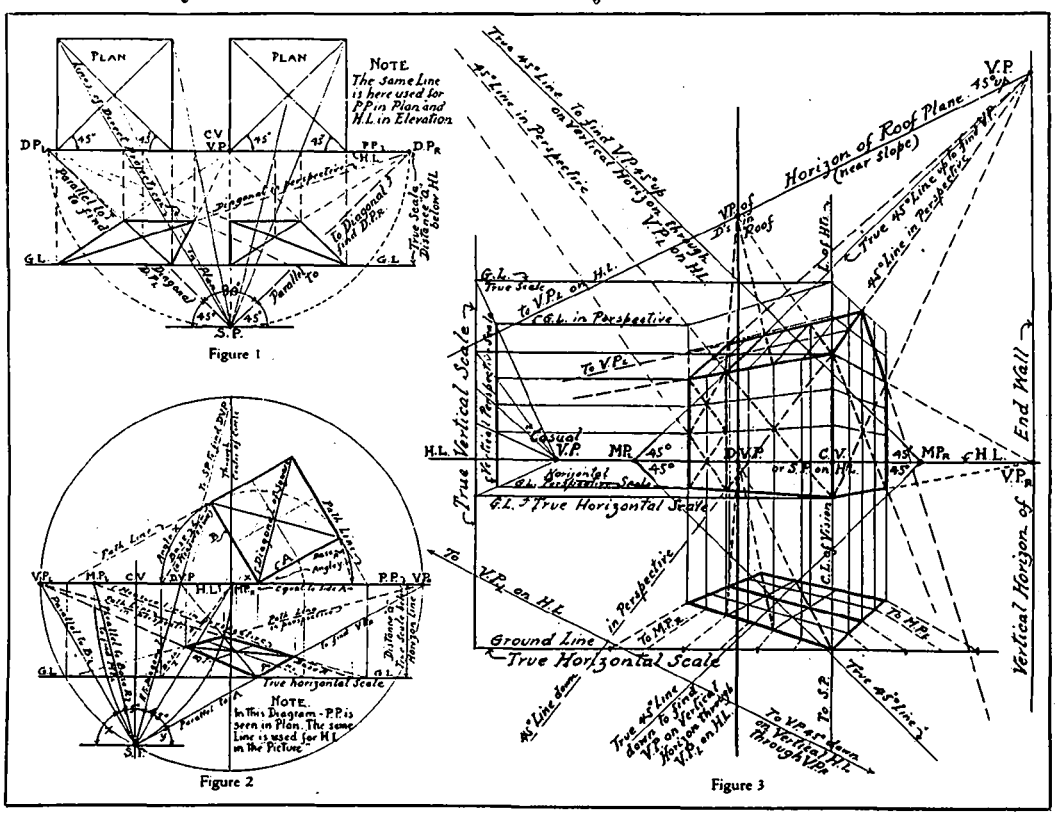
M.P.—MEASURE POINT—the V.P. of a line which makes equal angles with a receding line and with P.P. in plan.

H.L.—HORIZON LINE—the eye level in the picture diagram, or section diagram, or on elevations.

OTHER H.L.'S OR VANISHING TRACE OF PLANES—used loosely to denote any line toward which parallel planes vanish in perspective, whether the planes are horizontal, vertical, or inclined. The drawings show that no confusion results from this notation.

G.L.—GROUND LINE—the horizontal scale line formed on P.P. by any horizontal plane which cuts it.

L. of Hts.—line of heights or vertical scale line.



A perspective drawing can be made without the use of V.P.'s or M.P.'s, but the time saved by their use is worth saving if there are several parallels to be drawn.

Any V.P. (whether a V.P., D.P., D.V.P., or a M.P.) is found on P.P. by drawing through S.P. in plan a vanishing line parallel to the given line whose V.P. is required.

The V.P. is then transferred to the horizon in the picture and used for all lines parallel to the given line.

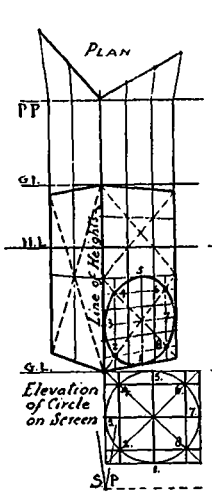


Figure 4

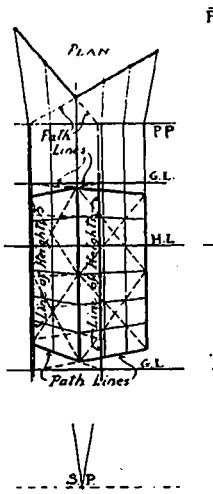


Figure 5

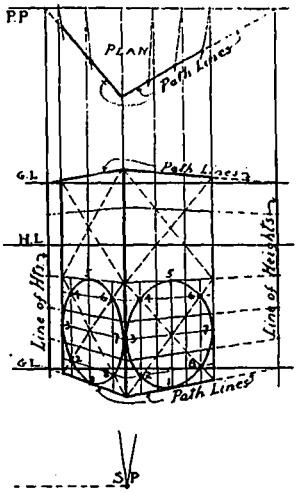


Figure 6

MEASURE POINTS. The theory of the M.P.'s is simple. In Figs. 1 and 2 receding lines vanish to their proper V.P.'s. To divide or mark off in perspective these lines into definite divisions or lengths, the principle of the isosceles triangle is used. Lines drawn parallel to the base of an isosceles triangle cut its equal sides in the same measures or divisions. The receding lines are drawn in perspective, and the required divisions are laid off on the other sides in the P.P. (on a G.L.) and taken to the V.P.'s of the bases of the isosceles triangles. In Fig. 1 the base makes an angle of 45 degrees with P.P., and its V.P. is D.P., which is thus the M.P. for perpendiculars to P.P. In Fig. 2 the V.P.'s of the bases of the two isosceles triangles formed by them and the receding lines and the sides in P.P. are the M.P.'s of the receding lines. The short way of finding any M.P. of a line is to lay off the distance from its V.P. to S.P. on H.L. This obviates the use of the plan in fixing M.P. on H.L. Fig. 2 also shows two ways for finding the D.V.P. (1) By drawing a vertical through the centre of H.L., between the two V.P.'s, and connecting the upper end (on the circle) with S.P. Where this line cuts H.L. is the D.V.P. (2) By bisecting the 90 degree angle formed at S.P. by the two vanishing parallels. Where the bisector cuts H.L. is the D.V.P.

HEIGHTS IN PERSPECTIVE. The level ground on which an object stands is a horizontal plane. Where it cuts P.P. is the ground line, a true scale line from which heights can be measured vertically. There is properly only one G.L., but custom calls all horizontal lines formed by horizontal planes cutting P.P., G.L.'s, so that by extending the horizontal plane containing any point or line till it cuts P.P., the scale height is determined in the picture. In Figs. 1 and 2 the G.L. is distance "a" below H.L., which is the height of the figure below the eye. What we term path lines are lines which recede in perspective to a V.P. To find the height of a path line, it is extended to cut P.P. at its true scale vertical distance from H.L.

If a vertical plane or wall of heights is drawn through any path line, it will cut P.P. in a vertical line called a line of heights, and any height in that plane can be scaled on this line, and carried back to V.P. by horizontal parallels to find the perspective heights of points in that plane. (See Fig. 3.) It is convenient to use a L. of Hts. in the left margin of the picture, out of the way of other lines, to avoid confusion. Any "casual" V.P. may be taken on H.L. for carrying back into perspective horizontal parallels of height, laid off on this scale line of heights; and G.L.'s carried horizontally until they cut this wall of heights can be measured at that perspective distance on a vertical scale line of heights there, or can be taken forward along the path wall to the larger scale L. of Hts. in the P.P.

This matter of finding heights is often puz-

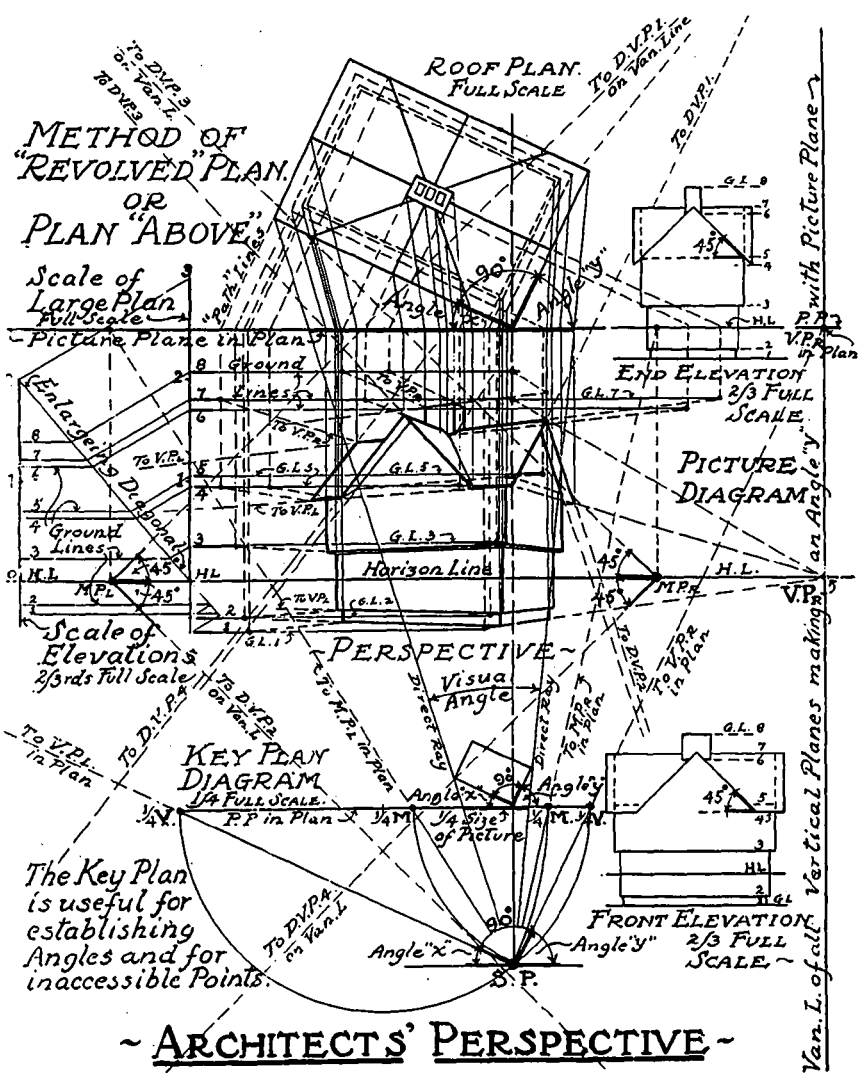


Figure 7

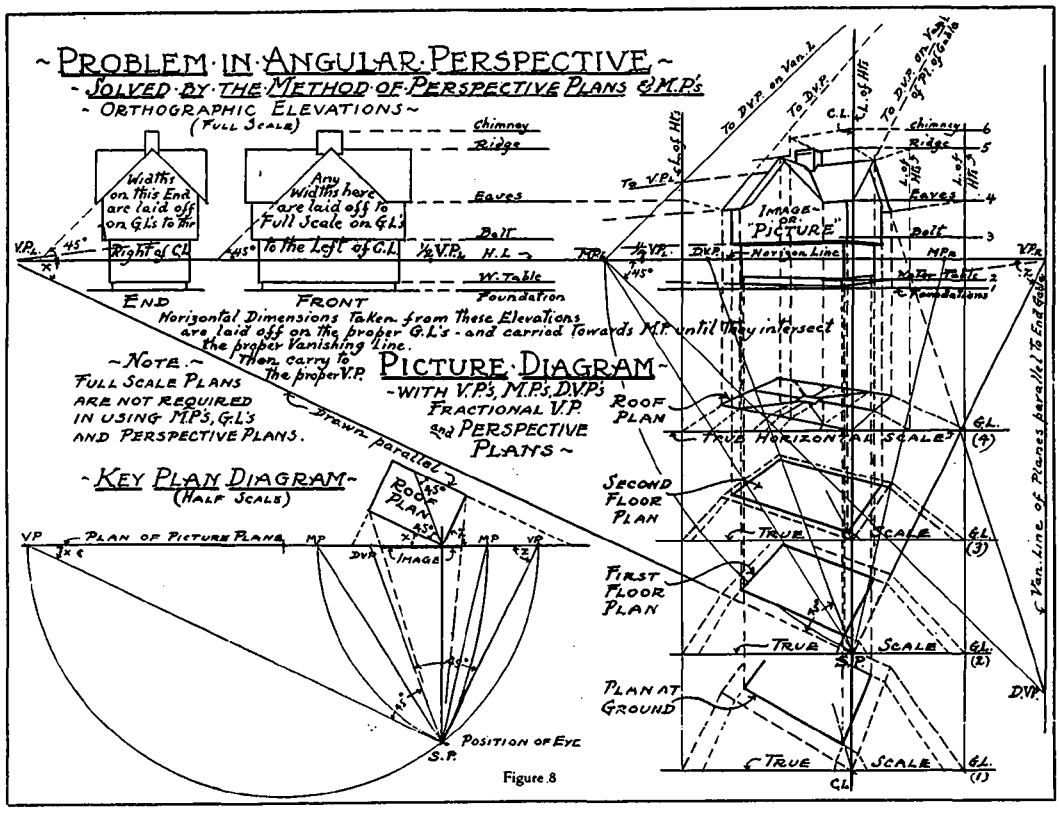


Figure 8

zling to draftsmen, but is so simple if once understood that space will be given to a full explanation of finding lines of heights for different positions of the P.P. in relation to the object in plan.

In Figs. 4, 5 and 6 a double fold screen is shown in angular perspective. The P.P. is taken in Fig. 4 on the corner of the screen; in Fig. 5 P.P. is taken forward of the screen; in Fig. 6 P.P. is taken back of it. If P.P. touches a receding line of the plan, a line of heights can be erected at this point. In Fig. 4 this corner lies in both of the receding lines representing the two planes of the screen, and it also lies in the P.P. Therefore a L. of Hts. at this point serves for finding the heights of horizontal lines in both planes, which are thus walls of heights.

If the P.P. cut the screen back of the corner, two lines of height could be erected, one at each point where it cuts the two receding lines. In Fig. 5 P.P. is wholly in front of the screen, so that it does not touch or cut either receding line unless they are extended purposely. They are so extended in order to establish points on P.P. for erecting L.'s of Hts. Still being path lines, receding to V.P.'s, heights of points in either plane can be scaled on each line of heights and carried back to their perspective positions as determined by direct projection in plan, or by using measure points and G.L.'s for measuring their horizontal distances from P.P. along the receding path lines which contain the points. Fig. 6 differs from Fig. 5 only in that the receding path lines are extended backward to cut P.P. instead of forward, in order to establish L.'s of Hts. From these, at true scale, the heights are carried forward from the proper V.P. along the proper path line to the proper perspective positions of the points, by the same methods as in the other cases.

WORKING METHODS. There are several methods of making a perspective drawing. The two most commonly used are the "revolved plan" and that of the "measure points" for finding the perspective location of points; both methods employ the G.L.'s and the lines of height.

Parallel perspective differs from angular perspective only in the fact that in the first the main lines are parallel with P.P., and in the latter the main lines make angles with it. The principles of both are identical.

Fig. 7 shows a building solved by direct projection in plan, and Fig. 8 shows the same building solved with M.P.'s, with auxiliary perspective plans for each separate storey.

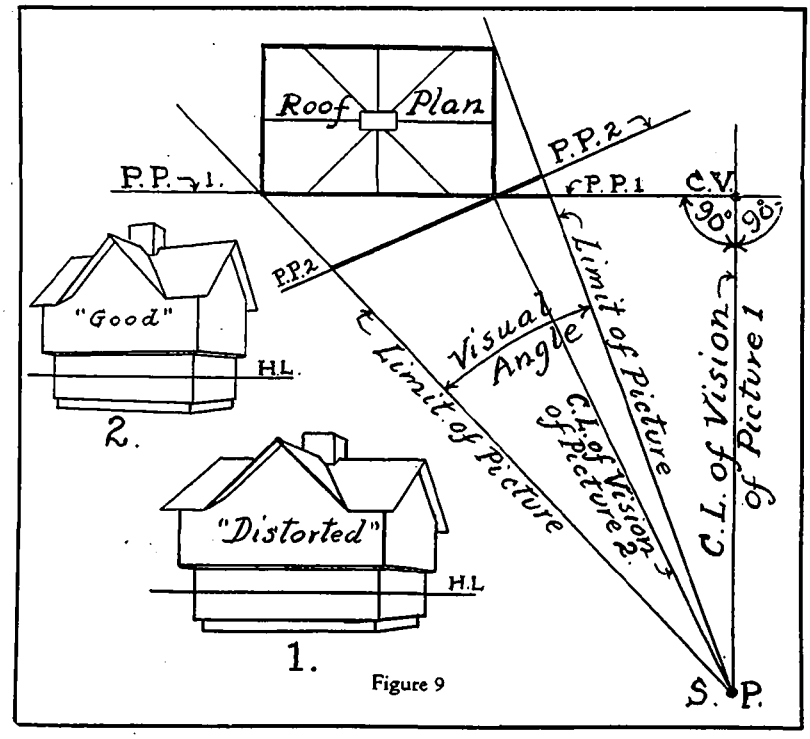


Figure 9

THE PERSPECTIVE PLAN. The use of a perspective plan when the solution is by M.P.'s is especially valuable for finding the position of points in planes near the horizon. This is because the lines (measure lines and receding lines in perspective) which determine the positions of the points become so flat that their intersection is apt to be indefinite. By taking a G.L. far from the H.L. their intersecting angle becomes acute, thus making the point of intersection definite. Another purpose of taking a G.L. far above or below the H.L. is to keep the auxiliary plan away from the main picture, thus avoiding the confusion of crowded lines.

The height of the plane on which the perspective plan is made for the sole purpose of locating position of points does not affect their actual height positions, which are found on lines of height erected on path lines cutting P.P. as described above.

The use of M.P.'s and the perspective plan obviates the necessity of a plan diagram, and enables the whole process to be kept within a small compass in the picture diagram. It also serves as a record of the work at all stages, so that a drawing partially completed can be left and finished later by another draftsman, while the use of the revolved plan gives no such record of positions of points which have been ticked off from the plan. This method also enables corrections and changes to be made, and parts of the design to be studied in perspective and put back into plan and elevation without confusing the drawing.

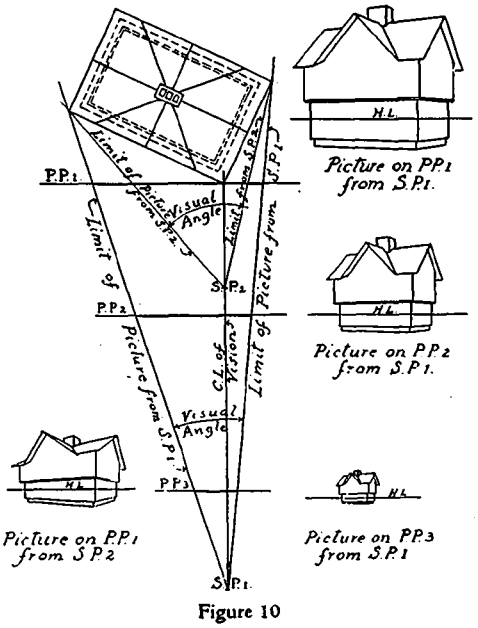


Figure 10

DISTORTIONS. Probably the most common fault made in drawing perspectives is in choosing an unfortunate position for S.P. A good rule is to place it in front of P.P., so that the width of the picture limits is included within the normal visual angle.

If the S.P. is too close to the object, the extreme high and low vanishing lines will make disagreeably sharp angles with H.L. If it is taken too far away, the vanishing lines will become more and more flat, or parallel with the horizon line in proportion to its distance from the object. This effect is one that is seen in a photograph taken with a telescopic lens. It is restful, but is not often natural, and in the making of a perspective drawing a distant S.P. means that at least one of the V.P.'s will be so far away on the H.L. as to become impracticable. Certain devices are used when these inaccessible V.P.'s occur, which will be described in the second paper of the series.

In selecting a viewpoint so as to bring into view the best features of the subject, the easiest method is to draw the P.P. in plan, and to place the plan of the object with a corner on P.P. At a point approximately opposite the centre of interest, locate S.P. at such a distance in front of P.P. that the visual angle determining the limits of the picture, formed by enclosing lines from the outer points of the plan to the S.P., will make an angle of less than 60, and preferably little more than 30 degrees.

It is better to revolve the plan so that one side makes a greater angle with P.P. than the adjacent one, both because one side of the object usually has more of interest to be shown, and because vanishing lines to two equidistant V.P.'s are stiff and monotonous. In other words, it is better practice to place the plan so as to make unequal angles with P.P. rather than to place it so as to make two angles of 45 degrees and move the centre of interest to one side of the centre line of vision in order to make the V.P.'s unsymmetrical. The reason is that if the centre line of vision is made to fall outside of the visual angle, the resulting perspective is distorted and unnatural. Fig 9 shows this, in the case of parallel perspective in "1," while "2" shows the same building from the same S.P., but with the plan turned so as to make the C.L. of vision fall within the angle of vision.

Fig. 10 shows the distorted effect of the S.P. taken too close, at S.P. 2, and the effects of taking the P.P. at different distances but parallel to one another. The result is simply a change in size of the resulting picture, the diminution being directly proportional to the nearness of P.P. to the S.P.—"The Architectural Forum."

The Anarchy in Architectural Design

A correspondent to the "Journal of the Royal Institute of British Architects" commenting on a recent address by Professor Lethaby, in which he referred to the difficulty in "getting around the corner of conflicting styles," writes, in part, as follows:

"Never in the history of architecture, during the past ten thousand years or more, has there appeared such a hybrid jumble of design, such a blind groping after right method, as has been seen in England during the last hundred years or so.

"Up to that time art was all of a piece—or at any rate it is sufficiently accurate for the

present purpose so to consider it. Since then, however, architects have not been able to handle, much less weave into an orderly system of thought, the plethora of conflicting ideas and tendencies which have arisen. This somewhat startling fact appears to be accepted by the majority of architects not as a catastrophe, but as part of the inevitable scheme of things, about which we must not make much pother, or we should be regarded as cranks, to the detriment of our pockets.

"This attitude is not merely thoughtless and mistaken, it is more serious, as Professor Lethaby said, 'It is a question of survival'; for, although he used these words more especially with reference to the 'advertising plague,' I suggest he would quite as heartily apply them to the 'internal anarchy of style from which we suffer.'

"Investigations into the fundamental causes leading to the present social condition of the country have already been made, and are being made, from the standpoint of economics, etc. This is to be expected, as the economic cause precedes æsthetic reaction; but the time has surely arrived when we should strive to obtain a more precise mental articulation than we have hitherto had as to the fundamental causes which have led to our present æsthetic condition, seeing that these causes present themselves as a fairly complete chain dating back to the seventeenth century, culminating with the Gothic revival, the history of which shows how unable the architects of the last century were to grasp the metaphysical truth that 'you cannot put your foot into the same steam twice.'

"By conferences, discussion, and a considerable amount of thinking we ought to be able in course of time to evolve a body of doctrine very much sounder in its ultimate basis than the present muddlement—doctrines not to be codified into hard formulæ, but held as spiritual convictions governing decent architectural behavior. Not till then shall we be in a position to hand on to pupils and students of architecture even an elementary theory of æsthetics based upon some sort of reasonable foundation; or shall we be able to rid ourselves of the harmful incubus of the nineteenth century and speak with a voice sufficiently united and convincing to influence the world of men and things."

English Banker Advocates Metric System

An earnest plea for the adoption by Great Britain of the metric system of weights and measures and the decimal monetary system was made at the annual meeting of the shareholders of the London City and Midland Bank (Ltd.) by Sir Edward H. Holden, Bart., chairman of that institution. He stated that by clinging to the old systems the country was placing a hindrance in the way of the extension of foreign trade. He said in the course of his annual address:

"I should like here to bring before you what I consider to be a most important question, and that is the adoption by this country of the metric system of weights and measures, together with a decimal monetary system. Both these systems are at the present time in use in most countries, and there is no doubt that one of the greatest hindrances to the extension of our foreign trade is the fact that we do not present our catalogues in foreign countries so advantageously as other countries. For example, Germany, before the war, had overrun Italy with her travelers. These travelers presented their catalogues to the Italian buyers in the Italian language, and they quoted their weights, measures, and prices in the metric and decimal systems, which systems the Italians themselves use. On the other hand, English travelers present their catalogues in English, with the measurements in yards, feet and inches, tons, hundredweights and pounds, and the prices in pounds, shillings and pence. Italian buyers do not understand the English system as they understand the metric and decimal systems.

"It appears to me that if we are seeking (as we are) to extend our trade to those countries where German influence has hitherto predominated we must at once begin to adopt the systems which are most easily comprehended by purchasers. The metric and decimal systems have been adopted by all European countries except Russia, and in that country these systems were before the war fast coming to the front. These systems are also used in South America and in Japan. In fact, there are few countries which do not use them at the present time. It must therefore be apparent to everyone that if we have to conduct our trade using English weights and measures, and currency, while other countries can trade with each other under the metric and decimal systems, we shall obviously be placed at a great disadvantage, and in my opinion this question ought to be taken up and pushed forward without any delay."

The Ramparts of St. Mark's

The great Church of San Marco is now rapidly disappearing from sight behind ramparts of protection. On sunless days the church is almost pitch-dark, and it is only gradually that the eye begins to distinguish the huge piles of sandbags that smother altar, ambo, pulpit and font, the swaddled figures on the chancel screen, the muffled columns that seem dwarfed and shrunken and misshapen, and vaguely recall the proportions of some early Egyptian temple. The problem of preserving the mosaics in case of an internal explosion presents great difficul-

ties, and is capable of merely tentative solution. So far two steps have been taken: It is proposed to spread a sheet of thick cloth all over the mosaics at a distance of about five or six inches from their surface, thus forming a cushion of air which, it is hoped, will modify the violence of an explosion and the dangerous effects of the displacement of air. Further, all the glass windows of the cupolas have been removed, and, during an attack, windows and doors are left open to diminish the shock of concussion. But, in order to prevent rain from entering the building, the place of the glass windows has been taken by screens of coarse, brownish sailcloth, stretched on iron frames with hinges which readily fall outwards.

The effect on the interior is most surprising. The light coming through these screens, especially on a sunny day, is of a soft, diffused yellow, a little brighter, perhaps, than the light transmitted through the alabaster windows of such a church as S. Antimo in Tuscany. This warm, glowing light exactly hits the key of the mosaics, which catch it, reflect it, are illuminated by it, till they reveal all the richness of their Oriental splendor. The elongated, Byzantine figures of the central dome, the ultra-marine saints of the southern, every design and legend on the blazing background, speak out and are intelligible; each cupola glitters like an inverted saucer full of molten gold, flooded and shimmering with radiant light. It is a revelation of the mosaics of San Marco; never have they been seen like this before. But we may hope that, when the war is over, and if Saint Mark's survives, the secret of lighting the cupolas, thus accidentally discovered, may be adopted permanently, and so confirm the old Italian saw that "non tutti i mali vengono per nuocere."

The Church at Brou

It was only yesterday that we were in Bourg, yet, beyond the church of Brou and a garage, I remember nothing of the place. The garage was like other garages; but the church of Brou is like no other church in the world. In the first place, instead of dragging through centuries of building, and never quite reaching completion, it was begun and finished in the space of twenty-five years—from 1511 to 1536—and it was supervised and paid for by a single person, Margaret of Austria, who built it in fulfilment of a vow made by her mother-in-law, Margaret of Bourbon. The last Margaret died before she could undertake her project, and her son, Philibert II., Duke of Savoy, called "The Handsome," followed before he could carry out her wishes. So his duchess, the other Margaret, undertook the work, and here on this plain, between the Juras and the Saone, she wrought a marvel in exquisite church building which still remains a marvel almost untouched by any blight after four hundred turbulent years. Matthew Arnold wrote a poem on the church of Brou, which may convey the wonder of its beauty. I shall read it some day, and if it is as beautiful as the church, I shall commit it to memory, and on days when things seem rather ugly and harsh and rasping, I will find some quiet corner and shut my eyes and say the lines and picture a sunlit May afternoon and the church of Brou. Then perhaps I shall not remember any more the little mean things of the moment, but only the architectural shrine which one woman reared in honor of another.

It is not a great cathedral, but it is by no means a little church. Its lofty nave is bare of furnishings, which perhaps lends to its impression of bigness. But then you pass through the carved doors of a magnificent "jube" or screen, and the bareness disappears. The oaken choir-seats are carved with the richness of embroidery, and beyond them are the tombs—those of the two Margarets and of Philibert, husband and son. I suppose there are no more elaborately wrought tombs in the world than these. Perhaps their very richness detracts from their artistic value, but I would rather have them so, for it shows somehow the thoroughness and sincerity of Margaret's intent—her determination to fulfil to the final letter every imagined possibility in that other's vow. The mother's tomb is a sort of bower—a marble alcove of great splendor within and without. Philibert's tomb, which stands in the centre of the church, between the other two, is a bier supported by female figures and fluted columns, and interwoven decorations, exquisitely chiselled. Six cherubs and a crouching lion guard the royal figure above, and the whole, in spite of its richness, is of great dignity. The tomb of the Duchess Margaret herself is a lofty canopy of marble incrustations, the gorgeousness of which no words can tell. It is the superlative of Gothic decoration at a period when Gothic extravagance was supreme.—Harper's Magazine.

Conservation Report on Pine Rust

Through the invasion of the "white pine blister rust," a virulent fungus disease imported from Germany about seven years ago, Canada is seriously threatened with the extermination of her white pine resources, probably the most valuable forest asset of Eastern Canada. This disease has destroyed the white pine in Europe, has made serious ravages in the pineries in the north-eastern states, and is spreading in Ontario and Quebec. Centres of invasion are scattered from Maine to Minnesota in the United States, and from South-western Ontario to Southern Quebec in Canada, the Nia-

gara peninsula being the most seriously infected district in the Dominion.

For its full development and for transmission to the pine, the disease is dependent on the currant and gooseberry bushes. The fact that it cannot spread directly from one pine to another offers a means of control, and no effort should be spared to combat the rust by exterminating the currant and gooseberry bushes in infected or exposed districts, or at least by prohibiting the shipment from these regions of all currant and gooseberry bushes and fruit, and by placing an embargo on the importation of such stock. Unfortunately, the wild gooseberry is equally dangerous as an intermediary in spreading the disease.

Any loss entailed by even the total destruction of the whole currant family is insignificant compared to the value of the white pine in Canada. In 1914 the white pine production of Eastern Canada, including logs and sawn lumber, totalled $16,160,000. The cutting and manufacture of this timber furnishes employment to thousands of men, and supplies hundreds of industries with raw material for which no satisfactory substitute can be secured. The white pine is one of the most important taxpayers in Canada, and contributes no less than $1,250,000 to the total revenue of about $4,000,000 which the four Eastern Provinces derive annually from their forests. In view of these facts it is evident that drastic measures should be taken at once to eradicate the disease which threatens this resource.

Iron Industry in 1916

The Dominion Department of Mines has received from the producers a record of the production of pig iron and of steel ingots and castings during the first eleven months of the year which, together with estimates for December, show a probable production of pig iron in Canada during the twelve months ending December 31, 1916, of 1,171,727 short tons (1,046,185 gross tons), and a probable production of steel ingots and direct steel castings of 1,454,124 short tons (1,298,325 gross tons), of which 1,423,485 short tons were steel ingots and 30,639 short tons were direct castings.

The production of pig iron in 1915 was 913,775 short tons, and of steel ingots and castings 1,020,896 short tons, showing an increase in the production of pig iron in 1916 of about 28 per cent., and an increase in production of steel ingots and castings of over 42 per cent.

The 1916 production was greater than that of any previous year, the second largest production of pig iron having been 1,128,967 short tons in 1913, and of steel ingots and castings 1,168,993 short tons also in 1913.

The production in 1916, during the first six months and monthly during the last six months, was as follows in gross tons:

	Pig Iron. Gross Tons.	Steel Ingots. Gross Tons.	Direct Castings. Gross Tons.	Total Gross Tons.
Six months ending June.....	501,372	577,999	11,715	589,714
July	82,154	101,178	2,284	103,462
August	78,450	108,839	2,299	111,138
September	91,736	116,828	2,524	119,352
October	101,436	126,677	2,924	129,601
November (partly estimated)	95,237	119,468	2,745	122,213
December (estimate)	95,300	119,930	2,865	122,795
Six months ending December..	544,313	692,970	15,641	708,611
12 months ending December..	1,046,185	1,270,969	27,356	1,298,325

Of the total production of steel ingots and castings in 1916, about 43,790 short tons (39,098 gross tons) were made in electric furnaces. In 1915, only 61 short tons were reported as having been made in electric furnaces.

Photo by courtesy of White Pine Bureau.

A PLEASING MODERN ADAPTATION OF THE COLONIAL HIPPED ROOF FARM HOUSE.

CONSTRUCTION

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Meeting of The Council

A meeting of the Council of The Royal Architectural Institute of Canada will be held at the Chateau Laurier, Ottawa, Ont., on Saturday, the 28th April, 1917, at one o'clock p.m. for the consideration of very important matters, to decide where and when the Tenth General Annual Assembly will be held this year, the creation of the R. A. I. C. Medal, the celebration of the Tenth Anniversary, etc. It is expected that every member of the Council will be present.

J. P. Ouellet, President.
Alcide Chausse, Hon. Secretary.

The Portland Cement Industry

"The Architect and Contract Reporter" of London, in a recently published article on the Portland cement industry, states that the three largest cement producing countries and their output is as follows: Great Britain, 3,000,000 tons; Germany, 5,000,000 tons, and the United States, 15,348,000 tons. Referring to the causes for the relatively small production in England, the article continues:

"As in so many other branches of industry in this country, our manufacturers of Portland cement have been content to do as their fathers did—to continue the use of antiquated machinery and antiquated methods, while their competitors overseas were introducing and utilizing every possible improvement that would tend either to the higher quality of the product or the reduction of the cost of producing. Not only were our manufacturers for the most part content to rub along in the old way, but even if they wished to adopt newer machinery they had to go abroad for it.

"Up to within a few years ago most of the machinery came from Germany, as no British firm was prepared entirely to equip works with plant embodying the new designs, although there were firms who could supply certain parts. It is gratifying to note that this unsatisfactory state of things no longer exists, and British-made cement-making machinery can now challenge comparison with anything of the kind manufactured in Germany.

"We still, however, remain markedly inferior to our competitors in the United States; and much remains to be accomplished in the designing of Portland cement machinery in this country to bring it to the same standard of efficiency that now prevails in the United States."

Business Activity After The War

There is more reason to anticipate business activity after the war than business depression. For years the farmer will enjoy high prices for his products. Shipbuilding is being established as one of the industries of the Dominion. Aeroplane manufacture promises to be another. Industrial demands for the reconstruction period in Europe will provide work for transformed munition factories. Immigration will provide labor as well as increase the agricultural population. America enjoyed financial prosperity after the Civil War. The demand for raw materials, for manufactured products and for workmen should insure good business and good wages in the Dominion for years.

Oldest Stone Structure

Scattered through the world are the remains of stone structures, in various states of preservation, that had their origin before the dawn of recorded history. Even on the Western Continent, in Mexico, Central and South America, are ruins showing the proficiency in stone working of the makers, of whom we know little or nothing. There are cyclopean walls in the old world that seem to have been erected by a race of giants, the very memory of whom has disappeared, save for these monuments. But it may, we think, be doubted whether there is a single stone structure in any part of the world that antedates the pyramids at Sakkarah, Egypt, close to the ruins of the great city of Memphis. The oldest and most famous of the eleven pyramids standing on the Sakkarah plateau is that peculiar stepped and truncated pyramid called by Arabs Mastabatel-Pharaoon. It is, of course, impossible to fix its date with any degree of accuracy, but the consensus of opinion is that it is the oldest large structure of cut stone that is now standing in the world.

Architectural Digest

Articles of More Than Passing Interest From Our Contemporaries

FUNDAMENTALS OF SPECIFICATION WRITING.

By Francis W. Grant.

Of all the manifold functions of an architect under modern conditions it is safe to say that the one for which his education least prepares him, his temperament least fits him, the one he least enjoys, and the one in which he makes the poorest showing, is specification writing. Nature does not seem to have intended that an artist should have to do with such prosaic work as mastering the legal technicalities, terms and processes incident to good specification writing, and the result is the free use of scissors and paste and little progress.

Exceptions are where prosperity permits and breadth of mind appreciates the employment of experts and specialists for this work, men of good judgment who have had experience in the field, and can see both sides of a question, and preferably men who do not aspire to artistic proficiency.

The writer firmly believes that the standardization of specifications should not be attempted beyond the matter of form and arrangement, and that the subject matter should be expressed in the writer's own phraseology, properly influenced by consideration of the fact that their appearance in court as evidence is a very probable contingency, and standard only insofar as precedent has demonstrated what is specific, suit-proof language and what is not.

The discussion that follows is therefore not to be taken as an attempt to formulate a model specification for copying, but is merely intended to stimulate a contemplation of the why and wherefore of that branch of the architect's work.

The general conditions only will be discussed in this series, structural conditions being made the subject of other articles now in course of preparation.

The first step incident to the preparation of a specification is to determine its form. Legal cap paper, written with a pen on both sides of the paper, and bound at the top, was the original form. To this has succeeded legal size paper typewritten on one side, with page numbering only as a method of notation. Comparatively few architects have progressed beyond this awkward form.

When circumstances permit, specifications should be printed and bound in pamphlet form of convenient shape and size, 6 by 9 inches being recommended as particularly appropriate by reason of its convenient shelving.

Convenience of usage and filing should never be overlooked, as it contributes very materially to efficiency, and, to this end, the additional expense of printing is amply justified on large work. Specifications for buildings, the cost of which exceeds, say, one hundred thousand dollars, and particularly in the case of public work, should always be printed and sufficient copies issued to cover every possible contingency.

Typewritten specifications should be on letter size paper and thus capable of convenient filing flat with related correspondence. Vertical filing of correspondence has become practically universal and it is in various ways inconvenient to have two sizes of filing devices in one's office. Specifications on legal size paper cannot be filed in standard correspondence files, and if folded as documents and so filed, they are in an extremely awkward shape for reference.

The practice of binding certain standard printed general conditions in an otherwise typewritten specification is not good. It tends to create the impression of "ready made" when "made to order" is expected and paid for. It does not command that degree of attention and respect on the part of the contractor that obtains when the whole specification is alike and made for the particular job in hand, and specifications commanding the respect of the contractors to whom they are particularly and primarily addressed will tend to bring about results meriting respect in about the same degree, seldom greater. Of course the legal virtue of the instrument is not affected by the incorporation therein of standard printed matter, but many a lawsuit would be avoided if the contractor could, by any inducement, be made to read every word of the specification at the time of bidding, and this he is more apt to do if the general conditions appear to have been written for his especial benefit.

Stereotyped general conditions, no matter how exalted their source, or how exactly fitted to the circumstances incident to one of the architect's previous commissions, are almost certain to be misfits in some one or more points, to the embarrassment of the architect employing them, this particularly if he be interested in the literary as well as the artistic success of his work. Some, of course, are not, and to such this will not appeal.

There should be a margin of at least 2½ inches provided at the left of each sheet for titles, paragraph numbering and for binding. Titles should be kept wholly without this margin and not placed so as to lead to the impression that they are a part of the text.

Binding at the top is a survival of one of the most awkward features of the specifications of former times, and is being abandoned in favor of left-hand binding by all progressive architects incidental to the adoption of letter size paper in lieu of legal size paper.

Binding should be by some such method as stapling, stitching, or pasting, as will render it impossible to remove or insert a page without such mutilation as will plainly advertise the fact. The reason for this is deemed obvious. The specification document should be capable of identification beyond question by a signature or mark on any one page, or on the cover. If the specification is so bound that pages can be changed at pleasure without detection, a positive identification would be practically impossible. A document incapable of positive identification under all circumstances is in poor form for submission as evidence in court.

A source of annoyance, loss of time, and frequently an encouragement of the habit of lax attention to specified requirements is the inefficient system of notation commonly employed, consisting of page numbers only, and these often at the bottom of the page.

The specification should be divided into consecutively numbered paragraphs from beginning to end, and if this be done and the work properly indexed accordingly, no need for page number remains.

Each paragraph should be carefully reviewed, amplified and "blue penciled" until it will stand equally well alone or in its intended relation to other paragraphs. Every possible endeavor should be made to avoid the necessity for cross reference to render any paragraph fully intelligible or complete.

The practice of subdividing the specifications into chapters, or any subdivisions whatever other than paragraphs, is to no good purpose, and particularly is it poor practice to head these chapters or parts with partial repetitions of the general conditions, or even with reminders of or references to the general conditions. The general contractor needs and wants no assistance in segregating the work of the various crafts, and the attempt to do this for him by a method so distinct as by forming the specifications into divisions or chapters intended to define and confine the duties and obligations of his several subcontractors, frequently leads to error or omission, and is furthermore not one of the architect's functions, except possibly when it is deemed necessary to split the work up into numerous separate contracts in the original letting, which procedure is not recommended.

Of course, by this it is not meant to advise the total ignoring of the customary subdivisions representing in a general way the division among separate crafts. The work should be taken up in logical sequence (the sequence of building operations), but without committing the architect in the matter of sub-contracting by stating directly or by inference just who of the various craft sub-contractors shall do this, that and the other thing.

Specifications for a building, the contract for which is to be let under one general contract, as all contracts should be let if possible, should not state that centres are to be made by the carpenter contractor, that bearing plates are to be set by the brick mason, etc., for such segregation of functions is no proper concern of the architect. That electricians and the various piping craftsmen should not be permitted to cut structural members is, however, another matter, and must be provided against.

Titles should be provided for as many paragraphs as possible, and these kept wholly outside the margin of the text, and in no instance made to read with and form a part of the text of the specifications.

An index by paragraphs should always be provided. This should be carefully cross-indexed, so that by whatever name a subject is thought of, it can be found in the index. A mere table of contents is by no means an index. If lack of time or other circumstances prevents an alphabetical index properly cross-indexed, it is better to leave it so than to introduce a mere table of contents.

Brevity should be the constant aim of the specification writer, but never at the expense of perfect clarity. The specifications must be complete, and the character of the drawings will largely determine how much must be said to make them so, for the information to be given is an absolute quantity. Leave nothing to be determined by the flexible and wholly unreliable rule of "customary practice."

That mere appearance of brevity which is secured by transferring essential provisions from the general conditions of the specifications to other instruments is not thought by the writer to be good practice, the Standard Documents of the American Institute of Architects to the contrary notwithstanding.

Every contractual relation should be shown on the drawings, or expressed in the specifications, and when once stated, either graphically or in writing, should, under no circumstances, be repeated or further explained, qualified, or discussed in the specifications or in any other instrument of the contract. There should be no such thing necessary as a separate paper called "Instructions to Bidders," and the "Bid Blank" should never be made the vehicle for specification matter of any kind whatever.

More than sufficient matter to secure beyond question a quibble-proof contract and the desired quality and quantity of material and labor is not only redundant and a debasement of the English language, but is almost sure to be prejudicial to the efficiency of the instrument.

All agreed that the ideal specification is one that is "boiled down" to the fewest words possible without the omission of any essential bit of information. The boiling-down process, however, consumes time, and specifications are frequently permitted to pass out of the architect's office more verbose and recondite than even their authors approve for mere lack of time to re-write that which should have been treated as a rough draft only. The architect who resists the pressure applied by the owner at this critical point and insists upon sufficient time to produce a finished specification, will build up better prestige for his office, and may cultivate a better impression in the mind of the owner as to the reasonableness of professional charges.

Superfluous matter in the specifications tends to conflicting, and sometimes to impossible requirements. For instance, the requirement that "all cement shall be of uniform bluish-gray color," followed by a complete schedule of the chemical properties that the same cement shall possess is superfluous and meaningless, yet might cause considerable annoyance and friction during the field education of some inspector, yet just such redundancies are common in otherwise good work.

The drawings should express everything capable of graphical representation, and the specifications should not repeat what is clearly shown on the drawings. With very few exceptions, schedules of quantities and dimensions should never be written into specifications.

Eliminate all lists of materials from specifications. Drawings so incomplete that quantities and dimensions cannot be taken from them by the contractor are not ready for the specification writer, and are most certainly not ready for submission to bidders. The builder alone should be held responsible for the correctness of the quantities upon which he bases his proposal to erect the building, and most builders will consider it safer to recompute quantities before investing their money at the risk of the architect's accuracy in a line wholly outside his profession.

Those architects who have entered the profession as graduates from some one of the several building crafts are the ones most liable to indulge in a display of what they are proud to advertise as an intimate knowledge of the art of building by specifying the exact number of I-beams of each dimension and their length, and other similar data distinctly within the builder's province, and not theirs.

If exact lists of quantities are out of place in an architect's specifications, approximate lists are still more so, and no attempt whatever should be made by the architect to compute quantities for builders. Exceptions to this rule are only those where it is impossible to give the necessary information on the drawing as to the number of coats of paint, size and number of hinges, etc.

A method of procedure recommended as tending to the minimum of verbiage consistent with clearness of expression is to write the first draft with perfect freedom, then "blue pencil" and eliminate as you would a telegram, giving the benefit of doubt to the retention of words and phrases in every instance.

Every item essential to a complete knowledge of what will be required of the contractor should be included. This rule should be observed to such an extent that nothing whatever remains for the formal contract, except the amount of the contract and the dates of execution and completion. When a specification is thus complete no need whatever exists for a formal separate contract instrument, and the transaction may be completed by mere exchange of a proposal in unequivocal language, properly dated and signed, and an acceptance similarly conditioned. In fact, such is the ideal form of building contract, the usual formal contract being nothing more or less than an instrument made use of for picking up items overlooked or neglected in the specifications.

The language employed in writing specifications should always be true to the title, i.e., specific, stating what must or shall be done, and never what may or should be done. The specification writer should bear in mind that he is writing law, and he must not depart from the mandatory forms of expression. Although this would seem to be self-evident, it is a fact that specifications from the best of offices are often deficient in this particular. Such are frequently not specifications at all, but mere essays on construction.

The point sought to be established by the preceding paragraph is aptly illustrated by the following excerpts from the specification for an important building, the architect for which had a national reputation and a very lucrative practice:

" . . . and it reserves the right to waive any informality in, and even to reject any and all bids. . . . Parties who are unfamiliar with this class of work, who have never done large work, who it is well known have not the necessary plant or who have done work for . . . before, but have given unnecessary trouble to . . . or parties not known to be financially responsible, parties known to be unreliable, litigious, and have been known to do poor work, all may well save themselves the trouble of figuring on this work. . . . There are bound to be many changes in the work on so large and complicated a building as this is as it goes on . . . the plans but tentatively show how many doors there will be ultimately, or how many lineal feet there will be of partitions or of tile flooring, etc. . . . The architect has endeavored to make this specification perfectly clear and all-covering, and the bidders are requested to refrain from asking for further information, particularly before reading it all over. Unless very relevant no questions will be answered by the architect. The answering of all such questions entails considerable trouble, for if the architect does answer them both question and answer must be sent to every bidder . . . with the terms of the contract. That contract is for a complete building; it is certain that many slight changes will become necessary as the work progresses. . . . In connection with this matter of changes it is hardly possible that changes will be made that may affect the time of the completion under this contract and bond. Chances are that any changes that may become necessary will be made well in advance of the time in which special material therefor may be needed . . . should the architect desire to make a change in the material or workmanship in certain rooms or details, he is not to be confronted with the statement that such work has been ordered and partly executed."

As previously stated, the language employed in specifications must be specific. To specify that certain named articles or processes, "or equal," shall be used is not using specific language. Such qualifying clause as "or equal" has the effect in practice of losing to the owner the benefit of the architect's time and judgment used in first determining what should be used, for these words reopen the subject and invite the contractor to look the market over and let the architect know if he can do better by substituting. Most contractors are quick to accept this invitation, and the architect is then called upon to consider the comparative merits of the proposed substitution, and unless he can affirmatively declare that the proposed substitution is inferior, it must be permitted. The architect is without discretionary power in this matter, but is compelled to listen to the claims advanced in the interest of all proposed substitutions. Many contractors jump to the conclusion that "or equal" means that they shall determine what is equal, and in the absence of a clause distinctly reserving discretionary power in this matter to the architect, the courts will probably hold that they are, or at least will place the burden of proof to the contrary on the owner.

A case of record pertinent to this discussion is that of Camp vs. Neufelder, 95 Pacific 640, where the architect refused to admit that any other sidewalk light was equal to the one specified (he having specified that light or equal); the light specified was furnished, and the court compelled the owner to pay $600 extra to reimburse the contractor for what he might have saved by substituting a light he thought equal, the merits of which the architect refused to investigate.

A method capable of application to a large extent, and strongly recommended, is to describe physical or chemical properties or the functions required without using trade names. Another method is to provide for the insertion in the bid blank of a list of substitutions desired to be made by the bidder, provision being made that failure to adopt such alternative proposal bars further consideration of changes in the items for which alternate was proposed.

Specifications should be responsible to local custom and conditions, both as to materials called for and as to terms employed. No attempt should be made to write specifications for distant work until after a careful investigation of this subject. What is entirely proper in the architect's home town may be the height of folly where the building is to be erected. It discredits an architect to specify fir framing lumber where nothing but spruce or hemlock is marketed for the purpose, or Southern pine flooring where fir flooring is exclusively used; broken stone may be an appropriate aggregate for concrete, and it may be that gravel is the only available material for the purpose. These and all similar questions should be determined before attempting to write the specifications.

Summarizing, it is recommended that specifications combine the following features:

1. Should not be a combination of printed and typewritten matter.
2. Should be printed and bound in pamphlet form if possible.
3. If typewritten, should be on letter-size paper, bound inseparably at left-hand edge.
4. Should have ample margin at left, with all titles confined to margin.
5. Notation should consist of consecutive paragraph numbers, continuing through entire specification without interruption.
6. Should not attempt to define, limit or otherwise meddle with relations between contractor and sub-contractor.
7. Should be indexed and cross-indexed in proper manner, or not at all.
8. Should be as brief as the character of the drawings will permit, and as extensive as the character of the drawings demand.
9. Should be rewritten at least once before issuance, and every repetition and redundancy eliminated, and all ambiguity cleared up.
10. Should never contain quantities or dimensions not absolutely essential to a clear understanding of the drawings.
11. Should at all times be mandatory in form of expression, and never discoursive or merely permissive.
12. Should be definite, in every instance naming just what is wanted without the qualifying words "or equal."
13. Should absolutely provide against contractor's exercise of discretionary power in matter of substitutions.
14. Should be responsive to local conditions and custom, and to related legislative acts.—"American Architect."

BUILDING PERMITS.

Montreal, Que.—Permits issued for the month of March, 1917, totalled $995,920, against that of $483,420 a year ago.

Vancouver, B.C.—Permits issued for the month of March, 1917, totalled $33,715, against that of $205,465 a year ago. Total for the first three months of 1917 was $159,540, against that of $293,749 a year ago.

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CONSTRUCTION NEWS

Information of Special Interest to Architects, Contractors, and Manufacturers. Construction Building Reports will Give You Up-to-date Information Every Day on all New Buildings About to be Erected or in Course of Erection.

BUSINESS BUILDINGS.

Hamilton, Ont.—Architect W. J. Carmichael, Montreal, has prepared plans for a telephone exchange for the Bell Telephone Company, to cost $30,000, at the corner of Garfield and Dunsmuir streets. Hannaford Brothers, 232 Robinson street, have been awarded the plastering contract in an addition to the Bank of Montreal, James street south, to cost $6,000; E. B. Turnbull, 224 King street east, has been awarded the painting and glazing contracts; E. A. Work Company, John street north, has been awarded the electric wiring contract; Adam Clark Company, Main street west, have been awarded the heating and plumbing contracts; G. Kenneth Rea, 59 Beaver Hall Hill, Montreal, is the architect.

Saskatoon, Sask.—The Bank of British North America will erect a bank on Second avenue.

Winnipeg, Man.—The J. McDiarmid Company, Winnipeg, have been awarded the general contract for the erection of an office building for the Grain Growers' Guide, to cost $100,000.

CIVIL ENGINEERS.

Courtland, Ont.—The Sarnia Bridge Company, Sarnia, have been awarded the steel work contract on a bridge for the Middleton Township; A. L. Oatman, Tillsonburg, has been awarded the concrete work; R. Marston, C.E., Simcoe, is the engineer.

Peterboro, Ont.—The Quaker Oats Company contemplates the erection of a bridge across Dublin street.

Toronto, Ont.—The City of Toronto contemplates the erection of a bridge across the Rosedale Ravine at Glen road, to cost $200,000.

CLUBS, HOSPITALS, THEATRES AND HOTELS.

Galt, Ont.—The Board of Health contemplates the erection of an isolation hospital.

Guelph, Ont.—George E. Gringer Company, Wilson street, has been awarded the heating contract in a theatre for George Rheinhard, to cost $16,000; Colwill, Booth & Company, Union Bank Building, are the architects.

Hamilton, Ont.—P. H. Secord & Sons, Brantford, Ontario, have been awarded the general contract for the erection of a theatre for Marcus Loews Theatre Company, Toronto and New York, to cost $250,000, on King street; Thos. W. Lamb, 17 St. John street south, Montreal, is the architect. The Military Hospital Commission, 23 Victoria street, contemplates the erection of alterations to the hospital at Burlington Beach; Captain J. W. Symons is the architect.

Kingston, Ont.—The Hospital Commission contemplates the erection of a hospital to Queen's University.

Kitchener, Ont.—Work will commence in June on a hospital for the Sisters of Charity, to cost $90,000; A. W. Holmes, 10 Bloor street east, Toronto, is the architect.

London, Ont.—Architect Major Miller, Salvation Army, Toronto, is preparing plans for an addition to their hospital on Clarence street, to cost $10,000.

St. John, N.B.—The Deakin Construction, Montreal, have been awarded the general contract for the erection of an addition to the Algonquin Hotel, to cost $25,000.

Sudbury, Ont.—Architect P. J. O'Gorman, Sudbury, is preparing a sketch for an addition to the Balmoral Hotel.

Toronto, Ont.—The City of Toronto contemplates the erection of a hospital, to cost $75,000.

Toronto, Ont.—Frank Farrington Company, Detroit, Michigan, have been awarded the general contract for the erection of a moving picture theatre at the south-west corner of Richmond and Victoria streets, Toronto, to cost $150,000; Howard Crane, Detroit, is the architect; Hynes, Feldman & Watson, 105 Bond street, Toronto, are the associate architects.

FIRE LOSSES.

Amherst, N.S.—The Trenholm Block was destroyed by fire.

Aylmer, Ont.—A. W. Pierce flour and feed warehouse was destroyed by fire; loss $25,000.

Bathurst, N.B.—The Seminary of the Sacred Heart in West Bathurst was destroyed by fire; loss $150,000.

Belleville, Ont.—The plant of the Cordova Gold Mines, Limited, was destroyed by fire; loss $100,000.

Brockville, Ont.—The Canadian Carriage Company's factory at Brockville was destroyed by fire.

Canning, Ont.—The Canning Public School was destroyed by fire.

Collingwood, Ont.—Wilson Brothers, Limited, planing mills were destroyed by fire; loss $100,000.

Ford City, Ont.—The factory of Chalmers Motor Company, Ford City, was destroyed by fire; loss $250,000.

Galt, Ont.—The business block of A. E. Buchanan was destroyed by fire.

Gladstone, Man.—The plant of the Echo Milling Company was destroyed by fire;, loss $115,000.

Highgate, Ont.—The church of the Methodist congregation at Highgate was destroyed by fire; loss $15,000.

Hope, B.C.—The Coquahalla Hotel was destroyed by fire.

Marmora, Ont.—Pearce Company, Limited, saw mill was destroyed by fire; loss $25,000.

Montreal, Que.—The plant of the Ingersoll Packing Company, St. Paul street, was destroyed by fire; loss $200,000.

Montreal, Que.—J. R. Walker & Company, Montreal, temporary premises were destroyed by fire; loss $10,000.

Montreal, Que.—The waste paper plant of J. R. Walker & Company, 11 Murray street, was destroyed by fire; loss $25,000.

Nelson, B.C.—The concentrating plant and building at the St. Eugene mine, operated by the Consolidated Mining and Smelting Company of Trail, was destroyed by fire.

Quebec, Que.—The building of the Le Soleil, a French newspaper, was destroyed by fire.

Bathwell, Ont.—The flour mill and elevator of Charles Clarke Estate was destroyed by fire.

St. John, N.B.—The stores of McRobbie Shoe Company, Ltd., and F. E. Homan Company were destroyed by fire; loss $20,000.

Stouffville, Ont.—The school of the Public School Board at Stouffville was destroyed by fire; loss $15,000.

Swift Current, Sask.—The Edmanson Block on Central avenue was destroyed by fire.

Thessalon, Ont.—The Masonic Lodge rooms were destroyed by fire; loss $6,000.

Thornbury, Ont.—The town of Thornbury skating rink was destroyed by fire; loss $5,000.

Toronto, Ont.—W. & D. Dineen, Yonge and Temperance streets, store building was destroyed by fire; loss $10,000. I. N. Devins boat house on the Humber Bay was destroyed by fire; loss $10,000.

Truro, Ont.—The Grand Central Hotel was destroyed by fire; loss $12,000.

Waterdown, Ont.—Roy Binkley hardware store and Wm. Seigel shoe store were destroyed by fire; loss $9,000.

Winnipeg, Man.—The elevators of the Northern Elevator Company at Winnipeg was destroyed by fire; loss between $200,000 and $250,000.

Winnipegosis, Man.—The store of the Armstrong Trading Company was destroyed by fire; loss between $50,000 and $75,000.

MISCELLANEOUS.

Barrie, Ont.—Plans are being prepared for a garage and bicycle shop for W. Urry, Barrie, to cost $10,000.

Beeton, Ont.—B. C. Henchan, Beeton, Ontario, has been awarded the general contract for the erection of a barn, stable and silo for the County House of Refuge, to cost $7,250.

Brantford, Ont.—Schultz Brothers Company, Albion street, have been awarded the general contract for the erection of an addition to the boiler house for the Water Commissioners, City Hall, to cost $5,500; W. C. Tilley, Brantford, is the architect.

Guelph, Ont.—S. Rundel & Son, Clark street, have been awarded the mason contract in a foundry for the International Malleable Iron Company, to cost $15,000; George Ibbotson, Woolwith street, has been awarded the carpenter contract; W. Cook 53 Quebec street west, has been awarded the painting and glazing contracts; The Canadian H. W. Johns-Manville Company, Toronto, have been awarded the roofing contract; F. and A. Howard have been awarded the galvanized iron contract; W. A. Mahoney, 73 Quebec street west, is the architect.

Hamilton, Ont.—The Canadian Steamship Lines, Limited, Montreal, contemplates the erection of a drydock and office building, to cost $250,000. Architect G. J. Hutton, Bank of Hamilton Building, is preparing plans for an addition to a garage and show rooms for the McLaughlin Motor Car Company, George and Bay streets, to cost $20,000.

Hamilton, Ont.—Addie Burke, 17 Mulberry street, contemplates the erection of amusement buildings at Burlington Beach, to cost $24,000. Thos. Hooper, Sun Life Building, has been awarded the general contract for the erection of a coal shed for Thos. Myles & Son, 8 James street north, to cost $10,000; J. Armes, Hamilton, is the architect.

Hamilton, Ont.—Canadian Engineering and Contracting Company, Bank of Hamilton Building, have been awarded the mason, concrete and carpenter contract in a pavilion for the Parks Board, City Hall, to cost $23,000; J. Riddell & Sons, 12 Ferguson avenue, have been awarded the sheet metal contract; Hannaford Brothers, 232 Robinson street, have been awarded the plastering contract; A. M. McKenzie, 45 Ferguson avenue, has been awarded the painting and glazing contracts; Adam Clark, 7 Main street west, has been awarded the plumbing contract; G. J. Hutton, Bank of Hamilton Building, is the architect.

Hespeler, Ont.—The Methodist Church contemplates the erection of drive sheds.

Kingston, Ont.—The Kingston Industrial Farm contemplates the erection of exhibit buildings.

Kingston, Ont.—The Salvation Army, Kingston, are excavating for a drill and recreation hall.

Kingston, Ont.—The Civic Utilities Commission of Kingston will erect a pump house and equipment, to cost $22,760.

Lindsay, Ont.—F. W. Moynes, Box 296, Lindsay, Ontario, contemplates the erection of a roller rink and dancing pavilion, to cost $15,000.

Lindsay, Ont.—R. Butler, Kent street, contemplates the erection of a garage on Kent street, to cost $6,000. Architect Harry Hickey, Lindsay, has prepared plans for a garage for H. E. Tripp & Son.

Lindsay, Ont.—The Norwood Engine Company of Canada,

Limited, Sherbrooke, Quebec, have been awarded the filters and mechanical accessories contract in the waterworks equipment for the town of Lindsay; De Laval Company, Peterboro, Ontario, have been awarded the contract for the installation of turbine pumps.

London, Ont.—Henry Hayman, 848 Dufferin avenue, London, has commenced work on a bakery for C. J. Leach, 402 Princess avenue, London, to cost $5,000.

London, Ont.—Architects Watt & Blackwell, Bank of Toronto Building, London, Ontario, are preparing plans for a flour mill and grain elevator for Hunt Brothers, Talbot street south, to cost $100,000.

London, Ont.—The London Mausoleum Company contemplates the erection of a mausoleum at the Woodlawn Cemetery, to cost $100,000. Silverwoods, Limited, Bathurst street, London, are having plans prepared for stables, to cost $10,000. Architects Watt & Blackwell, Bank of Toronto Building, are preparing plans for a storage building for Hobbs Hardware Company, 335 Richmond street, to cost $10,000.

Montreal, Que.—S. M. Brookfield Company, Montreal, have been awarded the general contract for the erection of new vaults for the Eastern Trust Company.

Ottawa, Ont.—Gordon Law, 20 Sussex street north, will rebuild his machine shop, which was destroyed by fire.

Port Stanley, Ont.—The London and Point Stanley Railway Commission contemplates the erection of a grain elevator, to cost $100,000.

St. John, N.B.—The Fegles Bellows Engineering Company, Winnipeg, have been awarded the contract for the superstructure of an elevator for the Government.

Toronto, Ont.—W. & D. Dineen, 142 Yonge street, have commenced work on alteration to their store, which was destroyed by fire.

Toronto, Ont.—Geo. W. Richardson, 195 Adelaide street west, has been awarded the plumbing and heating contracts in the show rooms and garage for A. G. Strathy, 123 Simcoe street, to cost $8,500; D. C. Cotton, 54 Adelaide street east, is the architect.

Toronto, Ont.—F. W. Weale, 35 Lindsay avenue, has been awarded the mason contract in show rooms and garage for A. G. Strathy, 123 Simcoe street, to cost $8,500; Chas. Gallichan, 62 Dovercourt road, has been awarded the carpenter contract; D. C. Cotton, 54 Adelaide street east, is the architect.

Toronto, Ont.—Scott Brothers, 38 McGee street, Toronto, has been awarded the cut stone contract in a lodge building for the Masonic Temple Corporation of Toronto, Limited, to cost $175,000; A. Richmond, Yonge Street Arcade, has been awarded the concrete contract; Hoidge & Sons, 34 Price street, has been awarded the plastering contract; J. Gibson Marble and Granite Company, 52 Winchester street, have been awarded the marble contract; The Trussed Concrete Steel Company of Canada, Limited, Toronto, has been awarded the metal sash contract; Bennett & Wright, 72 Queen street east, have been awarded the plumbing, heating and electric wiring contracts; Otis-Fensom Company, 50 Bay street, have been awarded the elevator contract; W. F. Sparling & Company, Trust and Guarantee Building, is the architect.

Windsor, Ont.—The Rivena Farm Dairy, Sandwich street north, contemplates the erection of a dairy and creamery building.

Windsor, Ont.—Architects G. Jacques & Company, Windsor, Ontario, are preparing plans for a service station of the Studebaker Corporation, Walkerville, Ontario, to cost $30,000.

Windsor, Ont.—Architect J. C. Pennington, Labelle Building, is preparing plans for an addition to the machine shop of the Windsor Machine and Tool Company, Pitt street west, to cost $9,000.

Windsor, Ont.—R. Wescott & Company, Board of Trade Building, have been awarded the general contract for the erection of an addition to the machine shops of the Windsor Machine and Tool Company, to cost $9,000; J. C. Pennington, Labelle Building, is the architect.

PLANTS, FACTORIES AND WAREHOUSES.

Hamilton, Ont.—Architects McPhie & Kelly, Bank of Hamilton Building, are preparing plans for a factory for J. R. Moodie & Sons, Limited, King and Sanford streets.

Hamilton, Ont.—The Hamilton Bridge Company, Bay street, have been awarded the steel contract in a warehouse for C. Mills, 975 King street east, to cost $5,000; J. E. Riddell, 12 Ferguson avenue, has been awarded the roofing contract; Leek & Notts, 112 King street west, have been awarded the glazing contract; J. Mercer, 75 Barton street east, has been awarded the carpenter contract; H. C. Gummo, 15 Tuckett street, is the general contractor. Chas. Kidd, 152 Burris street, has been awarded the mason contract in a factory addition for the Furnival New Company, Cumberland avenue, to cost $5,000; Stuart Brothers, Hyde Park avenue, have been awarded the carpenter contract; J. J. Armstrong, 116 Burris street, has been awarded the concrete and sewers contract; The Hamilton Bridge Works, Hamilton, have been awarded the steel contract; Smith & Omand, 219 Ferguson avenue south, have been awarded the painting and glazing contracts; Adam Clark, 7 Main street west, has been awarded the plumbing contract; Arthur Stead, 148 Central avenue, has been awarded the cut stone contract; H. H. New, Spectator Building, is the architect.

London, Ont.—Architects Watt & Blackwell, Bank of Toronto Building, are preparing plans for an addition to the factory of Gorman, Eckert Company, 318 Rectory street, to cost $15,000.

Marmora, Ont.—The Pearce Company, Limited, will rebuild their saw and shingle mill, which was destroyed by fire.

Niagara Falls, Ont.—The Herbert Morris Crane and Hoist Company, Limited, 79 Peter street, Toronto, have purchased a site here for the erection of a factory on Stanley street, to cost $80,000.

Ottawa, Ont.—A company has been incorporated here entitled the International Shipbuilding Corporation, Limited, for the erection of a shipbuilding plant in New Brunswick.

Ottawa, Ont.—C. I. Stata, 303 Bell street, has commenced work on factory repairs for the Rolla L. Crain Company, Ltd., Spruce street, to cost $15,000; J. A. Ewart, Booth Building, is the architect.

Peterboro, Ont.—The Quaker Oats Company, Peterboro, will rebuild their factory, which was destroyed by fire.

Saskatoon, Sask.—T. Eaton Company, Limited, Toronto, will erect a mail order warehouse here, to cost $125,000. The Quaker Oats Company will erect a two-storey warehouse. The Ashdown Hardware Company will erect a warehouse, to cost $5,000.

Toronto, Ont.—J. A. Hamer, Credit road, Port Credit, Ontario, will erect a factory on Adelaide street west, to cost $9,000.

Toronto, Ont.—Architects Prack & Perrins, Lumsden Building, are preparing plans for a factory for the B. F. Johnson Soap Company, 155 George street.

Toronto, Ont.—Sheppard & Abbott, 78 Harbord street, have been awarded the plumbing and heating contracts in a factory for the Harry Webb Company, 23 Buchanan street, on Davenport road, to cost $40,000; J. Francis Brown, Board of Trade Building, is the architect.

Vermilion, Alta.—Glassford & Company are erecting a warehouse.

Winnipeg, Man.—The Paulin-Chambers Company will enlarge their factory.

Winnipeg, Man.—The Grain Growers' Grain Company have planned this year to build a lumber mill, to cost $150,000.

PUBLIC BUILDINGS AND STATIONS.

Ottawa, Ont.—The Ottawa Library Board contemplates the erection of a library, to cost $15,000.

Sydenham, Ont.—McLaren Lumber Company, Brockville, Ontario, has been awarded the general contract for the erection of a post office for the Department of Public Works, Ottawa, to cost $6,000.

Winnipeg, Man.—J. McDiarmid Company, Winnipeg, have been awarded the general contract for the completion of the new Parliament Buildings at Winnipeg.

RESIDENCES, STORES AND FLATS.

Brockville, Ont.—W. P. Driscoll and R. H. Smart, Brockville, are preparing plans for an apartment house, to cost $20,000.

Brockville, Ont.—T. J. Davison, Brockville, has been awarded the general contract for the erection of a store and apartments for C. B. Murray, to cost $6,000; A. S. Allaster, Brockville, is the architect.

Ford City, Ont.—Architect J. C. Pennington, Labelle Building, Windsor, is preparing plans for a store, dance hall and flats for F. Katzman, Ford City, to cost $5,000.

Guelph, Ont.—P. Martin, 61 Ann street, has been awarded the plastering contract in a residence for Alvar H. Simpson, to cost $6,500; Bennett & Bennett have been awarded the painting and glazing contracts; W. W. Stuart, Quebec street, has been awarded the electric wiring contract; W. A. Cowan, 149 London road, is the architect.

Hamilton, Ont.—Architect Gordon J. Hutton, Bank of Hamilton Building, is preparing plans for a residence for Peter D. Carse, 484 Main street east, to cost $15,000.

Hamilton, Ont.—Isbister Brothers, Hughson and Jackson streets, have been awarded the mason contract in a residence for Donaldson & Patterson, 229 Bay street, to cost $5,500; Alexander McKenzie, 164 Wentworth street, has been awarded the plastering contract. Architects Munro & Meade, Main and Hughson streets, are preparing plans for a residence for L. Donaldson, 229 Bay street, to cost $10,000.

London, Ont.—Architect W. G. Murray, Dominion Savings Building, is preparing plans for a residence for J. Miller, to cost $10,000.

Ottawa, Ont.—C. H. Statta, 209 Petoria street, has been awarded the general contract for the erection of apartments for Miss H. A. Clemow, 260 Banks street, to cost $26,000; Taylor & Harwood, Castle Building, are the architects.

Toronto, Ont.—B. Robinson, 491 Rushton road, has prepared plans for a residence on Northcliffe Boulevard, to cost $5,000.

Toronto, Ont.—Architect P. H. Finney, 79 Adelaide street east, is preparing plans for a pair of residences for W. A. Scott, 125 Mutual street, to cost $5,500.

Toronto, Ont.—Robert Brothers, 241 Dovercourt road, will erect an apartment house on the corner of Roxton and Arthur streets, to cost $60,000. Plans have been prepared for a store and apartments on Danforth and Cedarvale avenues, for J. T. Turner, 110 Dearborne avenue, to cost $9,000.

Toronto, Ont.—T. Purton & H. Chennells, 158 Ellesworth avenue, have been awarded the general contract for the erection of an apartment house for J. Henderson, 666 St. Clair avenue, to cost $20,000; P. H. Finney, 79 Adelaide street east, architect. R. Mowbray, 125 Alberta avenue, will erect a residence and garage on Regal road, to cost $5,000.

Toronto, Ont.—Plans have been prepared for a residence for J. M. Skelton, 85 Lawton avenue, to cost $5,000, on Heath street east. Excavation has commenced on three pairs of residences for A. & A. Grant, 837 Logan avenue, on Ellenbeck avenue, to cost $15,000. Excavation has commenced on a pair of residences for A. & A. Grant, 837 Logan avenue, on Fulton avenue, to cost $5,000.

Windsor, Ont.—C. H. Cunningham, 287 Ouellette street, is having plans prepared for a residence on Ouellette street, to cost $6,000.

Windsor, Ont.—Architect J. C. Pennington, Labelle Building, Windsor, is preparing plans for an addition to a residence for Gordon McGregor, Victoria avenue, to cost $6,000. R. Wescott & Company, Board of Trade Building, are excavating for a store for A. D. Bowlby, Sandwich street west, to cost $7,500.

Windsor, Ont.—J. McWilliams, 89 Walker road, Walkerville, Ontario, has been awarded the general contract for alterations to the flats of Fieldings & Son, Sandwich street east. John Milne, 34 Park street west, contemplates the erection of stores on Dougall street. D. Coutts, 70 Church street, has been award-

ed the general contract for the erection of a residence for L. C. Wetzel, Windsor, to cost $5,000.

Windsor, Ont.—E. Hanesworth, 79 Wyandotte street west, has been awarded the general contract and mason contract for the erection of a bungalow for S. Buchanan, to cost $5,000; Lambert & Braithwaite, 91 Caron street, have been awarded the carpenter contract; Windsor Hardware, Sandwich street east, have been awarded the sheet metal, steel, heating and plumbing contracts; Troupe Brothers, Gladstone avenue, have been awarded the plastering contract; Wm. Laesser, 94 Janette avenue, has been awarded the painting and glazing contracts; McNaughton-McKay, 216 Wyandotte east, have been awarded the electric wiring contract; J. C. Pennington, Labelle Building, Windsor, is the architect.

SCHOOLS, CHURCHES AND COLLEGES.

Barrie, Ont.—Architect F. S. Baker, Bank of Hamilton Building, Toronto, has prepared sketch plans for a collegiate, to cost $100,000, for the Board of Education.

Brantford, Ont.—Jesse Bartle, 172 Darling street, Brantford, has been awarded the general contract for the erection of an addition to a school on Erie avenue, to cost $9,000, for the School Section No. 23; F. C. Bodley, Colborne street, Brantford, is the architect.

Charlottetown, P.E.I.—Architects C. B. Chappel & Hunter, Charlottetown, will receive tenders up to Saturday, April 21st, 1917, for the completion of the interior of St. Teresa's Church, at Charlottetown.

Hamilton, Ont.—The Board of Education for the city of Hamilton contemplates the erection of a school, to cost $60,000. The Barton Township Council contemplates the erection of a school addition, to cost $10,000.

Kenora, Ont.—The St. Alban's Protestant Cathedral will rebuild their church, which was destroyed by fire.

Moserville, Ont.—Architect Chas. Knetchel, Glick Building, Kitchener, is preparing plans for a church for the Lutheran Congregation, to cost $12,000.

Sandwich West, Ont.—Wm. Murphy, Sandwich, Ontario, has been awarded the heating and plumbing contracts in a school for the School Board S. S. No. 1 Sandwich, to cost $8,890; A. Tourangeau, 14 Bridge avenue, Windsor, is the general contractor; G. Jacques & Company, Peninsular Security Building, Windsor, are the architects.

Ste. Perpetue, Que.—Thomas Caron, St. Aubert Company, Q'Islet, Quebec, have been awarded the general contract for the erection of an addition to a church for the Trustees of Ste. Perpetue, to cost $12,200; Pierre Levesque, 115 St. John street, Quebec, is the architect.

Stouffville, Ont.—The Public School Board have selected a site for the erection of a school, to cost $15,000.

Stoney Creek, Ont.—The Anglican Church of Stoney Creek contemplates the erection of a parish hall, to cost $7,000. The Methodist Church of Stoney Creek contemplates the erection of an addition to their Sunday school, to cost $10,000.

Trenton, Ont.—Architects S. B. Coon & Son, Excelsior Life Building, Toronto, are preparing plans for a school for the Public School Board, to cost $55,000.

PERSONAL.

Architects S. B. Coon & Son, Toronto, have removed their offices from the Ryrie Building to 810 Excelsior Life Building, Toronto, Ont.

DISSOLUTION OF PARTNERSHIP.

A change in the personnel of the firm of Curry & Sparling, architects, of 105 Bond street, Toronto, has recently taken place, necessitated by the retirement of Mr. Curry.

Mr. Wm. F. Sparling is now engaged in practice under the name of The William F. Sparling Company, Architects and Engineers, with a new suite of offices at 120 Bay street, in the new Trusts and Guarantee Building, which structure Mr. Sparling is completing. The entire office staff of the late partnership has been engaged, along with the services of competent engineers. The new firm are the architects for the new Masonic Temple being erected in Toronto. It is the intention of the company to establish New York offices to maintain their connection in the United States.

CATALOGUES and BOOKLETS

"Heating and Ventilation," by Louis Allen Harding, B.S., M.E., and Arthur Cutts Willard, S.B., is the title of an important new work for engineers and architects, comprising Volume 1 of what will be a series of volumes on "Mechanical Equipment of Buildings." The work, however, is complete in itself, while Vols. 2 and 3, now in preparation, will deal with power plants, elevator, lighting systems, refrigeration plants, sprinkler systems, vacuum cleaning and plumbing. In its scope and general treatment of the subject the volume on "Heating and Ventilation" easily takes rank with any of the previously-published works on the same general topic. In addition the authors have drawn freely on all available sources of information relating to this field of engineering, and have made extensive use of manufacturers' data in designing the various mechanical systems or plants required in modern buildings. In this respect alone, the work represents the latest and most approved practice. Moreover, the extensive training and experience of the authors have enabled them to select their data with a fine discrimination, so that the reader is really getting the accumulated notes, including much original matter, of these two engineers.

Among the many notable features of this work, special mention should be made of the number and uniform character of the illustrations, the great number of these, in many cases, requiring insert sheets to contain them all.

Unlike the ordinary manual on heating and ventilation, the volume devotes the opening chapter to physical units and measurement of heat, while the second chapter is given over to a consideration of the fundamentals of water, steam and air. The authors then take up modern heating practice in its various phases. A chapter is included on electrical heating, while another chapter gives a digest of the ventilation laws now in force. Air conditioning is given the place it deserves and central or district heating is adequately treated in a long chapter on the subject. The book contains no less than 615 pages, measuring 7 x 9¼ in. There are in all 543 illustrations. The book is handsomely bound in leather and sells for $4.00. Published by John Wiley & Sons, New York, and may be had through the book department of "Construction."

"Concrete Reinforcement Bars," published by the Burlington Steel Co., Ltd., Hamilton, Canada, is an illustrated booklet of thirty-two pages. The process used in manufacturing concrete reinforcing bars is described, and tables of physical properties and tests and methods of inspection are compiled in a concise manner. It also contains formulas of reinforced concrete beams, with an explanatory notation upon what assumptions the formulas are based.

Tables of the bending moments in foot pounds per foot of width of reinforced concrete slabs, and the weights and areas of square and round bars and weights in pounds of flat steel (one foot in length), are also offered in this book, which will be forwarded upon request.

Manufacturers' Inquiries.—The President of the Society was recently asked the following question by the advertising manager of a large manufacturing concern, says the Monthly Bulletin of the Illinois Society of Architects: "Why do not architects answer letters of inquiry from manufacturers?" The answer to the question was the statement:

"That every architect receives on an average of twenty letters per day, not accompanied by either a return post card or a stamped envelope, asking for information when there is work on the boards. Assuming that every architect was busy the entire time, it would mean that every architect would be expected to answer, say twenty letters of inquiry per day, or 6,000 per year, and as no letter can be written at a less cost than about 20 cents, counting postage, stationery, time and overhead, every architect would be expected to spend the sum of $1,200.00 per year in answering these inquiries if they were answered." Is further comment necessary?

CONTRACTORS and SUB-CONTRACTORS

As Supplied by The Architects of Buildings Featured in This Issue

Building, C.P.R. North Toronto Station, Toronto, Ont.

Ash Hoist, Gillis & Geoghegan, Ltd., Sherbrooke, Que.
Boilers, Jenicks Machine Company, Ltd., St. Catharines, Ont.
Boiler Feed Pump, Bawden Machine Co., Ltd., Toronto, Ont.
Cabinet and Woodwork, Georgian Bay Shook Mills, Ltd., Midland, Ont.
Casements and Window Construction, also Doors and Window Trim, Crittals Casement Co., Toronto, Ont.
Electric Fixtures, McDonald & Willson, Ltd., Toronto, Ont.
Electric Wiring and Apparatus, Bennett & Wright Co., Toronto, Ont.
Elevators and Hoists, Otis-Fensom Elevator Co., Ltd., Toronto, Ont.
Fire Hose, Gutta Percha and Rubber, Ltd., Toronto, Ont.
Hardware, Springer Lock Manufacturing Co., Ltd., Belleville, Ont.
Heat Regulating System, Canadian Powers Regulator Co., Toronto, Ont.
Wood Work and Decoration, Canadian Office and School Furniture Co., Toronto, Ont.
Marble, Standard Marble and Tile Co., Ltd., Toronto, Ont.
Ornamental Iron, Architectural Bronze and Iron Works, Toronto, Ont.
Paints, Jos. McCausland & Sons, Toronto, Ont.
Plumbing and Heating, Fred Armstrong Co., Ltd., Toronto, Ont.
Plaster Work (ceiling), Hoidge & Sons, Toronto, Ont.
Radiators, Steel and Radiation, Ltd., Toronto, Ont.
Sanitary Fixtures, Cluff Brothers, Toronto, Ont.
Stone, Tyndall Stone.
Structural Iron and Steel, Dominion Bridge Co., Ltd., Montreal, Que.
Terra Cotta, Northwestern Terra Cotta Co., Chicago, Ill.
Ventilating System, W. E. Dillon Co., Ltd., Toronto, Ont.
Water Tank, Jenicks Machine Co., Ltd., St. Catharines, Ont.
Contractors, General, P. Lyall & Sons Construction Co., Ltd., Montreal, Que.
Architects, Darling & Pearson, Toronto, Ont.

Building, Customs Examining Warehouse, Ottawa, Ontario.

Boilers, McKinley & Northwood, Ottawa, Ont.
Casements and Window Construction, also Doors and Window Trim, Henry Hope & Son, Ltd., Toronto, Ont.
Cement, Canada Cement Co., Ltd., Montreal, Que.
Concrete Work, Hoffeler Construction Co., Montreal, Que.
Doors (revolving), A. B. Ormsby Co., Ltd., Toronto, Ont.
Electric Fixtures, Canada Electric Fixture Co., Ltd., Montreal, Que.
Electric Wiring and Apparatus, Canada Electric Fixture Co., Ltd., Montreal, Que.
Elevators and Hoists, Otis-Fensom Elevator Co., Ltd., Toronto, Ont.
Expanded Metal, R. D. Clark & Son, Montreal, Que.
Fire Doors, Mussens, Ltd., Montreal, Que.
Fire Escapes, Estey Brothers Company, Montreal, Que.
Flooring, Missisiquoi Marble Co., Montreal, Que.
Glass, Prism, Luxfer Prism Co., Ltd., Toronto, Ont.
Marble, Missisiquoi Marble Co., Montreal, Que.
Paints, Ottawa Paint Works, Ltd., Ottawa, Ont.
Ornamental Iron, Estey Brothers Company, Montreal, Que.
Roofing Sheet Metal, McFarlane-Douglas Co., Ltd., Ottawa, Ont.
Stone, Wallace Sandstone Quarries, Ltd., Montreal, Que.
Structural Iron and Steel, Toronto Structural Steel Co., Ltd., Toronto, Ont.
Contractors, General, P. Lyall & Sons Construction Co., Ltd., Montreal, Que.
Architect, E. L. Harwood, Chief Architect Department of Public Works, Ottawa, Ont.