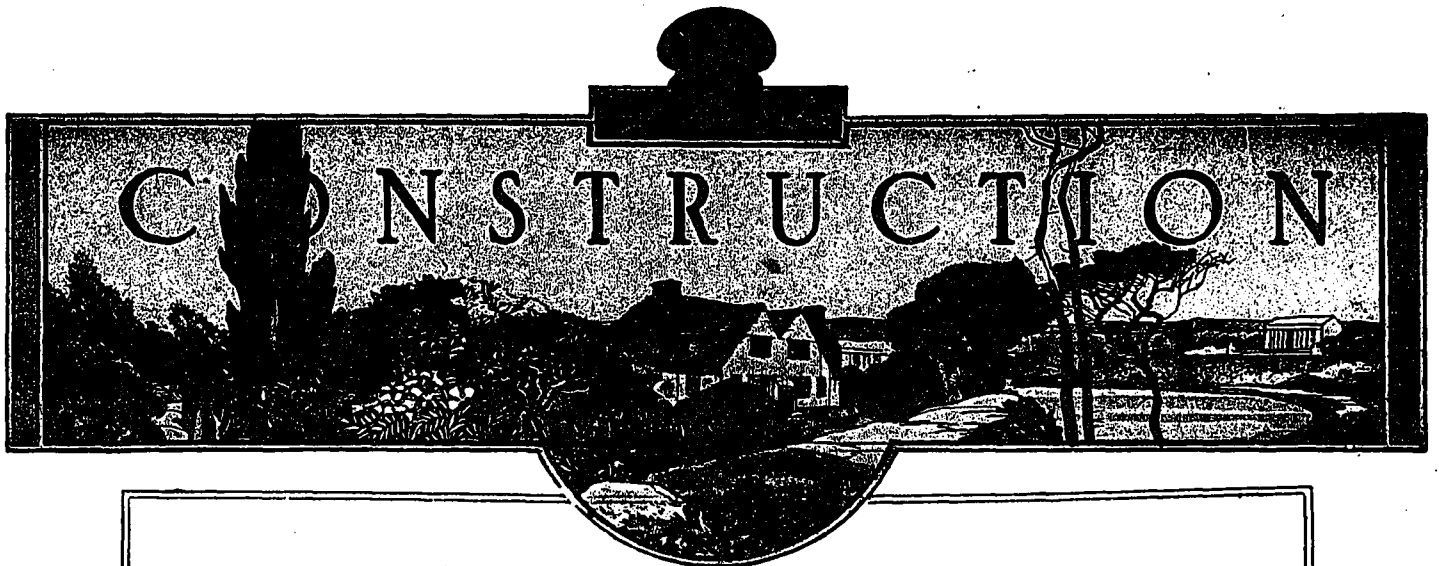


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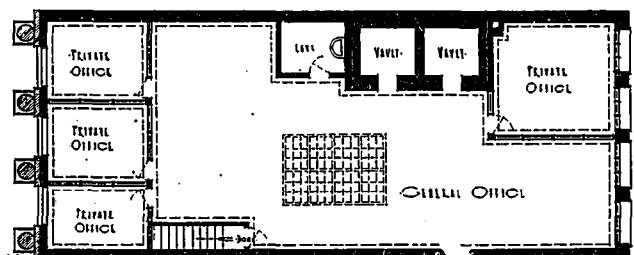
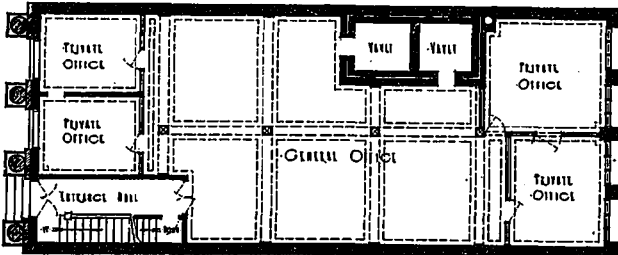
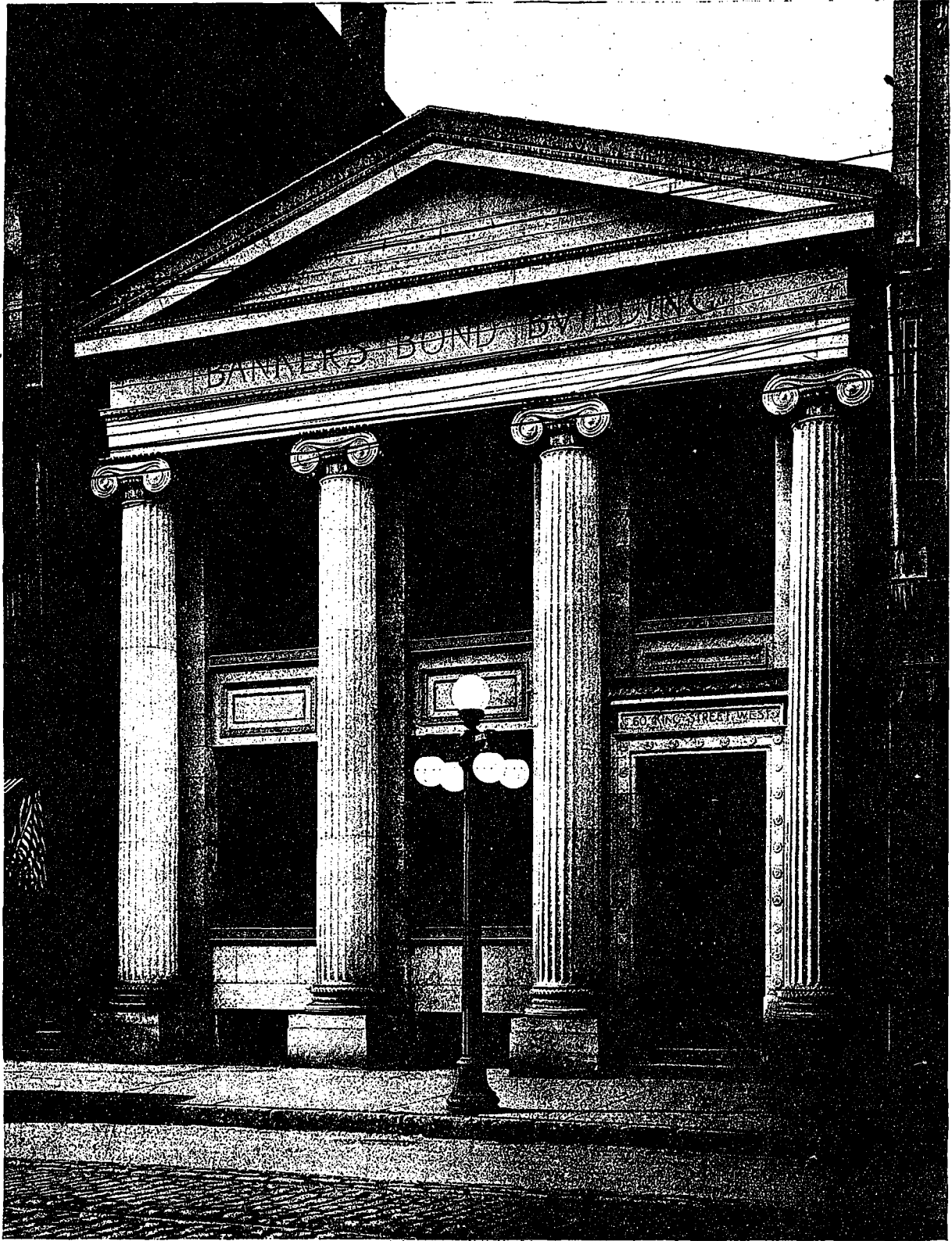
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GRAPHIC ARTS BLDG., TORONTO, CANADA

MONTREAL

BRANCH OFFICES

NEW YORK



GROUND FLOOR PLAN.

UPPER FLOOR PLAN.

BANKERS' BOND BUILDING, TORONTO.

J. A. MACKENZIE, ARCHITECT.

Bankers' Bond Building, Toronto

THE sky scraper, with its rows of office windows, must necessarily have a commercial appearance, a large earning capacity and numerous tenants. It is often relieved by columns on the lower storeys, and an ornate cornice on the upper, yet it is impossible to give it the refinement and dignity of lower and more monumental buildings, so much so that many leading financial institutions have restricted the height of their buildings, preferring something incorporating one of the Orders with the accommodation limited to their own requirements.

Such is the new home of the Bankers Bond Company at 60 King Street West, Toronto. The problem of producing on a 33-foot city frontage a financial facade of a dignified and enduring character, has been solved by a worthy copy of the Erechtheium at Athens, one of the most refined and complete of the Greek Ionic temples.

The architect, J. A. MacKenzie, of Toronto, has studiously reproduced in Indiana limestone and bronze, some of the grace and rich carvings of this Grecian prototype, the sculptured ornament in particular being excellently done.

All work was executed from full size details and shaded studies of ornament. The shafts of the columns were turned and fluted at the Bedford quarries, and have a most delicate and graceful entasis from base to capital. The turned bases are enriched with a carved Guilloche member, while the Ionic capitals with their intricate volutes and honeysuckle ornament on the necking, are exceedingly rich and beautifully carved. The fine and precise fret ornament on the window sills is in perfect scale with the double sinkings of the volutes of the capitals, while Grecian egg and tongues replaces the egg and darts of the Roman orders.

The doorway, with its carved architrave and

numerous rosettes, is crowned with a cyma recte moulding richly carved in Greek honeysuckles, making a rich, but dignified entrance.

The very refined cornice is entirely without brackets or medallions. The crowning number is executed in the Greek Acanthus leaf and rosette, but perhaps the most charming point



DETAIL OF ENTRANCE: BANKERS' BOND BUILDING, TORONTO.

of the whole design is the proportion of the entablature to the slender columns. The mass and slope of the pediment are just right for the supports, the inter-columnation and mass of the Erechtheium being closely followed. Square headed openings and a predominance of vertical lines in bronze windows harmonize perfectly with the narrow interspaces between the columns.

The entrance hall and stairway to the second



GROUND FLOOR OFFICES: BANKERS' BOND BUILDING, TORONTO.

floor are panelled in white marble with paved marble floor and verdi antique base. This entrance leads into the general office which is finished in gumwood, with plain square posts and shallow pilasters and beamed ceiling and glazed office partitions on simple and refined lines.

Both floors have well-lighted spacious offices with semi-indirect electric fixtures, fireproof vaults being provided on every floor and ample

open sprinklers lies in the reinforcement they provide for other measures of window protection, such as fire-resistant shutters and wired-glass windows.

Shutters have proved their efficiency in many fires, but they are unsightly. For rear walls of warehouses and factories they may be unobjectionable, but, in a building occupied by tenants, any systematic method of closing them would be hardly practicable. A further objection is

the fact that, if such shutters are closed at night, internal fires may attain serious proportions before discovery. Rolling shutters of the normally open automatic type do not possess these objections, but they are far more costly to install. Shutters in any form should combine the following requisites: (a) Fire resistance; this is dependent upon the material of which the shutter is made and upon the way in which it is installed. (b) The ability to resist radiation of heat. (c) Capability of being opened from the outside. The last-named feature is essential, that firemen may have access to interior fires or that the shutters may be opened to permit



UPPER FLOOR: BANKERS' BOND BUILDING, TORONTO.

lavatory accommodation in the basement.

Window Protection

The types of modern window protection from fire may be divided into three classes, namely, water jets or open sprinklers, metallic shutters, and metal or metal-covered frames in combination with wired-glass. Open sprinklers, or "water-curtains," have been subjected to no very severe tests, although they are often advocated even to the exclusion of shutters. This dependence does not appear to be justified, as water is diathermanous and permits radiant heat to pass through it readily.

The greatest value of

means of escape for entrapped inmates.

Where the danger of exposure is not sufficient to necessitate the use of shutters, or, if their appearance is objectionable, wire-glass in metal or metal-covered frames forms a more pleasing though less efficient type of protection. Wire-glass windows, however, readily admit radiant heat, and are not to be recommended for severe exposures unless used in combination with shutters or outside sprinklers.

As a rule, with light exposures of first-class construction 75 feet or more distant, open sprinklers should be sufficient, except for a risk particularly dangerous in itself. If the exposure is moderate at 40 or 50 feet and the building is not specially hazardous, wire-glass would be preferable. If the exposure is severe and within 25 to 40 feet, tin-covered shutters should be used where attractive appearance is not essential. If the exposure is less than 25 feet distant, tin-covered shutters in combination with wire-glass or open sprinklers may be used.

According to the London "Daily Chronicle," it is proposed to build a million-pound Dominion Club on the site of the famous Devonshire House, Piccadilly. The Duke of Comaught is said to be enthusiastic for the project, which originated with Sir Ernest Hatch. Plans for ladies' and men's sections of the club have already been drawn by the President of the Royal Academy, and show ample residential accommodation.

B.C. Architects' Bill

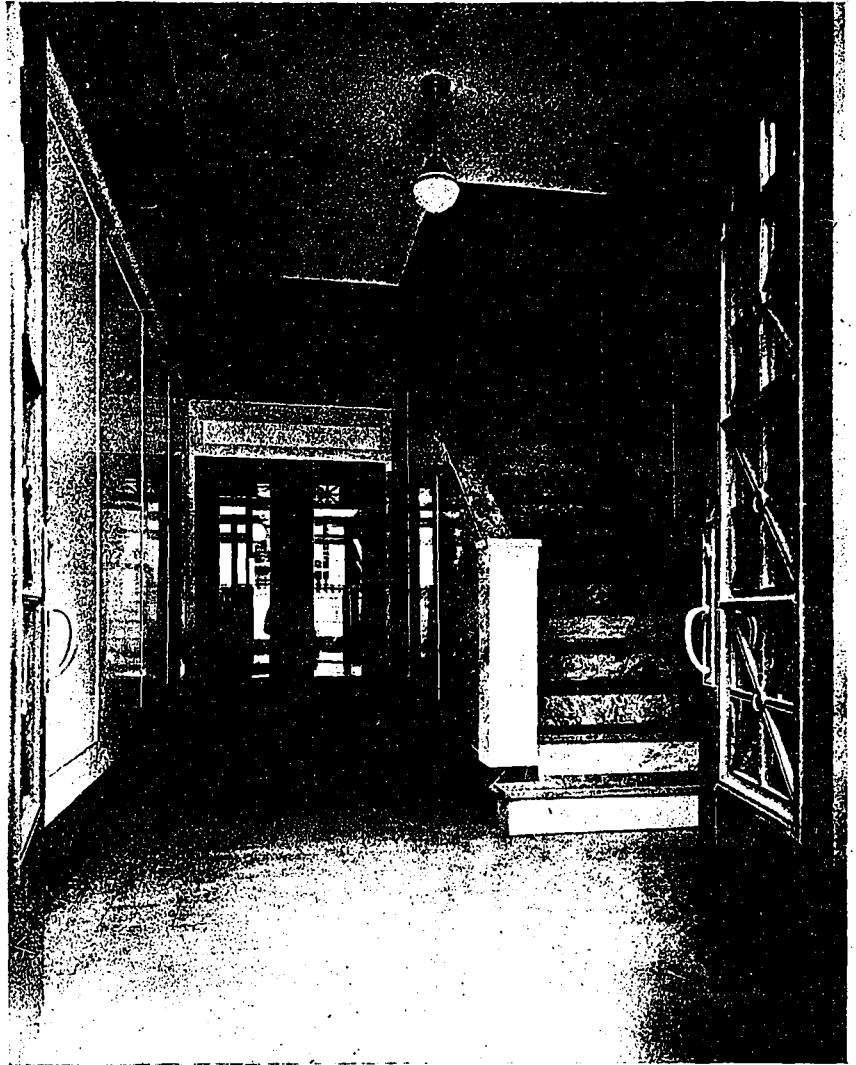
The bill to incorporate the architects of British Columbia now before the Legislature of that province was recently given its second reading. The proposed enactment provides for a Board of Examiners to pass on the eligibility of those seeking to enter the profession, and admits only foreign architects to practice in the province who are residents of a state or country which recognize the standard of qualification set forth in the bill, and which accords British Columbia architects reciprocal privileges.

New Invention for Artificial Daylight

A light has been perfected in Great Britain

, which is understood far to surpass any existing arrangement of artificial light, and to be the closest approximation to actual daylight ever accomplished.

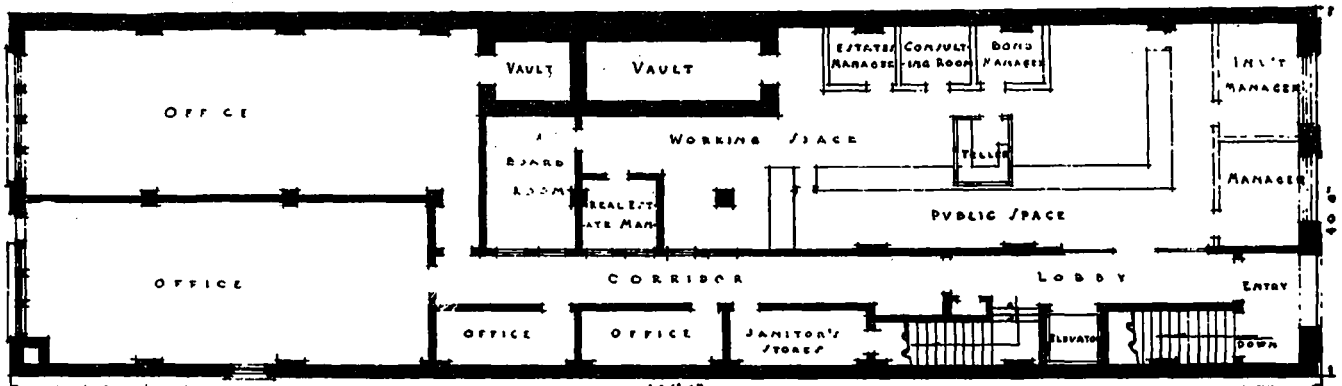
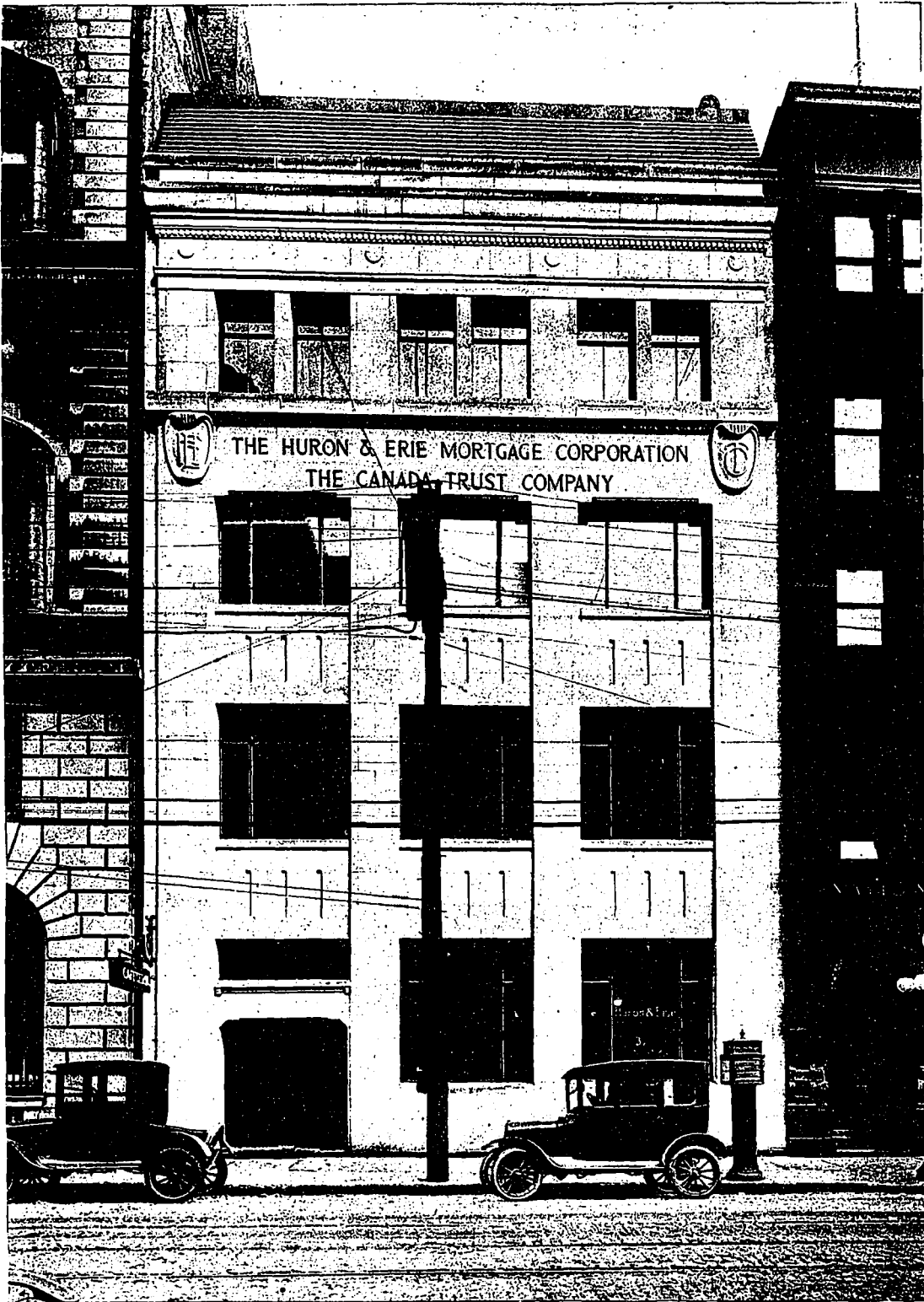
The apparatus consists of a high-power electric light bulb, fitted with a cup-shaped opaque reflector, the silvered inner side of which reflects the light against a parasol-shaped screen placed above the light. The screen is lined with small patches of different colors, arranged according



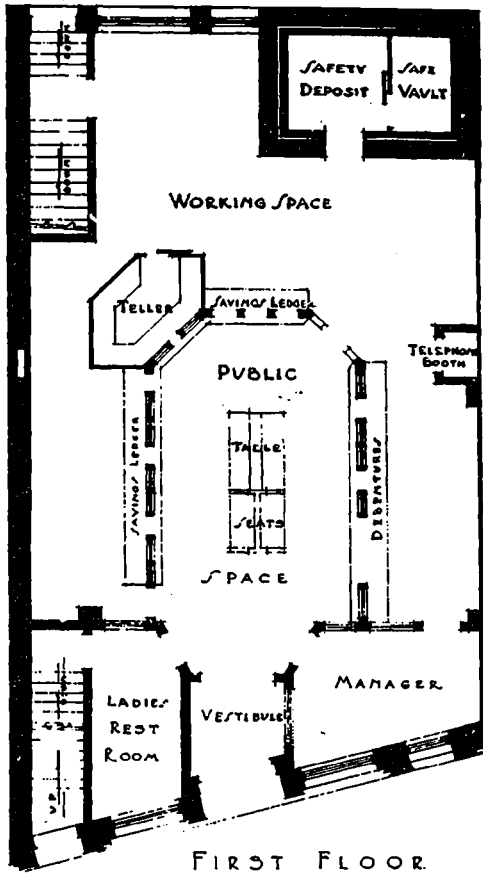
ENTRANCE HALL: BANKERS' BOND BUILDING, TORONTO.

to a formula worked out empirically by Mr. Sheringham, the inventor, and carefully tested and perfected in the optical engineering department of the Imperial College of Science and Technology.

The light thrown down from the screen is said to show colors almost as well as in full daylight. A test was made with such articles as colored wools, Chinese enamels, pastels and color prints, each being subjected successively to daylight, ordinary electric light and the new Sheringham light. Under the new light delicate yellows were quite distinct, indigo bluse were blue, cobalts had their full value, and violets lost the reddish shade which they display in electric light.



PLAN OF BANKING FLOOR.
 CANADA TRUST BUILDING, TORONTO,
 WATT & BLACKWELL, ARCHITECTS.

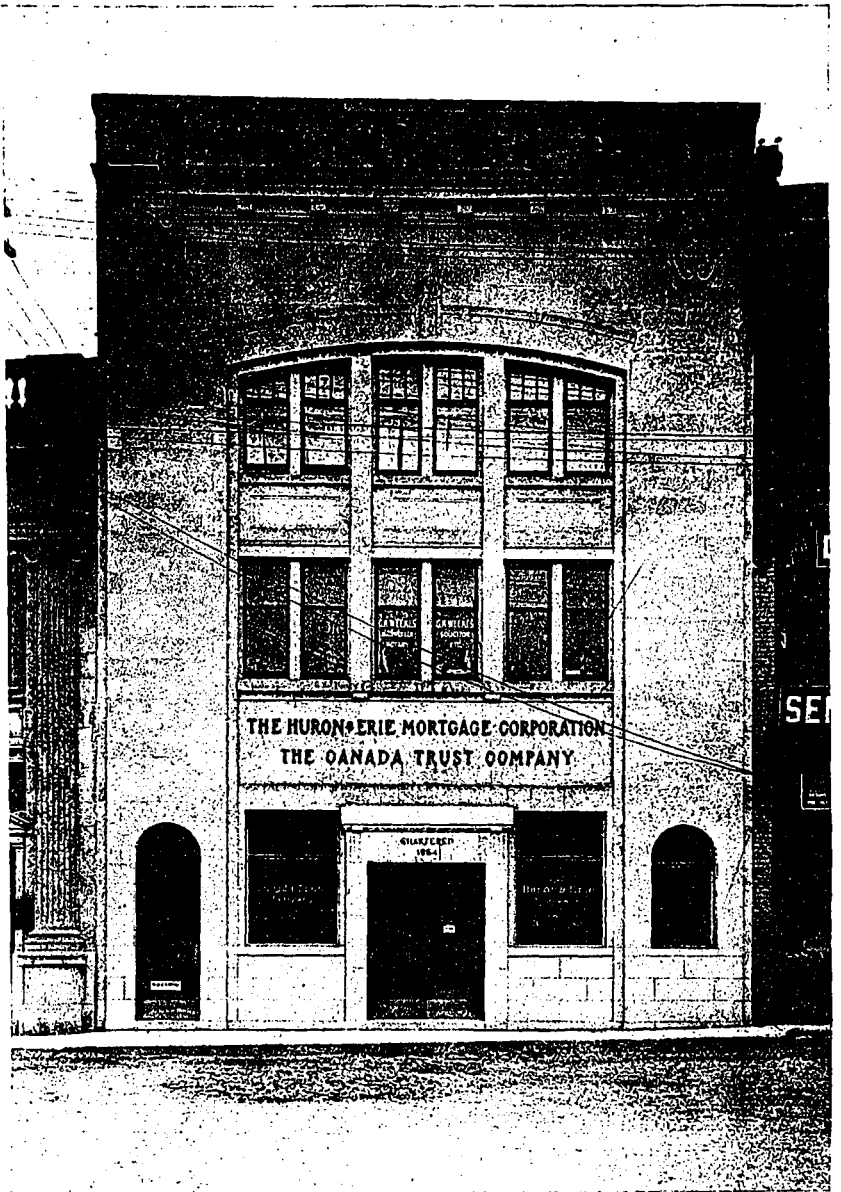


FIRST FLOOR

BUILDING OF
THE HURON & ERIE MORTGAGE CORPORATION
AND THE CANADA TRUST COMPANY,

MARKET BRANCH, LONDON, ONT.

WATT & BLACKWELL, ARCHITECTS.



Canada Trust Building, Toronto

The building at 14 King East—now occupied by the Canada Trust Company and the Huron & Erie Mortgage Corporation, along with several other financial and allied institutions—was before alterations occupied by the Canadian General Electric Company, and on account of the many purposes for which it had been altered in previous years, it required considerable study to remodel same into a bank and office building to suit modern requirements.

The building being of considerable depth and closed in by structures on both sides, the first problem to solve was the locating of a light court in such a manner as to avoid lost floor space and yet retain the elevator in its present location, and also keep the vaults on the office floors over the banking vault, the position of

which was fixed from the banking floor layout.

The above problems successfully solved, it remained for the architects to arrange a common entrance for both the cafeteria in basement and bank on first floor that would not interfere with either party, and on account of having to work to old framing and elevator enclosure, it required a great deal of study to overcome the difficulties encountered here.

The main entrance corridor is finished in Italian marble with marble floors and ornamental plaster ceiling, while the general scheme is carried through to the banking portion by having the counter front of the same marble, which is visible from the lobby through a glass screen that divides the bank from same.

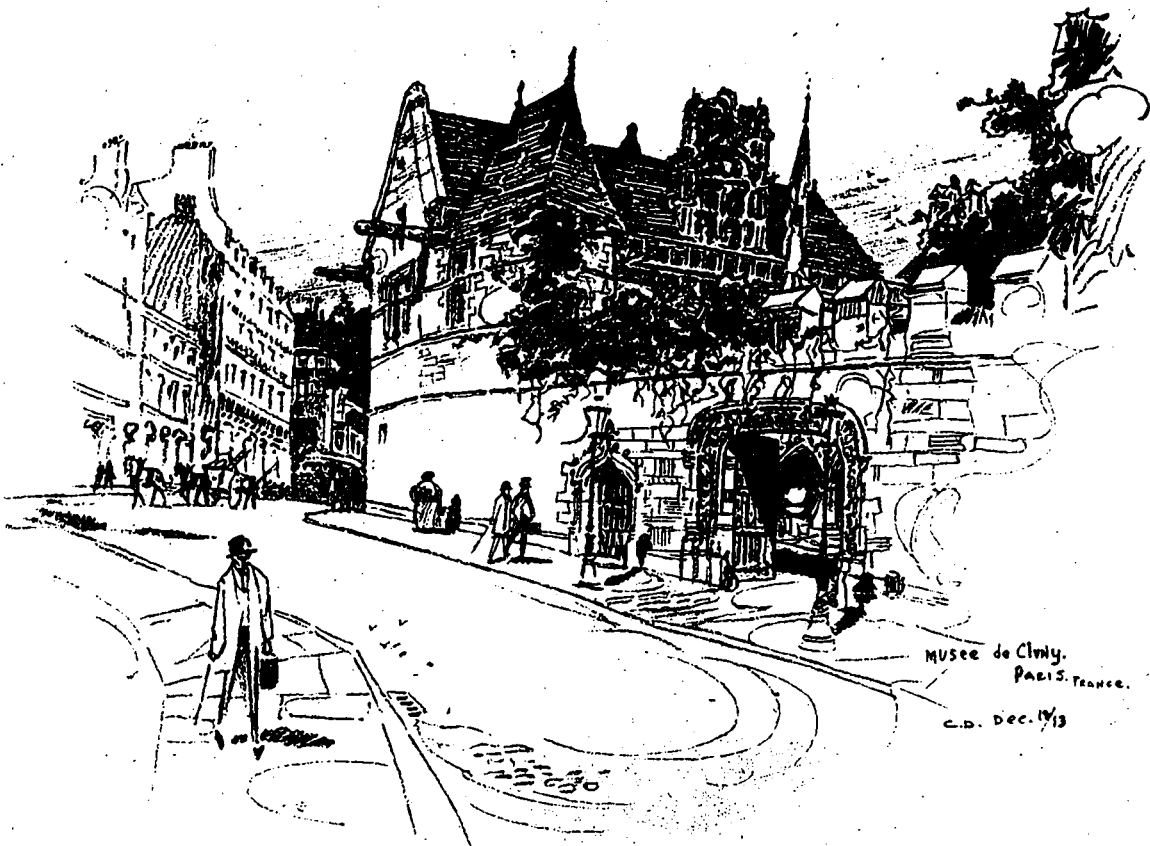
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ARC DE CAROUSAL
PARIS.
FRANCE.

C.D. JAN 27/14

ARC DE CAROUSAL, PARIS.



MUSEE de Cluny.
PARIS. FRANCE.

C.D. Dec. 1913

MUSEE DE CLUNY, PARIS.

Leaves From An Architect's Sketch Book

By Charles Dolphin.

IN the concluding paragraph of the previous installment of this article a brief reference was made to London which, as explained then, is a study in itself. Hence I will not attempt anything further in the way of description here other than to say that for those who are fortunate enough to visit the Metropolis, it holds a multiplicity of interests, both architectural and otherwise. During the war it meant "Blighty" to all of the Empire's soldiers and the Mecca of "Leave of absence," and consequently many Canadians, including draftsmen, who saw overseas service, are well acquainted with its attractions.

After three weeks' stay in London in 1913, we took the South-eastern and Chatham Express for Folkestone where we caught a channel steamer for Boulogne, the same steamer which, by the strange hand of fate, was consequently destined to convey my regiment, the 24th Battalion, to France on a summer's night in 1915. Little did I think on my first trip that I would see that boat again under such circumstances. Later in the summer of 1916 I watched the same town and docks come into view—this time from a hospital cot, but not the same ship. Folkestone seemed bent on impressing itself on my memory though I search it through and through in 1915 and found little of interest for architectural study.

On arriving at the French port we had to submit to the usual customs search for tobacco and matches, matches being a State controlled industry at the time. However, not being a smoker, they found none on me, although they did

take a box away from a man nearby. It is merely one of the many little incidents differing from our own customs, which one encounters in European travel.

In passing it might be advisable to mention that a knowledge of the French language came in handy, and I was thankful for what little I knew, for it makes things easier in many ways when one possesses at least a smattering of the language of the country in which you happen to be travelling. Anyone contemplating a similar trip will do well to acquire as much French and Italian as possible before going abroad, for these two will take you anywhere on the continent, especially French.

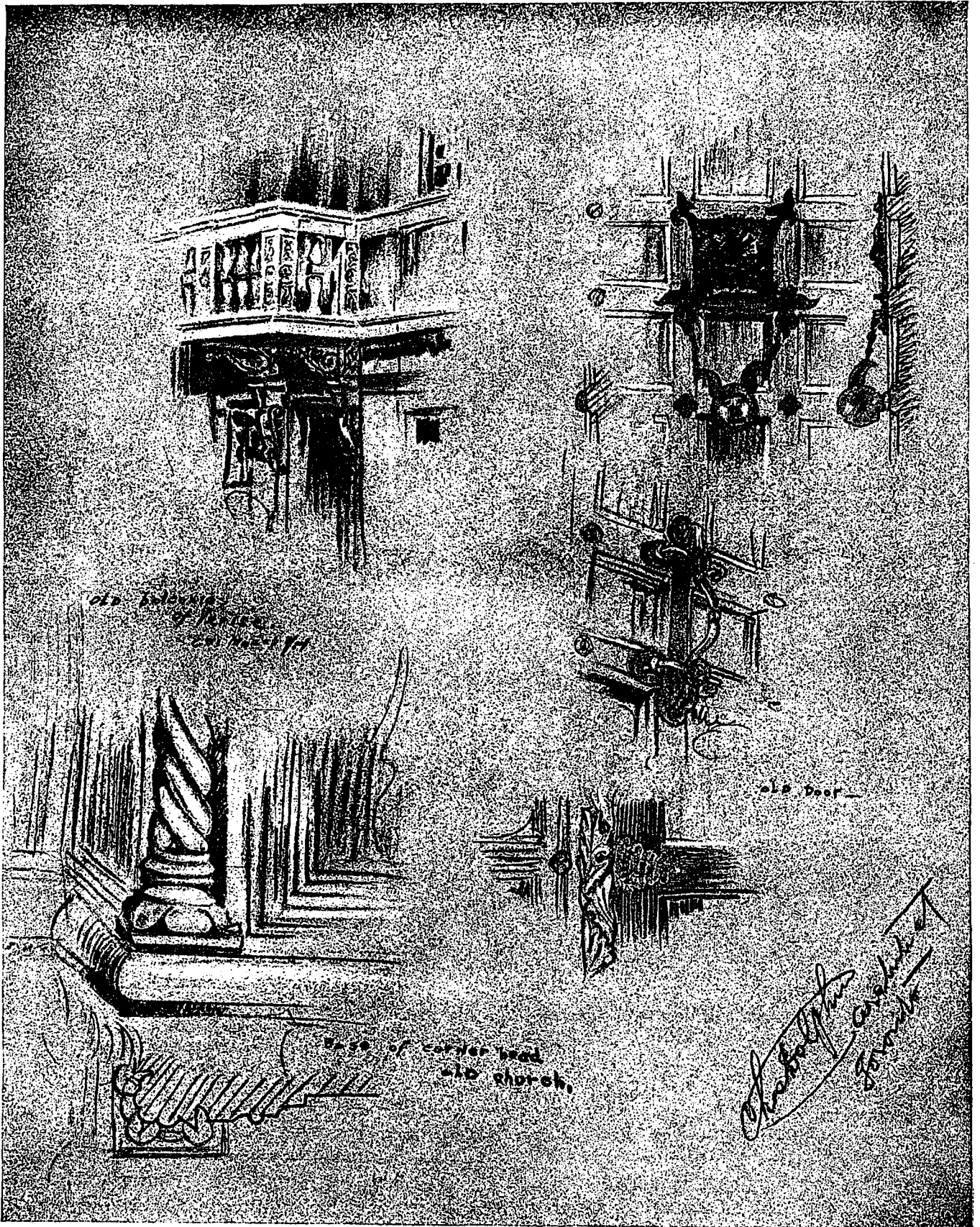
Arriving in Paris we took a taxi (that was in the days before the H. C. of L.) to the Hotel St. Petersburg, a small but very comfortable place. The student with limited means should guard against being inveighed into stopping at an ultra-expensive "caravansary" by a white-hatted brigand driving a Paris fiacre. Personally, I had not forgotten my Glas-



LUXEMBOURG GARDENS, PARIS.

gow experience.

As a city Paris fastened its charm on us from the beginning. The effect at night on the boulevards, with all their pre-war smartness and brilliance, is something not soon to be forgotten. During our first evening stroll we were accosted by many peddlers offering various wares, the peddlers keeping one eye on us and at the same time exercising a sharp lookout for a chance gendarme, or Paris policeman, with his military cape and long sword hanging at his side. It has always been difficult for me to under-



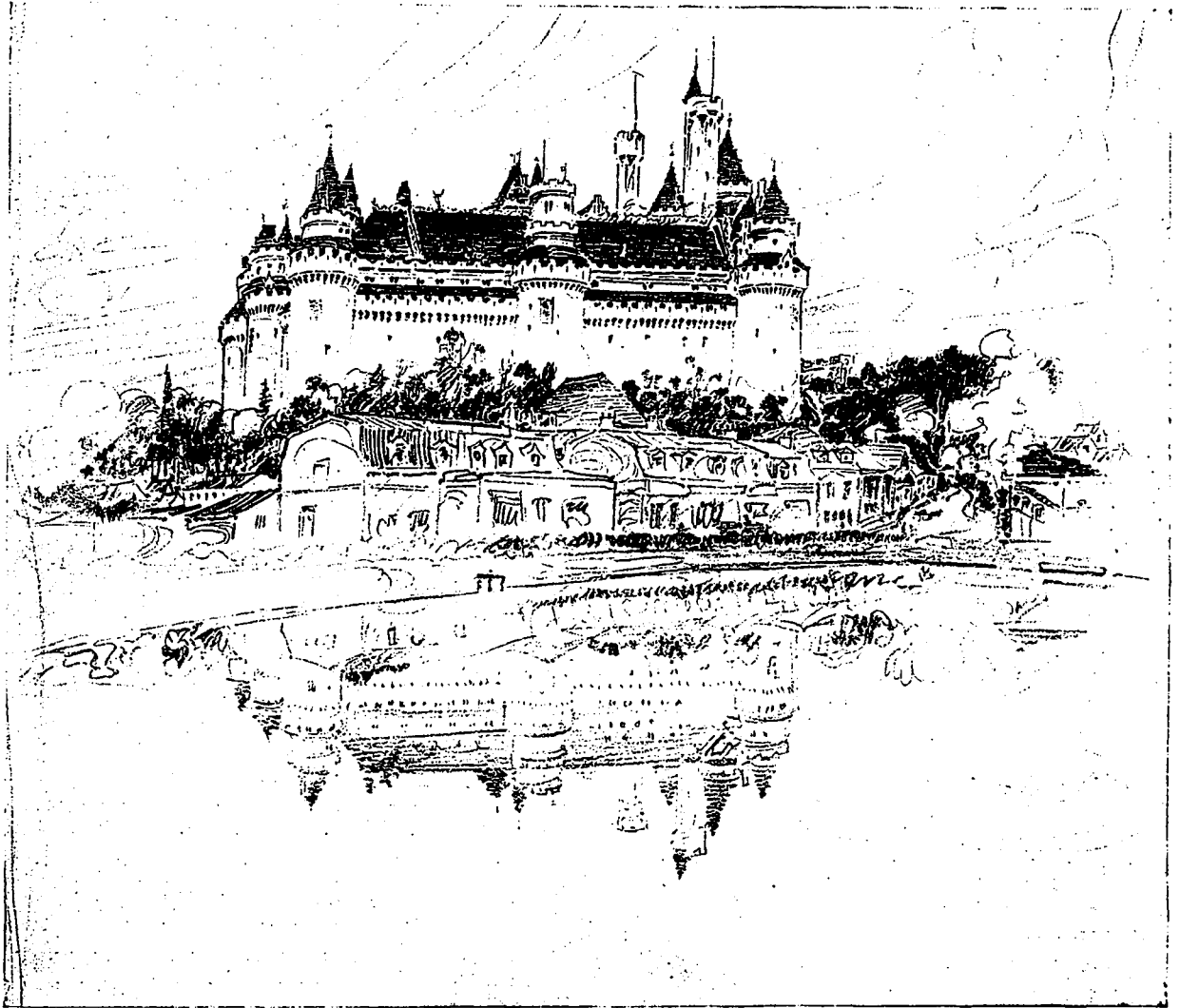
DETAILS OF OLD VENETIAN BUILDINGS.
SKETCH BY CHARLES DOLPHIN, ARCHITECT.

stand the need for such a formidable part of his attire as this sword. I have never seen one used, although it is easy to imagine that it could do effective work. We were also accosted by a German who had lost his way, the first German I ever knew to get lost, except a couple of them who walked into a patrol of mine in No Man's Land during the war. They too were lost, but not for long.

To get back to the subject, the student visiting Paris will benefit by devoting a week to sight-seeing. This will enable him to get his

it, though I do not anticipate Parisians asking my views in the matter.

The city itself is divided by the Seine, with a small island in the river known as the Isle de Cite, upon which is located the famous old Notre Dame. As we intended to spend the winter in Paris, we crossed to the Latin quarter side of the river, where we obtained rooms at a pension, which to our later disappointment we found was conducted by a party who had lived twenty-five years in the western State of Nebraska. This resulted in a loss of any respect

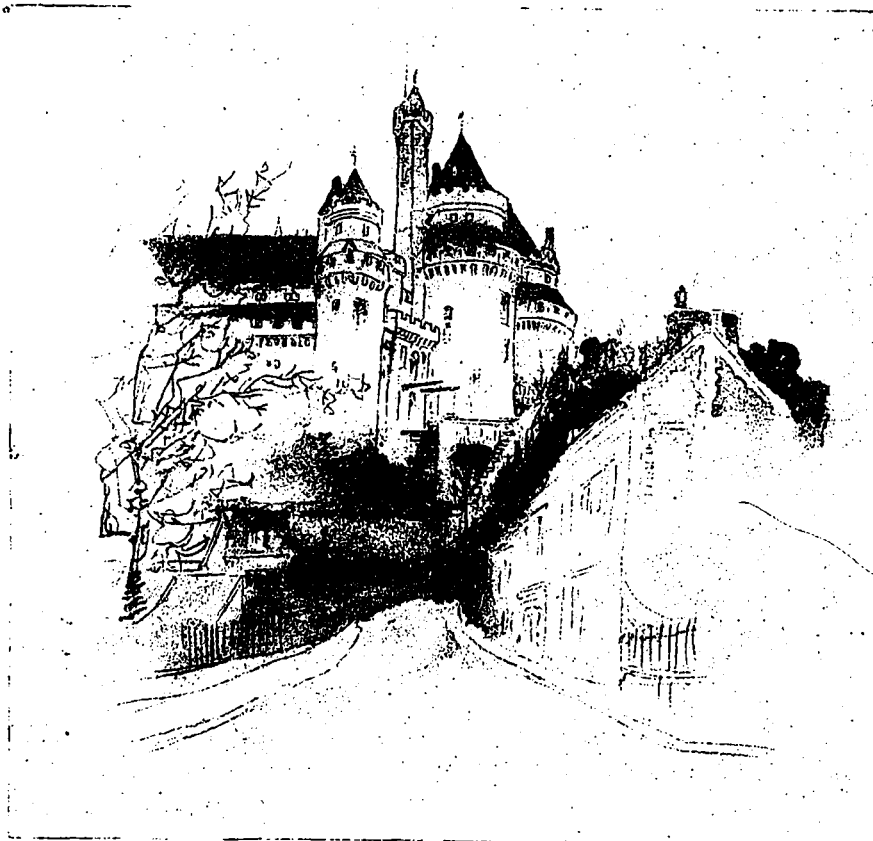


CHATEAU PIERREFOND.

bearings. One of the first things to do is to go to the top of the great Eiffel Tower with a map and try and familiarize oneself with the layout of the city's main boulevards. The view from the tower is unsurpassed. The tower being over 900 feet in height commands an uninterrupted view for miles in every direction, and the city is spread out like a beautiful picture. There has been talk of removing the tower, a claim being made in some quarters that it is out of proportion with all else around it. Personally, I think it would be a pity to remove

I had for the romance of the place when I heard about it. I would advise selecting an abode with an old French family, and where they do not speak a word of English.

We did not, of course, have much time to do any atelier work, much less try for entry to the Ecole des Beaux Arts, so we located an atelier whose patron was a M. Hebard, and did what problems were then under way under his guidance. Personally, owing to the brevity of our stay, I feel that I received much more value from my sketching tours through the city and



TOWER AND ENTRANCE GATE, CHATEAU PIERREFOND.

on little trips to nearby points not far from Paris.

My pension eventually proving unsatisfactory, I moved to a small hotel graced by the name of Hotel Foyot and rich in reminiscences of Whistler, Thackeray, Ruskin and many other men of fame who used to have dinners there in their early days. Another equally celebrated though less popular personage who patronized this place was the late Francis Josef of Austria, who used to stop there when a young man, no doubt looking France over at the time for future reference.

From my bedroom window I could look down upon the beautiful old Palais du Senat, once upon a time a place of royalty and a present to the Queen. Either the King belonged to the first camouflage corps or he loved the Queen a great deal, for the Palais and the Luxembourg Gardens in conjunction form a very beautiful setting.

Also from the self-same window I used to watch the artillery columns streaming by in seemingly endless procession at the dead of night. They seemed to be in campaign kit and off for manouvers, or was it another warning of the coming war. They always went north and few nights went by that a detachment of artillery or cavalry did not pass through my street. It may have been that these columns were just circling the neighborhood, which reminds one of the amusing strategy of a Canadian Colonel at the front during the war, when he had a prisoner placed before the window at headquarters and then ordered a company of infantry to keep circling the building until the poor prisoner thought about five divisions had passed on their way to the front. It was just one way of making the enemy believe that we had lots of reserves, which we did not. The night marching of these troops may, or may not, have had the same significance.

The travelling student should, of course, attend the free hand drawing classes at one of the many schools, as much as his time will permit. There are two well-known places of this kind at the upper end of Rue Notre Dame des Champs. These schools are Collorossi's and the Grande Chaumiere, and have been patronized by such men as Sargent, Whistler and other great artists.

Within easy reach of the city of Compiègne, with its palace, at the time we were there completely furnished as in Napoleon's time, but since ransacked by the Huns. There is a very fine little Gothic Hotel de Ville in Compiègne, and an interesting point about it to me is that, two years later at a Cadet school in France, which I attended while training for my commission as an officer, I was told by a room-mate, a former sergeant of the 16th Lancers (cavalry), Imperial Army, that he helped lock up about 200 Huns in that Hotel de Ville when the enemy retreated from the Marne.

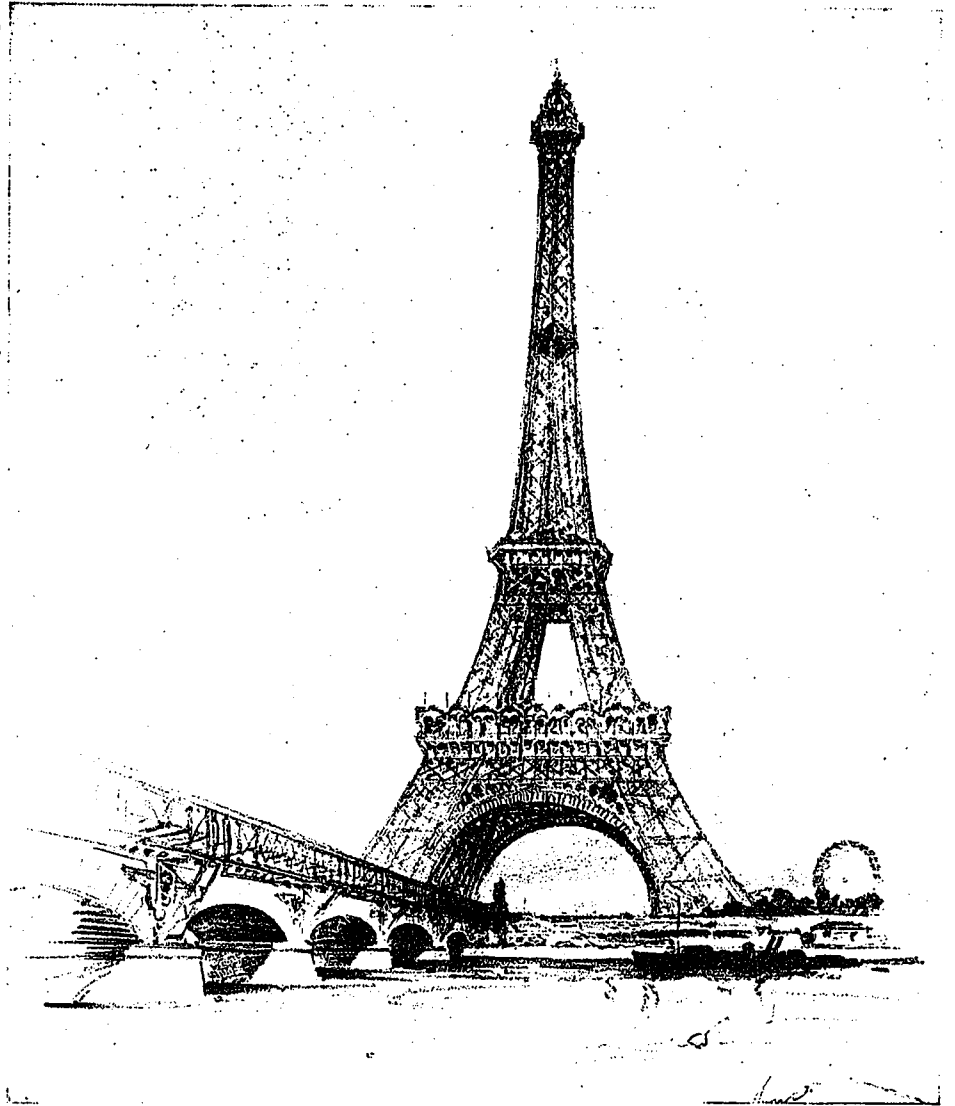
A few miles from Compiègne is the great Chateau de Pierrefond, France's largest chateau, which was completely restored by Viollet le Duc. It is without doubt one of the most imposing architectural piles imaginable and the effect when viewed from the railway station, with the chateau reflected on the little lake below, is very remarkable.

A curious coincidence about Pierrefond is, that while there, and looking from the top of one of the towers, I happened to wonder what the country round about must have looked like in the war of 1870. Six months later the Huns were driving through the self-same valleys round about, on their way to Paris, and it so happened that I chanced to see a reproduction in the London Illustrated Daily News of a clipping from a German newspaper, showing Hun Infantry marching past the entrance gates of Pierrefond Chateau. With the exception of the troops, the Hun photo, and a sketch that I made six months before, were identical.

There are many other places also worth see-

ing, one of which, of course, is Versailles, and I would suggest that your visit be timed so as to be there on one of the days when the famous fountains are playing. These fountains do not play at all times, as I understand the amount of water required is too great to warrant continuous operation.

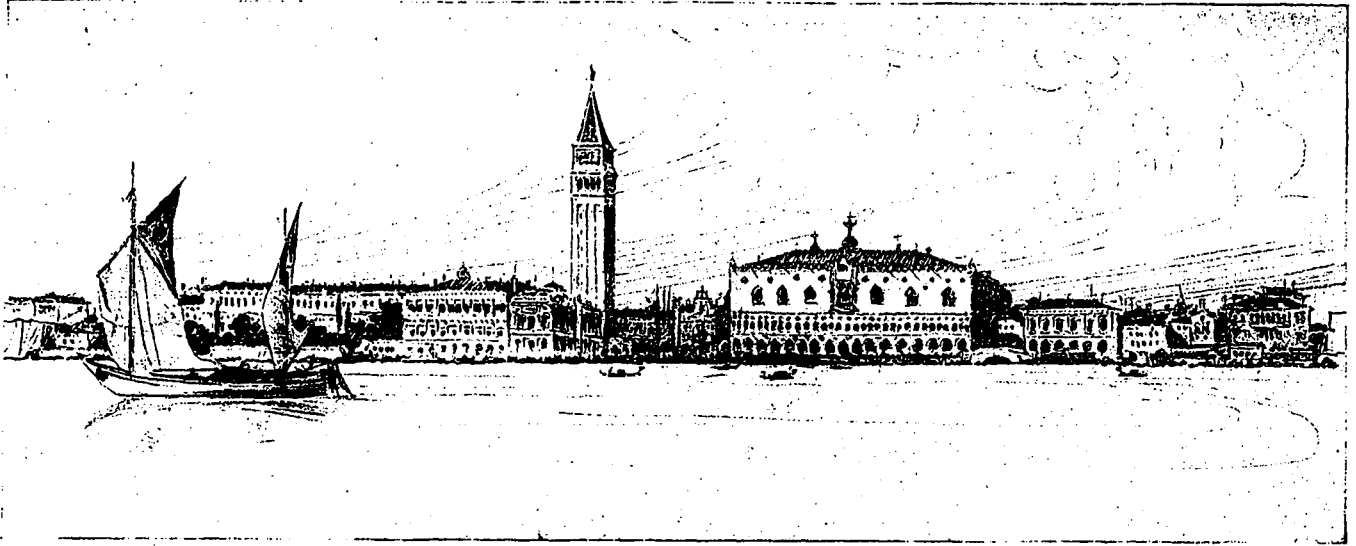
During the winter of 1913, it being fairly cold, I had the pleasure of skating upon the famous lake in the Park at Versailles, and be-



EIFFEL TOWER, PARIS.

ing a Canadian I had my own skates, much to the disgust of French vendors, who rent them at the lakeside. There was a party of us, and as we approached I overheard one of the brigands say to the others, "Les Américains," (meaning "raise the price") but the consternation on their faces was funny when we hauled our skates from our overcoat pockets. I am sure we spoiled their whole day.

St. Cloud, another interesting place, should be seen in the spring when all the flowers are in bloom, as its gardens are very wonderful. Also a trip should be taken to Fontainebleau Palace a few miles from the city. It is the self-



VENICE FROM THE ISLAND OF SAN GIORGO.

same palace where Napoleon kept the Pope a prisoner until he gave his consent to a divorce that the man from Corsica was particularly desirous of obtaining just at that time.

In the city there are, as before referred to, a great many points that will be a complete study in themselves for the student, such as Notre Dame Cathedral, Arc de Triomphe—through which the great Victory Parade passed at the conclusion of the great war—the Arc de Carrousal, etc.

As my itinerary was to include a tour of Italy and Greece, my first move was to buy a transportation ticket that would cover most of my trip from Paris through these countries and return. This method saves a lot of trouble on your journey. If you wish to take side trips from main points you can do so, but your main line of travel should be first taken care of and then it is off your mind.

I decided to go via Switzerland by the Simplon Tunnel route, as I wished to have at least a glimpse of the famous Alps. This route takes you round Lake Lucerne through Berne, Geneva,

Lausanne and through the famous 12-mile Simplon Tunnel under the Alps to Milan, Italy.

Entering Italy via this route gave me a lasting impression in that I came from the cool spring climate of the Alps to the sunny summer weather of Italy—it was like stepping through a door into the sunshine. The impression remained with me all the time I was in the south.

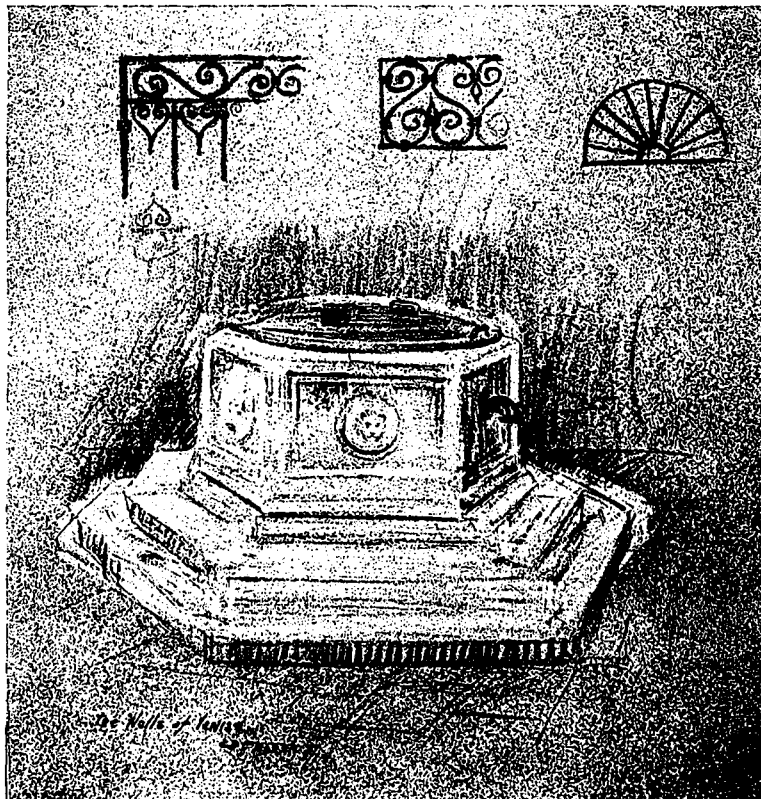
In Milan I stopped at the Hotel del Europe, quite a good hotel, and very near the famous cathedral, often referred to as a "Dream of Marble." An idea of the richness of the cathedral will be gained by the knowledge that there

are over 2,000 life-size statues scattered about its immense facades.

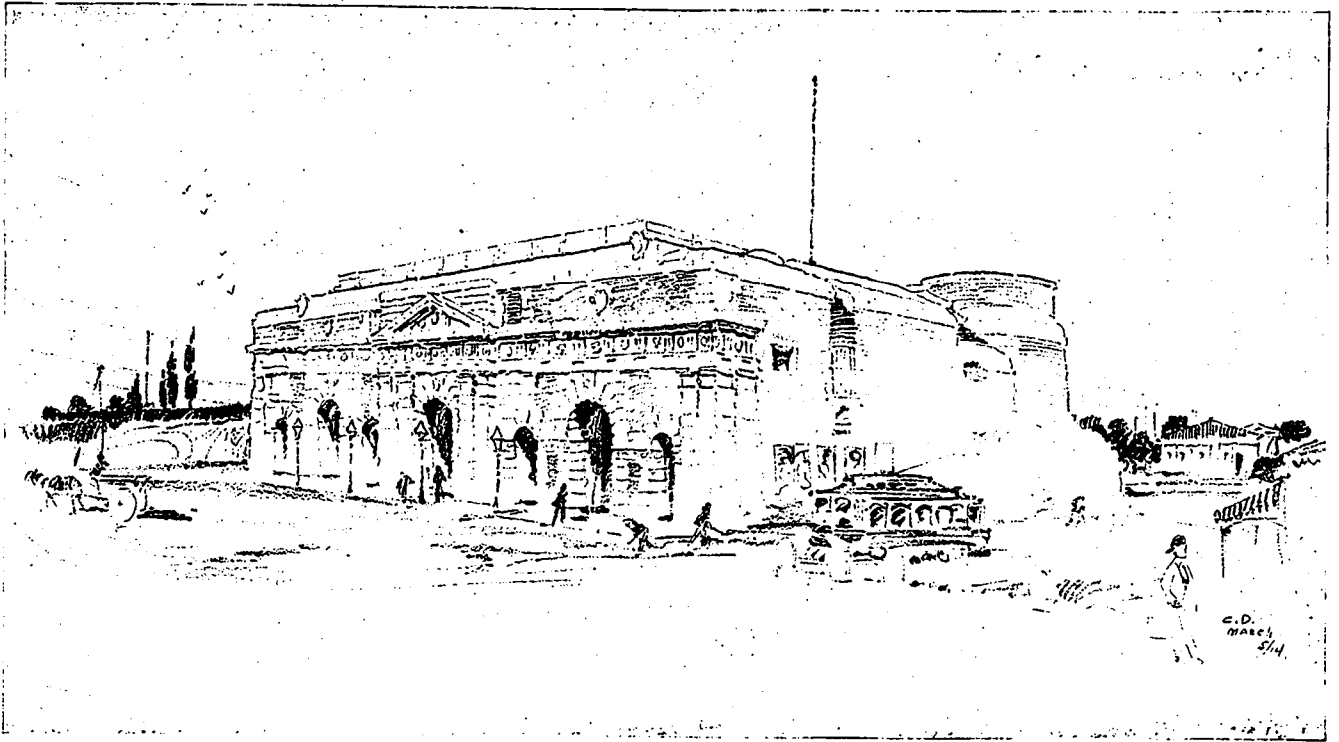
Milan is a very modern city in general appearance and a great centre of music. I mention this, as I was entertained each night by "singing bees" in the hotel courtyard by ambitious future opera singers at practice.

A trip should be taken out to Chertosa di Pavia to see the church with its famous Renaissance facade, and entrance gate with its "Sscralfeto" plaster work.

From Milan I then went to Verona to see the old



ONE OF THE WELLS OF VENICE.



PORTA NUOVA, VERONA.

Roman arena, in very fine state of preservation and still in use for games, etc., and the beautiful Loggia facing the town Piazza. From Verona one may see the Alps that figured so prominently in the Great War.

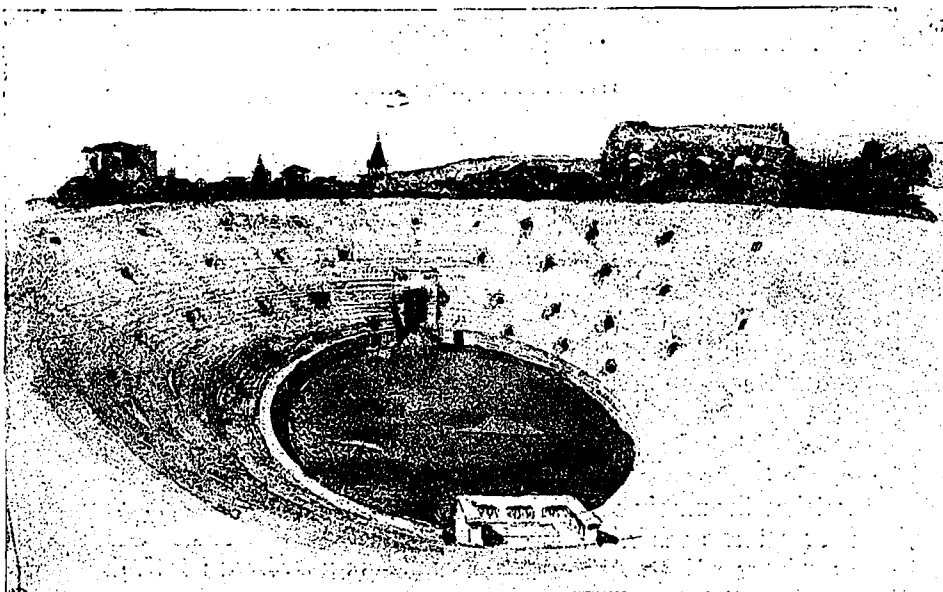
I then proceeded to Venice, and if time allows, would advise a stop at Vicenza, as there are many objects there of interest to the student.

Arriving at Venice is a very interesting moment of the journey, in that one travels at first over a viaduct well out to sea before reaching the city. On all sides, as the train speeds along, nothing can be seen but water with islands in the distance. Venice proper was built for pro-

tection from the northern tribes, upon islands well out at sea, and developed into, at the height of her prosperity, Mistress of the Sea. Her merchant palaces are one of the wonders of the world to-day.

Upon arriving in the city at night, I went out to the front of the station and was quite surprised to find nothing but water before me, and I realized that henceforth I must travel in a boat unless I walked, for there are no street vehicles of any kind in Venice except an odd hand cart, the streets being so narrow and continually crossing canals by countless, fine little bridges. It is without doubt one of the most

ARENA AT VERONA.



SKETCHES BY CHAS. DOLPHIN, ARCHITECT.

ARENA AT VERONA.

wonderful and entrancing cities in the world.

A complete description of the city is hardly possible, as there is so much of interest that I am constrained to leave it to the choice of the student to map out his own course throughout the city. Needless to say, that one may spend a month in Venice and then not weary of it.

It might be well to refer to a few of the important points that should, of course, be seen, such as the famous old St. Marks facing the Piazza San Marco, while around the piazza, or square as we would call it, will be found some of the finest buildings in the city, such as the Campanile, the Library and Doges Palace with its beautiful stairway in the court.

The Campanile fell a number of years ago, but a conscientious government placed barricades around the ruins and employed experts to sort out the beautiful carvings which were all carefully repaired, and the tower to-day is the result—practically the identical tower that fell. I understand that even the old brickwork itself was used as much as possible in its reconstruction. An interesting point is that the Pope at the time, who was a Venetian, had a telephone line kept open through to Rome at which end he listened to the bells as they rang again in the tower following its restoration.

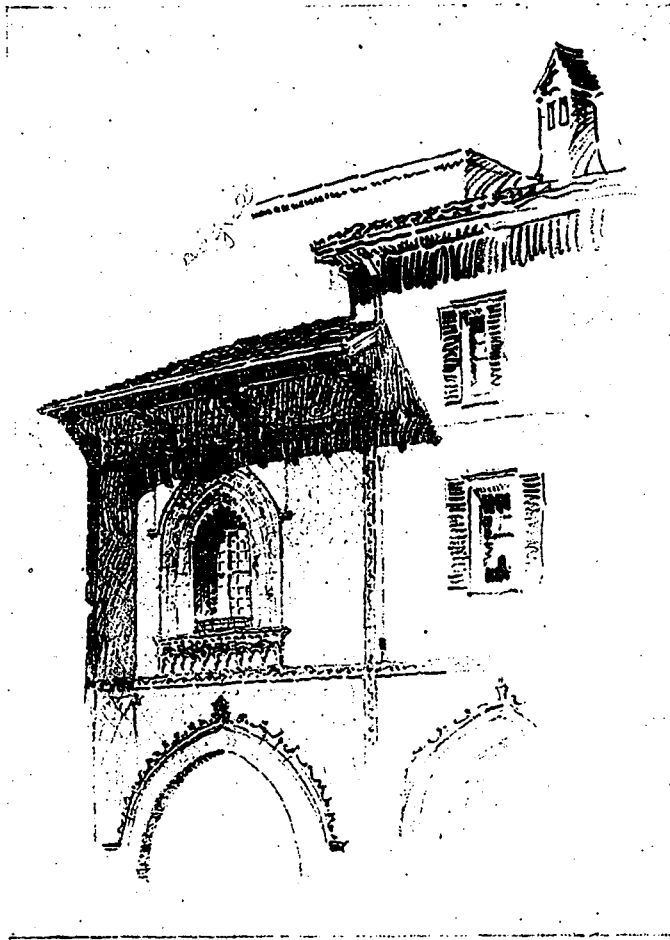
A trip across the lagoon should be taken to the Isola San Georgia from where a beautiful view of the city can be obtained. Also a trip to the famous recreation and bathing place, and if time will allow to the Cimitero (cemetery). This is also on an island by itself and is very interesting as many exquisite monuments and tombs are to be found there.

Throughout the city one will find a multitude of objects for study, especially the palaces along the Grand Canal, as well as innumerable little bridges spanning the smaller canals. Many beautiful balconies are to be seen and well worth study, as are also the Public Wells of exceptionally fine design, and it is well to remember that

Venice is famous for its lace, glass and brass work, and many pleasant hours may be spent delving about among the many interesting little shops.

Novel Overhead Crane

A new type of overhead crane, specially suited for long spans where rigidity and lightness are important and difficult to obtain with ordinary forms, has been constructed by a British firm of engineers. Instead of the usual double girder a single V-shaped girder is used. The hoisting ropes hang over the side of the girder, thus giving a higher lift than is possible with the standard arrangement where the hoisting ropes pass between the two girders. Other advantages are claimed for this interesting departure from traditional practice. It has been installed in the firm's own works with satisfactory results, the working load being 5 tons, the span 55 feet, the lifting speed 20 feet per minute, the traversing speed 120 feet per minute, and the main travelling motion 300 feet per minute.



PIAZZA DI MERCANTI, MILAN.

Old Rails for a Cofferdam

A novel method of constructing a cofferdam was employed by a British engineer in India when putting in the foundations for the abutment of a bridge. Piles were formed by joining old 20 feet double-headed rails head to head by iron bands. The lower ends were pointed and the piles driven at 61 feet distances. Mango plants were pushed behind the piles, and when bed-rock was reached, bags filled with clay were used to keep sand and water out of the dam. All the material used in construction was recovered after the work was completed, and the total cost was remarkably low.

Vancouver permits up to April 1st total \$878,593 as compared with \$263,020 in the same period last year.

Memorial Windows

By Arthur S. Dixon, M.A.Oxon.

Reprinted from the Journal of the Royal Institute of British Architects.

I WISH to make it clear that I do not presume to speak about so intricate and technical a subject as stained glass, except, as it were, from the outside, as an architect may be allowed to speak. And the question which I propose to try to answer is: what the qualities or characteristics are whose presence or absence would lead us to feel that windows ought or ought not to be considered acceptable in churches.

This question is not a very easy one to answer, and I may perhaps approach it best if I ask the same question first of other things than windows. What, for instance, are the qualities which constitute the excellence of a church? This is an easier question, for a church has two very definite functions to perform, and it can be judged by its performance of them. First, it has the purely material or utilitarian function of providing shelter—*i.e.*, enclosing a space with four or more walls and putting a roof on top of them. This is sometimes a very simple problem in construction, and sometimes it becomes very complicated; but whatever the constructive problems may be, they must be solved in such a way that the composition of the lines and shapes to which they lead shall be harmonious and pleasant. The other great function of a church is the expression of ideas or feelings. The great west fronts of Amiens and Rheims are—or were—an ordered and logical expression in stone of the whole system of Christian doctrine and Christian ethics, as well as of the current science and day-by-day life of the time. The same is true of the sculpture at Chartres and Paris, and in lesser degree of the other great French churches of the 13th century, and of Wells and Exeter in England. The mosaics of the 4th to the 12th centuries in Rome and Ravenna and Venice, and the frescoes and wall paintings of the 13th, 14th, and 15th centuries in Italy, were expressive of the dominant religious ideas and feelings of their respective times. Incidentally, construction and expression resulted in work of such beauty as has long been beyond our attainment. But beauty seems to have been a secondary object, if, indeed, it was a conscious object at all. It seems to have been the inevitable result of well-directed energy and thought, which had for their primary objects material utility and spiritual expression.

It follows from this that when we judge or criticize a building we demand that the performance of its material or utilitarian function should be efficient; that the arrangement or composition of lines and shapes and colors by

which this end is attained should be pleasant and harmonious. And in the matter of the expression of feelings and ideas I think that we demand that it should be clear and definite and in harmony with certain standards which we acknowledge of dignity and beauty. (I am not quite sure that the last point would be admitted by every school of thought to-day.) A picture has this in common with a building: that it is also a combination of lines and shapes and colors; but so also is a wall paper or a textile fabric. From a strictly etymological point of view, it might be called a picture or painting, if it were nothing more. But we should hardly call it a picture or think it justified as a picture if it did not convey to us a thought or an emotion. A landscape, for instance, is not a mere copy of certain existing facts which we call nature; it is rather a means of conveying from the mind of the painter to the mind of the spectator certain truths which the painter has perceived, or feelings which nature has aroused in his mind. A picture in which figures are employed will convey impressions which have been made on the painter's mind by his observation of human nature, or theories or doctrines which he embodies in human, or partly human, forms.

What then are the qualities which we demand in a picture? In the first place, a certain pleasantness or beauty, or, at least, a certain orderliness and dignity in the combination of lines and colors; and in the second place, the suggestion of certain ideas, facts, or feelings, which must be of a certain value or importance. Mr. Ruskin has said that a picture is not a great picture unless it either reveals a noble truth or arouses a noble emotion. All pictures need not be great pictures; but, at least, we demand of them that they convey to our minds some idea or some feeling which is of some value or interest.

A window can do all these things of which I have spoken in connection with pictures; but there are some things which a window can do and which a picture cannot do; and there are things which a picture can do much better than a window and which a window had better not attempt. A window is capable of much greater intensity of color than a picture; glass through which the light passes is capable of a fiery brilliance which cannot be attained on plaster or canvas or paper. This particular quality it must never forego; it must always look like glass, and it must always retain, at whatever loss of other qualities, that peculiar jewel-like

quality which belongs to glass. On the other hand, there are certain things a picture can do much better than a window: such as effects of light and shade, and perspective and distance. These things a window had better not attempt, partly because it can never do them well, and partly because, if attempted, they would be likely to diminish the very qualities of brilliant color which are its especial glory.

A window differs from a picture in another way. A picture is not a necessity; we can, if necessary, do without pictures altogether, and therefore a picture, in order to justify its existence, must have something important to tell us. A window has a utilitarian necessity: we must have it to keep out the rain and the wind—it is justified if it does nothing more; and if the glass is colored, it is justified if the colors are so arranged as to give pleasure to our eyes. It may be nothing more than a pleasant arrangement of lines and colors, and still it is justified. But the designer of a window may, if he will, fill it with figures of men and women and saints and angels, and so make expression of thought and emotion; he may let the red and blue and green and golden light so shine through the glass as to quicken the hearts of worshippers and guide their intelligence. And so it follows that there are two main points by which a window may be judged—color and draughtsmanship.

Of course, there is no rule by which we can say whether the color of a window is good or bad. You may think the color of one beautiful, and I of another; there can be no proof which is right; all we can do is to train our judgment by continual observation of good examples, and all who have done so are agreed that much better coloring is found in old glass than in new. . . . I venture to say that anyone who is taking upon himself the responsibility of beautifying, or possibly degrading, one of our churches by the addition of a window should, if possible, spend some time in studying the examples of ancient glass at Gloucester or Malvern or Warwick or Oxford, or even, if he can find time to get there, as far off as York or Chartres or Bourges.

I shall, I am sure, be asked if it be true that the coloring of ancient windows is richer and more beautiful than that of our modern windows—what is the reason why this should be so. Was the ancient glass in itself better than ours? I would answer that 60 or 70 years ago, when the revival of painted or stained glass windows began, this was undoubtedly the case. There was only to be got at that time smooth, flat, very clear glass from which it was impossible to get the variety and richness of color and texture which marks the old windows. But since that time many varieties of glass have been introduced, and although the very skill with which

modern glass is made has robbed it of certain qualities which made easier the task of the window painter, still there is now obtainable glass of admirable color and of great variety of thickness and texture; and we must, I think, admit that if ancient windows are as a rule better than modern windows the difference is due not so much to the quality of the materials we use as to the knowledge and skill with which they are manipulated.

The quality of color in a window does not depend entirely or even principally upon the quality of the color of individual pieces of glass. A single piece of color does not make its quality felt until it is seen in relation and in juxtaposition to other colors. The skilful arrangement of pieces of colored glass is more important in relation to the final effect than the quality of the color of individual pieces. You or I may get together a collection of the finest and most costly pigments in the world and put them together on a canvas, and the result might be some kind of a mess; it might not in the real, true sense be color at all. But let a Raphael put colors on a canvas, let his skilful hand arrange them in certain proportions and certain ways of juxtaposition which are revealed to his trained intelligence by intuition of laws which he himself perhaps only partly understands; then the colors begin to sing together, as the painters say, and for the first time you have what can really be called color.

I am not one of those who can even begin to explain the laws which govern the harmony of color. I suppose there are no colors which a great painter cannot mate together. A square foot of green and a square foot of red may be enemies for ever: but reduce the red to a square inch and the two may get on very well together. One tint of blue and one tint of red may clash: alter the strength of one or the other, and they may harmonize. An easier method, and one much used in mediæval times, was to separate colors by a neutral color or white or black. The brightest and even crudest vermilion and greens and blues are found in the coloring of our mediæval screens in Norfolk and Devonshire; they are separated from each other by lines of white or gold, and the result is soft and harmonious.

This method was embodied in the heraldic rule that color is never superimposed on color or metal on metal, but always color on metal or metal on color. Metal means gold and silver, and covers also white pigments instead of silver and sometimes yellow instead of gold. Black will also serve, and so will a neutral tint like brown or grey. In the roof of the sacristy at Sta. Croce at Florence the brown pine beams are partly colored: the brown of the timber separates and harmonizes the bright red and blue

and green pigments. The glass of which a window is composed is self-colored; it is flashed with red and stained with green or blue or purple while it lies liquid in the furnace: but the drawing of outlines and of such elementary shading as is permissible in a window is done on the surface of the colored glass with a brown pigment, which is afterwards burnt in. The skilful use of this brown pigment is very useful in the harmonizing of colors, but nothing is more effective in this way than the black bands of lead with which the pieces of colored glass are held and bound together; and the thicker or wider the bands or cams of lead, the greater is their effect. In early times it was only possible to get glass in very small pieces; but this was often an advantage, for it increased the relative quantity of the harmonizing lines of black.

In the matter of draughtsmanship the difference between old and new is as great or greater. Many of our modern draughtsmen are very skilful; they may be even more learned in anatomy and perspective than their predecessors, more skilful in the matter of light and shade, more realistic in certain superficial ways, but these are things that do not really count in a window. What really counts after the mere color is the power of expressing feelings and emotions, and in these great qualities it is very seldom that the modern designer approaches the standard of the old one.

This is no matter for surprise, for it seems clear that each human faculty finds its highest development at different stages or epochs in the evolution of civilization, and when the age to which a certain art belongs is past and gone it would seem that we cannot expect an equal development of that art until the kaleidroscope of the world has been shaken up and a new age begins. We think of our own age as having begun some time during or after the dissolution of the Roman Empire. Sculpture and architecture had their highest development in the thirteenth, fourteenth, and fifteenth centuries; painting in the fourteenth and fifteenth; music in the seventeenth and eighteenth; literature, as some think, in the sixteenth; our own epoch is one of science and mechanics. The greatest intellectual power of our time appears to be directed towards science and mechanics, and this being so, it is not strange that we should not get at the same time the greatest success in any of the arts.

More important, perhaps, than the power of expression is the quality of the ideas and thoughts which we seek to express. On the mentality, if I may use so ugly a word, of a design depends its power to impress and touch our hearts, and the mentality of a design, if it is real, must always be the reflection of the

mentality of the designer. Whatever is the quality of his mind will be the quality of his design. And here, I think, we fail very often, for our prevailing modern mentality seems to be rather shallow and sentimental and superficial.

I have been speaking in very general terms, and it is not easy in this way to make my meaning quite clear. I could make it much clearer if I could have obtained some colored photographic reproductions of windows; but such things are not yet, though I hope they soon will be, obtainable. Let me, however, try to deal with some specific examples.

The subject of the Crucifixion was used in the earlier times, in the thirteenth, fourteenth, and fifteenth centuries, as a symbol of one of the fundamental doctrines of Christianity: I mean the sacrifice and atonement of Christ and salvation by the precious blood. Later, and especially in Spain, it was used as a symbol of human suffering; or, if you like, of the splendid truth that the God we worship is one who shares our sufferings. But in the time of the Renaissance, in the sixteenth century, the same subject was used as a vehicle for the exhibition of anatomical knowledge, and examples are not uncommon in which little expression remains of any definite feeling or doctrine whatever.

The symbol of the doctrine of the Incarnation, the Blessed Virgin and her Child, was used in earlier times principally for the purpose of illustrating and inculcating the doctrine of the Incarnation; the Renaissance painters and sculptors seem to have forgotten its original intention and to have used it as a symbol of human and maternal love.

Many doctrinal subjects, such as that of the Last Judgment, have almost ceased in our times to be represented in the arts. Mediæval churches were crowded with figures of apostles and prophets which were always used with real and living significance; with martyrs whose splendid, and one might almost say fortunate, deaths were vividly realized; with saints whose continued and living influence on the spiritual fortunes of men were fervently believed. I shall not, I think, be contradicted if I say that for us when we use their memories for the decoration of our churches they have nearly, if not quite, lost their vital significance.

The point is that we want more definite intention and clearer reality in our modern work; we ought not to use any subject or any figure unless we use it to represent some idea or feeling which is really vital to us. For this reason, I think we must welcome any attempt to use subjects such as those which are connected with the late war. They make a real and direct appeal to us at the present time, and they will be an historical record for future generations of

considerable interest and value. But the representation of such subjects involves great difficulties; we have no well-trying tradition to assist us in the treatment of modern costume, and we must be very careful to avoid over-realistic treatment on the one hand and the prevailing tendency to sentimentality on the other.

I do not know whether I ought to use such words as "sentimental" and "realistic," for they are words of rather vague and uncertain meaning. I must, at any rate, try to explain what I mean by them. I find I have used the word "real" in two different and, indeed, opposite senses; in one sense we want more of it, and in another less. We want more reality in thought and less realism on the surface. When we try to express a thought or feeling we ought to make quite sure that it is a real thought or feeling of our own, and not one which we have taken or copied second-hand, and without full understanding, from someone else. But we need not be too careful as to exact correspondence with fact if it interferes with or actually diminishes the especial clear or transparent quality of the glass itself.

Reality of thought. Let me try to probe this a little deeper. I once lost my pocket book in a wood in Switzerland, and coming back to the hotel I told the patrona of my loss. "Why do you not ask St. Anthony to find it?" "I should not like to trouble a great Saint with my little losses—I should not think it respectful." "Do you not know his story? He lived in Padua in the thirteenth century. He spent his life in tending and comforting little children. When he died he found himself without the great happiness of his life and it was arranged for him that he should find for people things they had lost; they should put 50 centimes in the little trunk by the plaster images of the saint which you so often see in our houses, and these thank-offerings shall be given to homeless children. He likes you to ask him for help."

My pocket book was found by another guest in the hotel who wished me to know his name was Antonio. To these people St. Anthony is a real living personality; that is why they like to dedicate churches to his name and to see his image in their churches and their homes. This is reality of thought.

So it is with another saint—St. Joseph—whose cult is so widespread in modern times. They believe he is a living personality, always near and ready to help them in their troubles and difficulties. These instincts and feelings are sometimes trivial and they may be partly superstitious, or there may be reality at the back of them, but the people's thoughts about them are certainly real.

We, on the other hand, when we dedicate our churches or choose the subjects for our win-

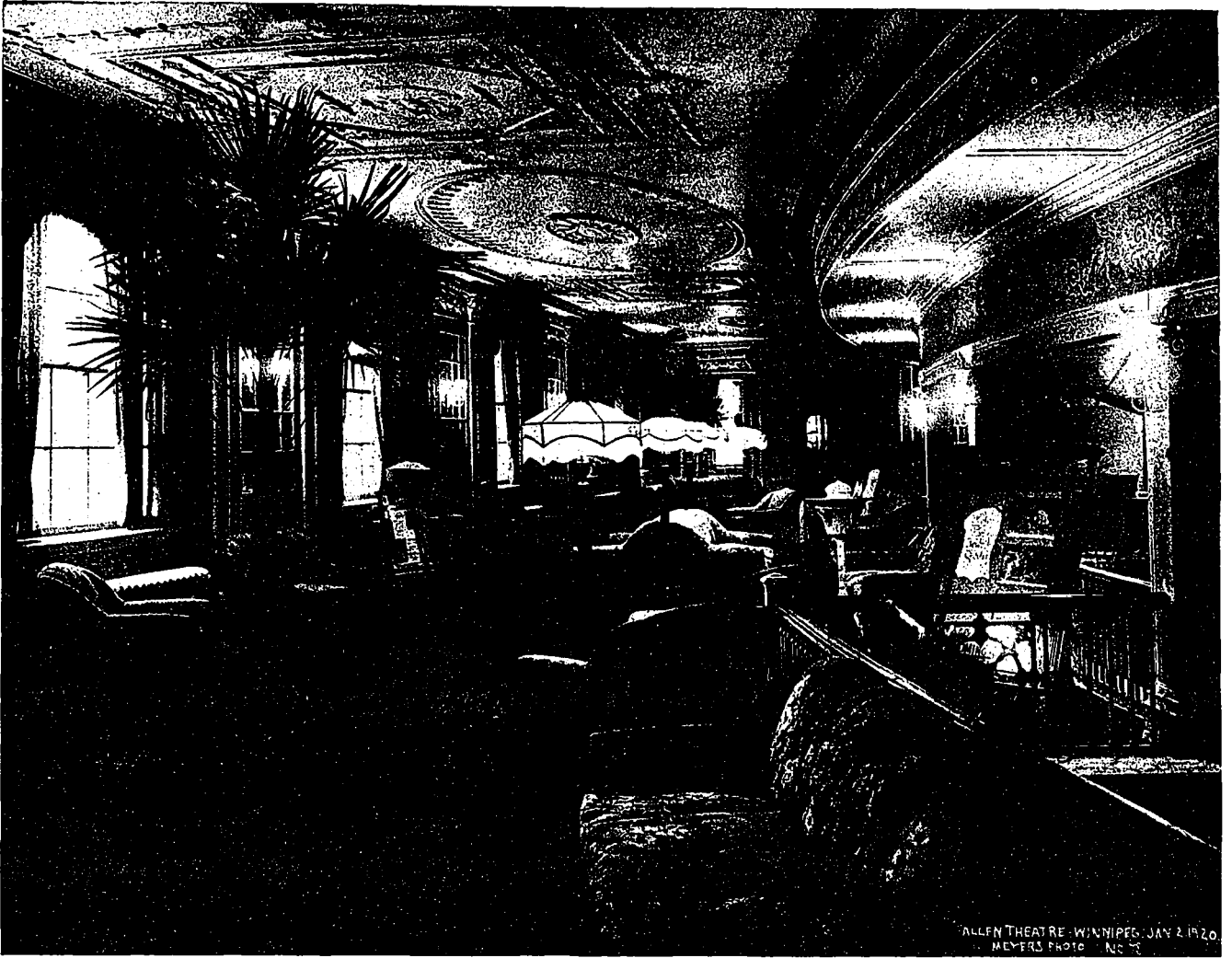
dows, how do we make our choice? We do not know very much about, shall we say, St. Jude or St. Matthias, but we have already in the town a church dedicated to St. Paul and St. Peter. We have already a figure of St. John and St. Luke in that other window, and we had better not go outside the New Testament; so we choose St. Jude or St. Matthias; but is there any living reality in our feeling about them?

Sentimentality is much the same word in its origin as emotion or feeling; emotion and feeling of the right sort are the last things we want to get rid of. I am not sure if there is any emotion which can be called in itself essentially sentimental; but I conceive that a strong and noble emotion can easily become sentimental in the manner of its expression. It may become sentimental if it is exaggerated, or if it lack restraint and become hysterical. There is, also, a difference between different kinds of emotion; some are profound, some superficial; some are lasting or permanent; some are fleeting and they soon pass away; and the latter when expressed in permanent form become a source of weariness and irritation.

I do not think you could ever find anything you could call sentimental in ancient windows. You might at first sight think the old glass painters' figures deficient in expression, but on closer examination I think we must admit—and this more particularly applies to the earlier thirteenth and fourteenth century windows—that there is a very remarkable strength of expression in the lineaments of their faces and in the pose of their figures. The longer we look at them the more we must be impressed with the depth of sober feeling they manage to get out of their simple lines and touches. Every face and every figure seem to have a different and interesting and important thing to tell us.

Another fault they always manage to avoid is any appearance of self-consciousness in their figures; their figures never look as if they were sitting for their portraits. Our modern figures more often than not look as if they were having their photographs taken. I fancy the reason is the direct use of models; it would be safer perhaps if our modern designers did not use a model for any particular figure they are designing, if they did not draw their designs directly from the model. Of course, a designer must train himself in the knowledge of the human face and figure by long courses of drawing from models. But the actual figure in the window should come, I believe, from images formed in his own mind by the action of present thought on the garnered treasures of past experience and observation, rather than from a model posed and chosen for the particular purpose of the design in the actual making.

(Concluded on page 124.)



MEZZANINE PROMENADE: ALLEN THEATRE, WINNIPEG.

C. HOWARD CRANE, ARCHITECT.

New Allen Theatre, Winnipeg

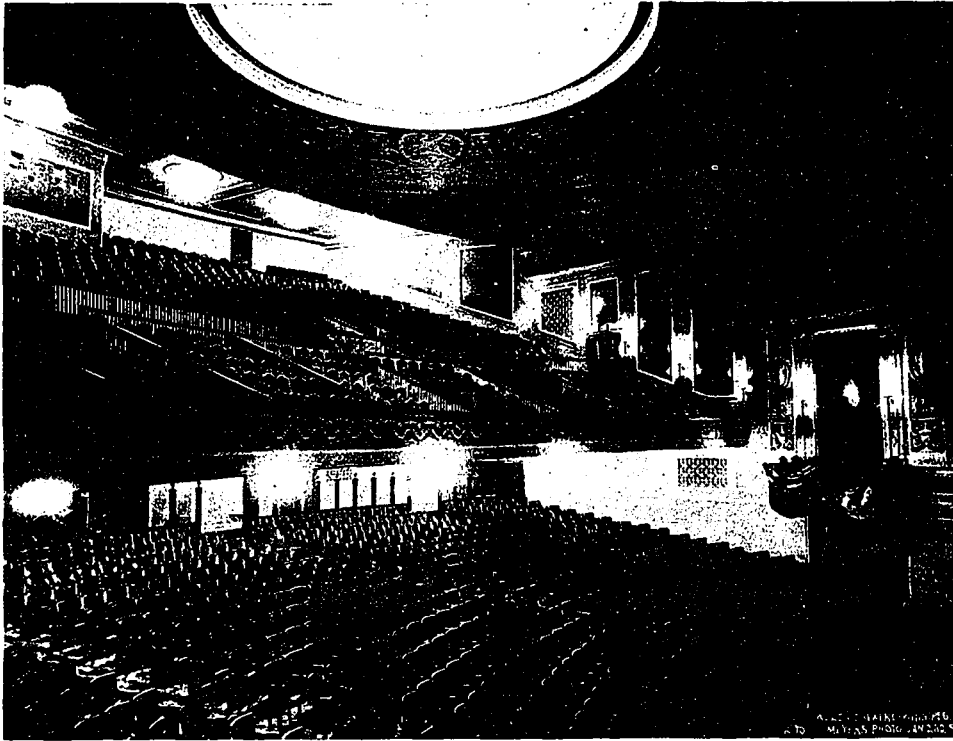
WHILE the growth of moving picture houses represents an outstanding phase of present building development, this growth in itself is secondary in importance to the deservedly noteworthy type of structures which are being erected. The Allens in particular, have done much to promote good architecture in buildings for this purpose as has already been demonstrated by subjects presented in these columns, and their new Winnipeg house, recently opened, and which is illustrated in this connection, is but further evidence of their progressive policy.

This new theatre is not only the latest, but it is the largest photo-play house on the Allen circuit. It rivals in decorative character and appointments its several worthy predecessors which have been added during the past few years to the large number of similar enterprises all under the control and direction of the one management. The exterior, which is of buff brick, and which shows a nice use of stone ornaments, is somewhat in character with the downtown Toronto theatre, owned by the same inter-

ests. Stores for rental purposes are on either side of the entrance, with circular headed window openings in the upper facade and shallow pilasters rising to a simple detail cornice.

The plan itself embodies no unusual departure as regards layout or arrangement. Access is through an attractive lobby, 20 by 45 feet, connected with a 10-foot foyer, extending the full width of the auditorium. The outstanding feature of the interior is a luxuriously furnished promenade on the mezzanine floor which with its heavily upholstered chairs, settees and reading lamps, and richly carpeted floor, makes an ideal meeting and resting place for the patrons, with every comfort and convenience.

The auditorium is circular in form, free from columns and obstructions, with a large balcony having the front portion taken up with boxes or reserved seat compartments. The seating capacity of the house is 2,000. As in most of the theatres erected by these interests, the orchestral pit has been eliminated and the musicians occupy a slightly elevated platform which



AUDITORIUM: ALLEN THEATRE, WINNIPEG.

brings brings them in full view of the audience.

The color scheme and decorative detail show skilful handling throughout; old rose, ivory and French gray tones predominate, with fluted columns and plaster ornament forming the definition of the wall panels. An elaborately designed dome with hidden electrical effects recessed in coves, enables the house to be lighted without any bulbs being seen. Comfort at any season is assured through the installation of a most modern ventilating system costing in itself \$52,000.

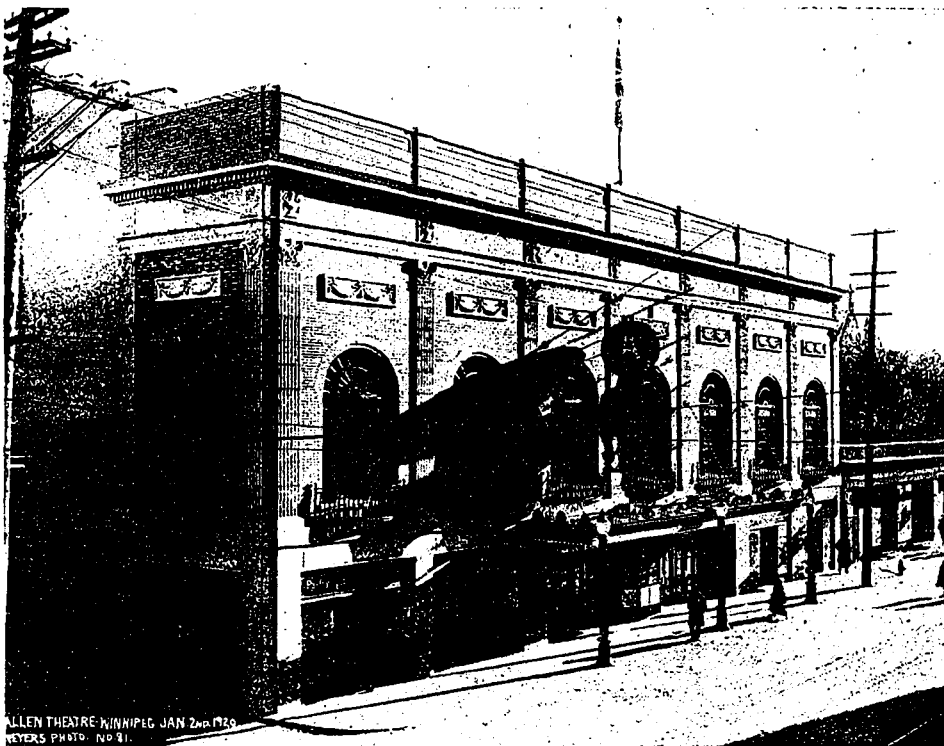
at Winnipeg are to be opened in the near future at Vancouver and Calgary.

Memorial Windows

(Continued from page 122.)

I think we have now come across one or two points which ought to be some guidance to us in the selection of designers for our church windows. In the matter of color and other questions of technique, such as the selection of glass and the manner of the leading, the colored sketches which are generally submitted are little or not use as a guide. It is impossible to tell from them what a window will be like in these respects. We ought, therefore, as a general rule to make a point of going to see some of the work already executed by the designer to whom we are inclined. I say "as a general rule" because if we made the rule too strict a new designer would never get the chance to make a beginning.

In the matter of expression the case is different; the original sketch generally gives a



ALLEN THEATRE, WINNIPEG.

very good idea of the mentality of the designer. If his way of thought is weak or sentimental or superficial we can detect it at once just as we can recognize in the original sketch his power of drawing or the virility of his mind. I venture to say we ought to make up our minds to take trouble to spend time in selecting designers whose work will give dignity to the church, instruction to the people, and real assistance to devotion.

Then there is the question of cost. A painted window used to cost, before the war, from £2 10s. to £4 a square foot. Now they seem to cost about double. And I hear people say, "So and so's window may be better, but we cannot afford it." Well, there is an easy way out of this difficulty. You need not fill the whole window with colored glass. There are some very fine windows, both old and modern, in which a large proportion of the glass, perhaps as much as two-thirds, is left plain and white. In this way it is clear that the cost may be reduced from, say, £6 to about £2 10s., or from £8 to £3 or thereabouts per foot. It is much better to have a window one-third of which is good than one of which no part is good; and the plain white glass makes a very good and effective foil or set-off for the little piece or pieces of color.

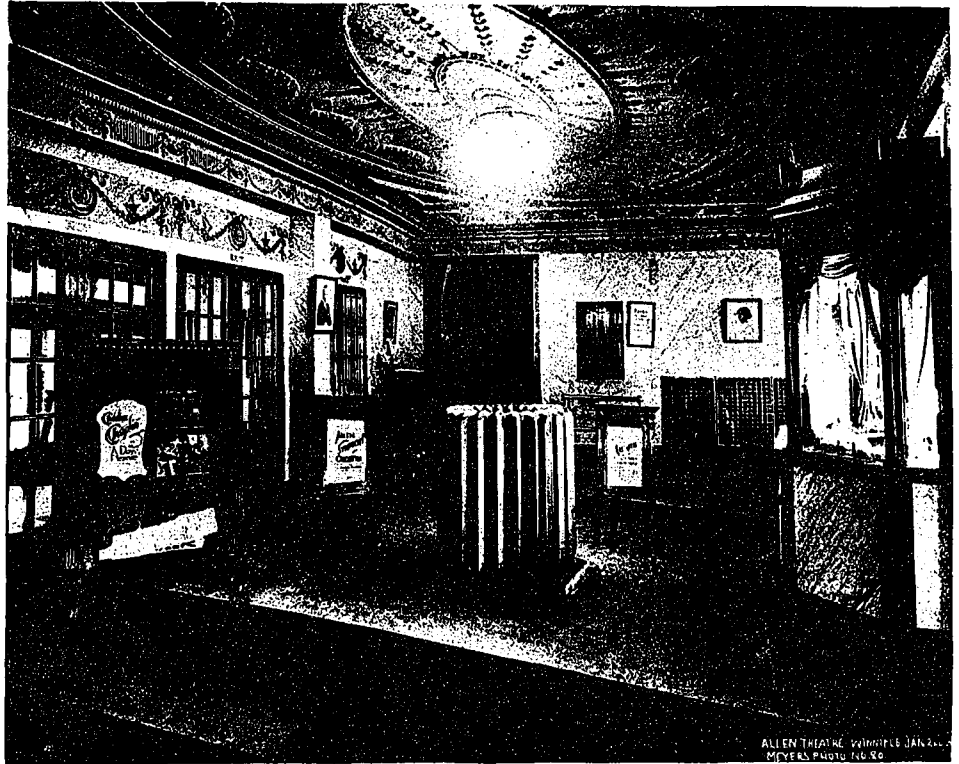
Another way of reducing cost is to do away with figures or drawing altogether, and to be content with a mere arrangement in skilfully designed leading of pieces of colored glass. There are many cases in ancient churches of old glass collected from broken-up windows and re-set as a mere pattern of kaleidoscopic color. The same kind of thing can be done, and has been done, with new glass with excellent effect, and I suppose that even now such a window need not cost more than 30s. a foot. Such a window would not be considered suitable for a memorial, but it would be quite possible to insert in a window consisting principally of a pattern of tinted glass one or more small figures or medallions, and in this way also cost may be considerably reduced. . . .

I think the first step is to get clear in our

minds what are the qualities we can get and ought to want in a window, and what are those which we cannot get and ought not to want, and to ask our designers for the former, and not for the latter. . . . We ought to realize that glass painting is one of the greatest and noblest of the arts, and we ought not to be satisfied to lag too far behind the steps of our own great masters.

The Best Sort of Client

One frequently hears, states "The Architect"



ENTRANCE LOBBY: ALLEN THEATRE, WINNIPEG.

(London), discussions among architects as to their clients, and sometimes those which take place among clients as to their architects. The employer and the employed naturally take individual standpoints, but from many criticisms it may be possible to arrive at some general conclusions.

To start with, an architect's client, while not possessing the wealth of Monte Cristo, should certainly have enough money to pay for what he wants without undue strain, for the architect who tries to obtain a quart of requirements within a pint measure is doomed to disappointment and difficulty. At the same time it is by no means certain that a client whose wealth exceeds the utmost dream of avarice is an easy client to deal with, for, as we may have too much of a good thing, there is such a thing as an actual *embarrass de richesse*. But architects and clients both vary, and the best client for one



ALLEN THEATRE, REGINA, SASK.

architect is not necessarily the best client for another. Some of us can place ourselves without much difficulty in the position of our clients, and others cannot. For the first class of architects it is better to have a client who does not define his views and wishes with absolute precision and finality, while another architect will do his best work within narrower limits. In a word, if a man has imagination and insight his best work will be the result of being given a free hand, while other good architects may actually do their best work in giving shape and form to definite conditions

A loan of \$75,000 was made to the Association by the company when the scheme was first adopted last April. Any office employee of the company may borrow from this fund either to pay off a mortgage, or to purchase or build a house. The borrower is required to make a deposit of about ten per cent. of the loan, but smaller amounts are taken. A monthly rental of slightly more than one per cent. of the loan is charged for twelve years, and is deducted from the pay roll. After this period the borrower owns his own home. In the meantime all taxes and water rates, and insurance premiums, are paid by the Association. Repayments on the loans are used to make further loans.



AUDITORIUM: ALLEN THEATRE, REGINA, SASK.

laid down by their clients.

B.C. Employees' Housing Scheme

A recent issue of the *LABOUR GAZETTE* reports that the housing plan of the Office Employees' Association of the British Columbia Electric Railway, has so far proved so successful that forty officials of the company have taken advantage of it to acquire homes, and that other large business firms of Vancouver are considering the adoption of similar schemes.

Big English Housing Scheme

According to a recent news item, work has been started on a housing scheme at Tilbury, England, which will involve the erection of 1,520 dwellings and necessitate an expenditure of £1,500,000. The project is being carried out for the benefit of the transport workers at the docks, and the houses will be grouped about a triangular central park, and be equipped with baths and all modern appliances.

Co-operation Encouraged by Fixed Fee Plan*

By F. A. Wells.

IS the general contractor to remain a constructive force in the building industry? We would hardly be attending this meeting were we not certain that the general contractor renders a needed service to owner, to architect and to engineer. Certainty of delivery within the set time, reasonableness of the cost of construction, and the carrying out of plans and specifications without undue difficulty to owner or architect in getting that compliance, are dependent upon the existence of concerns such as are represented in the memberships of this association.

Yet there are certain individuals who see this matter differently, and who, noting certain things wrong, believe that the remedy is to be found in the elimination of the general contractor, and the assumption of his duties by the architect. What are some of the difficulties and what is the true answer? A well-known middle west architect recently stated one side of the question in a letter to an architectural paper. That letter is significant to the members of this association as outlining a definite effort being made to get work done without a general contractor. It started with the right premises. I do not feel, however, that we as an organization or as individuals can agree with the conclusion. He says:

"Curiously enough, the architect has little or no direct dealings with the craftsman who executes his designs and the worst of it is that the head contractor is placed in a position in relation to the architect that is the very opposite of what it should be to secure the ideal results for architecture.

"Our system of letting work by competitive bidding and then placing the contractor in a position where his profit depends largely on doing as little as the contract will allow for the final execution of the work is a vicious system which has always resulted in making impossible that sympathetic co-operation between architect, master builder and craftsman, which must exist in order to secure the best results in the work."

I think little explanation of this statement is necessary. We all know it to be true. It is a clear portrayal of the situation under the lump-sum contract. Regardless of the builder's ability, the amount remaining for profit is little or much, precisely according as the builder is fair or unfair, generous or tight in his interpretation of specifications. But what is the answer? The author quoted has one idea and we have another. This architect goes on to say:

"An architectural firm with an architect at the head, a master builder and all of his assistants, including a competent force of skilled craftsmen to carry out sympathetically all of the details of the work, would make an organization which it must be admitted, would undoubtedly be far superior in every way to the organization it is at present necessary to gather together for every architectural problem undertaken."

FIXED-FEE CONTRACT BETTER SOLUTION.

I submit that the fixed-fee contract is a better solution of the problem. It requires that a reasonable fee be paid for a definite service.

Some architects may handle their client's work through letting all operations to sub-contractors and may accomplish a good result, but there is no inherent necessity for the architect to broaden his scope. If he desires to increase his opportunity of making profit by extending his activities into the construction field, it is unquestionably permissible, but to do so, he must build a special construction organization able to do just what the general contractor now does, and candidly, most architects would prefer not to be responsible for the larger organization with its certain heavy overhead. In our judgment, after forty years' experience with the various forms of building contracts, the cost-plus-fixed-fee contract, when made with a builder of integrity and ability, brings all that a fair-minded owner can expect or want.

Ability to co-ordinate work is fundamental to economy. It is second nature to the general contractor. While men available to the general contractor are also available to the architectural firm, yet certain jobs going forward to-day where the architect handles all the work through sub-contracts, show very conclusively the lack of that co-ordination.

ECONOMY DEPENDENT UPON CO-ORDINATION.

Co-ordination means economy, and is dependent upon the absolute dovetailing of all trades represented with each other and particularly with the main structural elements. The framework could be built at least cost if no cognizance were taken of other trades. If that work is let as a separate contract, there will be little sympathy on the part of the builder with delays occasioned by or to other trades. Such delays will be the basis for extras. The better way is to have the structural frame handled by the same organization responsible for the general co-ordination of all work. Therefore, the archi-

* Paper presented before the recent National Conference on Construction of the Associated General Contractors of America.

tectural firm handling construction should do exactly what the general contractor now does, but, as a matter of fact, architectural firms do not, except in rare cases, retain any part of the work for their own construction forces to handle. Therefore, such architect's service does not parallel the operations of the general contractor who does from 40 to 60 per cent. of the work with his own organization and equipment.

But how will this contract meet our critic's objections? He wants the builder to operate with, instead of against the architect. On the lump-sum basis, there is a premium placed upon skinning the job and the multiplying of controverted interpretations of plans and specifications. Remove the premium and the difficulty disappears. The fixed-fee contract does it!

The ideal result for architecture consists in obtaining the best possible building at the lowest cost compatible with a reasonable time for execution. Now the best possible building is not reasonably to be expected where the builder can increase his profit by the amount of every omission of undetected substitution, nor will there be a fine execution of the work where every minor opportunity for betterment of plans, and, in fact, every necessity for change from original layout offers opportunity for extras on which few contractors have ever been known to suffer a loss. Under the fixed-fee plan it is possible to order changes, great or small, with absolute knowledge that the cost will be fair and often without increasing the amount of the fee.

FIXED-FEE PLAN FOSTERS CO-OPERATION.

Unquestionably the lump-sum system has many faults. It often gives opportunity for arbitrary and unfair rulings against the contractor, in favor of the owner. It kills that sympathetic co-operation between architect, master builder, craftsmen and owner, which should exist if the owner is to secure the best results. To revive that co-operation, we need only to adopt the fixed-fee principle.

Let me quote from another well-known architect, writing also in the architectural press and answering a question propounded to the membership of the Illinois Society of Architects, which was "Can construction costs be lowered?" We are all interested in its solution. He says:

"On first reading, I was inclined to say that it cannot be done, but one method occurs to me. The idea I had concerns the letting of contracts. There are two methods: first, letting separate contracts for each branch of the work on a unit price basis. Second, letting a general contract for the entire work on the cost-plus-percentage basis. The latter method is the one I suggest.

"The question is largely one of buying power. The general contractor can buy and sublet so much cheaper than the architect that he saves

not only his own percentage but in most cases considerably more. The organized contractor's buying power is based on the same qualification as that of any business man who goes into the market to buy goods. He knows values and he knows the market.

"There is still another advantage. The element of divided interest is eliminated. The relation of the owner, contractor and architect becomes one of co-operation solely, each striving for the best results at minimum cost."

Thus we have heard from two architects. There is between them no middle ground. With the premises of the former we may agree, and with both the premises and conclusions of the latter we do agree.

Some of our members are strong partisans still of the lump-sum contract and desire the fixed-fee contract to be dropped. I believe, however, that under to-day's conditions the consensus of opinion of this organization, as well as of most owners, architects and engineers, is that the fixed-fee form of contract is wise and necessary.

UNSETTLED CONDITIONS IMPORTANT FACTOR.

The case might be different if we knew what carpenter labor would cost six weeks from to-day, or whether cabinet work included in the contract will be delivered at an estimated figure or at a considerably increased cost due to the great difficulty in securing materials.

I believe these conditions are sufficient reason for the adoption of the cost-plus-fixed-fee contract by builders, for its approval by architects and engineers and for its acceptance by owners who are fair enough to expect to pay what their buildings really cost under capable and trustworthy management. We can do our utmost to safeguard an owner against undue cost, but it is not our province to guarantee a cost unless we wish to enter into competition with Lloyd's. On the other hand, were the market falling, surely the owner would desire the advantage of possible lower costs.

The cost-plus-fixed-fee contract is just because it is as adaptable to smaller sized jobs as to the largest construction work and the smaller contractors who are honest and capable can do work on this basis as readily as the larger contractors.

ALL GAIN UNDER FIXED-FEE CONTRACT.

To me the vital necessity to-day is for this association to get behind the cost-plus-fixed-fee contract for building construction. The general contractors cannot lose by its adoption—they have much to gain; architects and engineers have much to gain, and owners have much to gain, for neither the owner nor his architect and engineer desires the cheapest building it is possible for a builder to erect under the plans and

specifications, yet that is exactly what he gets under the lump-sum contract. There can be no such thing as complete specifications. A lump-sum contract is a standing invitation to a builder to skimp the work just as far as he can get away with it.

Of course, a reliable contractor, jealous of his reputation, will not intentionally be unfair, and yet he is not able to look at a problem wholly from the standpoint of the owner if such an attitude jeopardizes his profit. Details not specifically covered in plans and specifications are frequently essential to the success of a building and the builder is not able, under a lump-sum contract, both to conserve his own interests and comply with the owner's wishes.

On the fixed-fee plan, however, his profit is determined when the contract is signed and from that date he is seeking to erect the building speedily so that he may release his organization to earn another fee; to erect it according to plans and specifications plus all later expressed wishes of architect and owner in order that the owner may again seek his service, and to erect it at the least cost compatible with the set standard of quality and speed in order that he may share in the savings. Naturally, the architect has an interest in these things. His work need be only that of interpreter and not of watch-dog.

TIME SAVED VALUABLE FEATURE.

Furthermore, the fixed-fee contract permits work to proceed on the day the contract is signed. Construction may go on coincidentally with the development of details. If speed is paramount, the fixed-fee plan permits saving weeks and often months which would otherwise be required for the completion of plans and specifications, quantity surveys, advertising for bids and final letting of contract. Under the lump-sum method, not one step can be taken until the contract is let, based on completed plans and specifications. Occasionally on the fixed-fee plan, a few dollars may be lost to an owner, due to the later detailed plans necessitating changes in the preliminary construction, but this seldom occurs.

An interesting comparison of results under the two methods has come to our attention. Two competing concerns decided at about the same time to enter a new territory and service could only start after new warehouses were erected. Two reputable general contractors were engaged, one upon the lump-sum and the other upon the fixed-fee basis. The lump-sum job, almost identical in size with the other, was started first but is not yet in service. The fixed-fee job was completed and in use in December. Owners of the latter advised architect and builder of the imperative need for speed and the successful outcome was the result, not of greater contracting ability, but of co-operation, trust and confidence on one job, and its lack on the

other; and the possibility under the fixed-fee contract of beginning work on the signing of the contract, of excavating while foundation plans were being prepared and keeping the work throughout only one step behind the design.

From the standpoint of the builder, what are the benefits except as we share the satisfaction of owner and architect? Do we not render a definite service for which we should be paid? Is it not well that we know with some certainty what a given operation is to net us? Is it not legitimate that we put our profession upon a service basis comparable to that of the architect and engineer? Building contracting firms are notoriously short-lived and the fault is not, we believe, in the lack of business ability, so much as in the system.

ELIMINATING THE DISHONEST BUILDER.

But a more fundamental reason exists than those previously mentioned. I believe that the reason that this association should go on record as favoring the fixed-fee contract is that it will eliminate from the field the dishonest builder. It will eliminate the organization which has not the ability to do successful work and that elimination will come about through the impossibility of that firm obtaining new business.

Its record in the past will stand against it. Reputation is vital to a builder on fixed-fee operations. It is built up only through years of painstaking effort. It can be wrecked by a single operation. Therefore, dishonesty or lack of ability will promptly place a builder in such a position that he will be unable to stand investigation and therefore be unable to operate. There should be no room in the building field for other than able, conscientious builders.

To-day's practice, with some builders operating under the fixed-fee plan, is to refuse to make preliminary estimates in competition. If owner and architect have not enough confidence and trust to make a contract subject to the builder's making of a satisfactory estimate of probable cost, then they prefer not to serve, believing that they can do their best where the fullest confidence is reposed in them.

I sincerely believe that in these times of high building costs we can, through the fixed-fee plan, turn out a building at the absolute minimum cost. Costs are high at best. Legitimate projects are being passed up daily, due to the difficulty of figuring a profit on the use of structures at to-day's costs. Co-operation, through identity of interest and early covering in rising markets permitted through the fixed-fee contract, will help toward cost reduction.

I can only submit as further proof that the fixed-fee plan is right, the fact that my concern's history of repeat business is a surprise even to ourselves, and adequate proof to us that such a basis is logical, fair and in harmony with the times.

Art After the War

EVEN while the guns were demolishing villages and churning the land, men within the very sound of those guns were at work building. The whole countryside might be stricken as if with pestilence, but wherever military necessity demanded there ran through that worse than desert roads which men built under shell fire and then kept in repair. One of the inevitable results of war, visible even while war rages and inescapable as soon as war subsides, is this process of reconstruction.

After such a war as this, which is not yet technically at an end, the need of reconstruction extends beyond the region that shell fire could reach. In an interesting discussion of "Art After the War," a writer in the editorial pages of the "Outlook" states that those roads of France were symbols of men's minds. No one can read the literature produced in the trenches without realizing that just as men were busy reconstructing the highways across the devastated land, so men were busy building in their minds new paths for their thoughts to take the place of paths that had been obliterated by their war experiences. And just as the end of the war has released energy for the reconstruction of material things destroyed or displaced, so the end of the war has offered a new opportunity for the reconstruction of men's minds.

This which seems commonplace enough, and so obvious as scarcely to bear the saying of it, is, like many other obvious things, likely to be overlooked by those who are nearest to it and ought to see it most clearly. The age of reconstruction is distinctively the age of the artist. Primarily the artist is a builder, a creator. Whether the material he handles be pigment or clay or brick or imponderable sound, what he builds is ideas.

Indeed, there is nothing to-day so essential to the world as its art. Even the prophet and teacher of religion cannot avail unless he either has in him the creative power of the artist or can enlist that creative power in the service of the ideas he promulgates. The educator must be an artist, otherwise he will be simply a hearer of lessons or the keeper of a place of detention. The political leader must exercise the function of the artist if he would create new forms of law or of political action to meet the new situation. Whoever, in fact, is to have any creative part in reconstructing what the war has injured or replacing with something better what the war has destroyed, will succeed only to the degree to which he follows the laws and principles which it is the business of the artist to discover and in his product to reveal.

There still lurks in the minds of many, un-

doubtedly, the idea that an artist is a sort of super-entertainer, and that art is a form of restful amusement. Pictures, from this point of view, exist to provide relaxation for the tired business man who has the money to buy them; music is a counter-irritant to the cares and worries of the day or a soporific for soothing overstimulated nerves. According to this view, there is no important distinction between good and bad art. If it amuses, relaxes, stimulates, or otherwise entertains and refreshes people, it is sufficiently good for its purpose.

There lurks, too, in the minds of many people who regard themselves as artists the idea that art is primarily for the self-satisfaction of the artist; that it is good to the degree that it expresses the emotion which the artist wants to express. Pictures, from this point of view, are but projections of whatever is in the soul or mind or nerves of the person who paints them. Music is the audible cry of the composer's spirit, whatever it may be. This idea of art ignores the interests of the tired business man, just as the business man's idea of art ignores the yearnings of the artist; but the two ideas have this in common—that the good or bad in art is a matter of comparative indifference. From neither point of view has the artist any need of a conscience or a standard.

In either of these senses art is a trivial thing. It is equally a silly luxury for the seeker of entertainment and for the person who imagines himself an artist because his emotions are too much for him. In a nation engaged in the serious business of finding order in the chaos that war has created and setting to rights the things that war has set askew, men with a sense of responsibility are rightly impatient with those who talk about art at such a time, if art is nothing more than a means of entertainment or a sort of emotional safety valve.

Art, however, is not a luxury; it is a necessity. It supplies to men the satisfaction of a craving as great as hunger or thirst. From time immemorial men have faced a world of chaos as we are facing it to-day. They have tried to think their way through the tangle, and those who have thought the most clearly they have hailed as their philosophers. They have groped their way to faith in an order underneath all this disorder, and those who have brought them the clearest light of faith they have hailed as their prophets. But men have not been satisfied, they never will be satisfied, with merely hearing about this order and beauty which they are convinced exists somewhere. They want that order and beauty made real to them. They

(Concluded on page 134.)

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

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Canadian Roofing Materials

We desire to call our readers' attention to an error in the second paragraph of the editorial on "Canadian Materials and Foreign Products," appearing on page 99 in our previous issue. The paragraph in question should have read: "In this connection attention is drawn to the fact that there is no Canadian-made roofing tile on the market," instead of conveying the rather unfortunate impression that there is no Canadian-made roofing on the market.

As roofing tile and slate are not produced in this country, it is necessary to import them in case that they are used, and at least as regards tile it will continue to be necessary until our own natural resources are developed. Apart from this, Canada is fortunate in having a number of large manufacturing concerns who produce roofing materials equal to the best to be found in other countries, including those of composite and patented character and high-grade asbestos and asbestos shingle products. Hence we take the earliest opportunity of mak-

ing this correction, as the policy of CONSTRUCTION at all times has been to give the fullest measure of support to Canadian interests. The editorial in question was based on recent opinions expressed by certain architects in discussing the subject of building materials, and its direct object and purpose was to set forth views which, we believe, are of interest to Canadian manufacturers.

Ontario Architects Increase Fees

The decision of the Ontario Association of Architects to raise their scale of fees, cannot be construed as placing an additional premium on professional ability, but rather as a step which aims to provide something more adequate in the way of compensation for the services which an architect renders.

According to the new scale the minimum charge hereafter for services will be as follows:

1. In the case of factories and large plain buildings involving no detailed interior finish, five per cent. of the total cost, in place of the former charge of four per cent.

2. In the case of public buildings, office buildings, warehouses, banks, and ordinary buildings, six per cent. in place of five.

3. In the case of residences, from eight to ten per cent., according to the amount of special detail work required, in place of the former charge of from seven to ten per cent.

The total cost of the building is now interpreted to be the cost to the owner of the completed building, including any material or labor that may be supplied by the owner apart from the contracts.

The only other important alteration in the basis of charges is that whereby charges are to be increased to cover the cost of the services of a specialist when required in the case of heating, ventilating, mechanical, electrical and sanitary problems of a special nature.

The increase thus provided will represent something slightly more equitable and remunerative for the class of work which an architect does. It is now an established fact as regards the profession in the United States that only eight out of every hundred architects are required to pay income tax, and it is doubtful if here in Canada the proportion is any greater. Hence the new schedule of charges is not only justified, but is altogether necessary. Under existing conditions, architects both in Ontario and the other provinces are called upon for many extra services, and to attempt to do work for less than the revised schedule provides is simply to invite a personal loss, or otherwise imply that the owner is prepared to accept only partial service in the attention and supervision of his project.

The Charm of Natural Planning

IN the various schemes which are put forward in these days for city planning and development the main fault seems to me to lie in the attitude of the designer, which is usually that of a cold and calculating schemer, writes M. H. Baillie Scott in "The Architectural Review" of London. This brutal and callous scientific spirit can never give to us the city of our dreams. We must set out to realize as far as we can the New Jerusalem—a heaven on earth—and test all our conceptions by the touch-stone of that ideal. We ought to approach the matter from the right end and start with the unit of our design, which is the house itself. And since it is desirable that houses should be of rectangular form, it follows that groups of houses should be rectangular, too, and that radiating and diagonal lines of roads which chop the buildings adjoining them into awkward shapes should be avoided. The best plan for a city is surely the old one—in which within a walled enclosure four main roads meet in a central market square. The four wards of the city are subdivided into smaller squares by smaller streets, and this scheme logically implies the arrangement of houses into courts approached by archways from the streets. This court arrangement, of which we find so many beautiful examples in old towns, is surely the finest way we can conceive of combining buildings, and more especially so when the scale is not too large. For an example near at hand, could anything be better than the little court of Staple Inn with its old paving and central tree? Such exquisite surprises as that are worth all the dreary endless avenues our town-planners rejoice to inflict upon us.

Apart from scientific expediency, the modern town planner seems chiefly to aim at "splitting the ears of the grundleings" by something colossal and immense in scale. He has yet to learn that art is not a question of *avoir du pois* and that the best kind of beauty is to be found in quite simple and humble things. The vulgar desire to "lick creation" with some immense building seems to pervade all our modern conceptions. It is the Prussianism of art. Adjoining buildings of reasonable scale are dwarfed by colossal monsters built at huge expense. Examples in this kind are to be found in most of the central parts of London, and all the sane and simple work of the eighteenth century has to give way to hideous vulgarisms in stone. Nothing is more pitiable as a spectacle than the puffing and blowing and strutting like the frog in the fable on the part of our designers. It is a disease of the mind, and in any modest and sane community would be treated as such.

But, bad as such buildings are in their sense-

less waste of human labor, they are not perhaps so disastrous as the modern suburb, and more especially when it takes the form of what is called, for some unknown reason, "the garden suburb." Here we have vague and sloppy arrangements of dwellings which go to the other extreme of scale. They are gabled and fussy and petty. They pose and smirk at us in their self-conscious artistry. It is the fashion now to say rude things about the slums, but there are not a few back streets in London which merely want cleaning up to make them excellent dwelling-places for those who do not want to be way-laid by self-advertised art every corner. For my own part, I would choose one of these in preference to any garden suburb I have seen. They are restful and peaceable and honest, and they make no pretensions of any kind.

And now we have invented a new horror in building. It is the colony of "dwellings for the working classes." The phrase itself carries with it the condemnation of our social system, implying as it does a broad division of the community into those who work and live in duplicated little dwellings imposed on them by the State, and those who don't work and who live where they like or can.

Would it not be possible to return to the old and better way of building, when towns were definitely outlined conceptions set in natural country surroundings? If in such a case further building is required, would it not be better to start from a series of subsidiary centers instead of creating vague and nebulous suburban areas which are neither fish, flesh nor good red herring? And why should we isolate and segregate our workers like lepers from the community? In the old village the squire and parson contrived to exist in close association with their humble neighbors.

It is a question how far the making of a town should consist of the realization of a predetermined plan, or how far it should be allowed to develop naturally. It would seem the best way to lay down at least the main lines, and yet leave some possibility of variation in the lesser streets.

If a plan fully takes into consideration the levels of the ground and local features such as trees, it will necessarily become somewhat varied in its general aspect. Planning of the best kind has all the air of natural development, because the designer has yielded to local conditions and allowed them to mold and modify his initial conception.

Where there is no vision the people perish. The materialism of science as applied to building will never satisfy our souls. Our towns and

cities should be the expression of the best of the art powers of the community. That is the proper field of the artist, and not the collection of pictures in a gallery which no one needs, and only a few wish to look at. Building should be the highest expression of the spirit of man, and not merely a dull and soulless record of what are supposed to be his material needs. And we who enjoy the privilege of living in a country which still possesses so many great examples of old buildings have little excuse for ignoring the lessons they convey.

Gypsum Wall Board Successfully Withstands Fire Test

The insulating properties of gypsum board and its success as a fire-resisting material were satisfactorily demonstrated in the fire test recently conducted at Toronto, at the rear of No. 1 Fire Station. The demonstration consisted in subjecting two panels or wall sections erected for the purpose to the direct action of fire for a period of 35 minutes duration. The panels which were approximately 12 by 16 feet, were built of ordinary 2 by 4 studding protected with wall board consisting of a 1/4-inch layer of hard wall plaster bonded to a 3/8-inch gypsum plaster base. One panel was faced with clapboarding and the other with a Portland cement stucco one inch thick, the back of the two panels being finished with ordinary inside wall plaster.

While the clapboarding was quickly consumed, and the cement stucco damaged due to the expansion caused by the extreme heat, the two panels remained intact at the end of the test with the gypsum board protection practically unimpaired. An added circumstance was a strong wind which sprang up at the time and which contributed to make the test more convincing. The insulating properties of the material were fully established by the fact that no heat penetrated the wall and that at any time during the progress of the fire it was possible to place the bare hand on the rear of the panels and to find them absolutely cool.

The test has a particular value at the present time in that it proves the advantage of gypsum board as a durable and inexpensive material which can be profitably employed in helping to keep down costs in housing development. The demonstration was conducted in the presence of a number of architects, contractors and others, including representatives of the city architect's office and fire department, and will likely be made the subject of report, which in view of the economy claimed for this type of construction, should be of general interest.

Personal

Stanley T. J. Fryer, O.A.A., and William G. Evans, Hamilton, Ont., whose office has been closed owing to both members being away on active service in France, have again resumed architectural practice in the Home Bank Building, James Street North. Catalogues and price list from manufacturers and supply firms are desired.

Messrs. Eden Smith & Son, architects, Toronto, have formed a partnership with Mr. A. S. Mathers. The business will be carried on at 33 Scott Street under the name of Eden Smith & Mathers.

H. L. Symons & Co., engineers and contractors, have opened offices at 43 Scott street, Toronto. They will be very pleased to receive catalogues and price lists from supply firms.

The Asbestos Mfg. Co., Limited, manufacturers of asbestos shingles, slates, etc., Montreal, have opened a sales office in Toronto, with Mr. Grant Selater in charge.

Canadian Firm to Manufacture Mixing Valves

Arrangements have been concluded with the patentees by the Mueller Mfg. Co., Limited, of Sarnia, Ont., for the exclusive right to manufacture the Niedecken Mixing Valve in Canada. These mixing valves, it is claimed, represent the highest type of development in this class of product. They are regularly specified by the larger architectural firms in Canada and the United States for installation in public buildings, hotels and private homes. The established reputation of the Mueller Co. for goods of quality is the best assurance of the turning out of a high-grade product, and will undoubtedly greatly increase the demand for Niedecken Mixing Valves in Canada, in addition to facilitating the matter of prompt deliveries.

New Slate and Material Firm

A new concern known as the Slate Products Company of Canada, Limited, Montreal, has been formed with a capital of \$200,000, for the purpose of carrying on a business of quarrying, manufacturing and dealing in slate, stone, lime, cement, brick, gravel, etc.

**DIXON'S
ELDORADO**
"the master drawing pencil"

Canada Trust Building, Toronto

(Continued from page 109.)

The upper floors are used for offices of various financial concerns and are planned to specially suit the individual requirements of each tenant.

The basement is entirely devoted to the cafeteria, and is considered to be a model of its kind from a sanitary and artistic point of view, and is planned to ensure the most economical operation.

The facade is designed along the lines of utmost simplicity and stands out by comparison with the usual ornate design of banking institutions. This simplicity has been carried out by the architects in all the branches of the Canada Trust Company, it being this bank's desire to not only express the stability of their institution by their front elevations, but impress upon the public that they are practicing rightful economy in their buildings. The facade is of Grey Canyon Limestone, with tile roof and steel sash, and presents a pleasing contrast by comparison with the surrounding buildings.

The total cost of alterations amounted to approximately \$125,000.00.

The new Market Branch at London, Ont., which is also illustrated, is another of several buildings erected for the same corporation in various parts of Ontario within recent date.

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Art After the War

(Continued from page 130.)

want it in a form that they can live with; and those among them who have taken out of this chaos and disorder material out of which they have built forms of beauty and order and truth they have hailed as artists. Whether it be a cathedral or a poem, whether it be a statue or a symphony, whatever creation of man embodies this conception of order in a way that gives lasting satisfaction to that craving for order, men have kept and cherished. And every epoch in history has supplied its own embodiment of this conception; for each generation of men in its turn has discovered chaos and disorder for itself and has therefore wanted its own disproof of what it has seen in its own ugly present.

To the very extent to which America needs to rebuild her mind after the war, to that extent she needs a pattern according to which she can build. This is no time for men capable of being artists to devote their gifts to the service of the tired business man or to the indulgence of their own emotional appetite. It is the time for the artist to be what he may be—the leader of a people through the wilderness to a promised land.

CONTRACTORS and SUB-CONTRACTORS

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

CANADA TRUST BUILDING, TORONTO.

Carpentry, The Jackson-Lewis Co., Limited.
Electrical Work, Richardson & Cross.
General Contractors, The Jackson-Lewis Co., Limited.
Glass & Glazing, Pilkington Bros.
Hardware (finished), Canada Hardware Co.
Heating, Purdy, Mansell, Limited.
Iron Work, Architectural Bronze & Iron Works.
Marble & Tile, Italian Mosaic & Marble Co.
Masonry, The Jackson-Lewis Co., Limited.
Mill Work and Trim, R. Laidlaw Lumber Co.
Painting, Bavington Bros.
Plastering, Andrew Petrie & Co.
Plumbing, Purdy, Mansell, Limited.
Reinforcing Steel, Trussed Concrete Steel Co.
Roofing and Sheet Metal Work, Douglas Bros., Limited.
Sash (Casement), Trussed Concrete Steel Co.
Steel (Structural), Hepburn & Disher.
Stone (Cut), Geo. Webb.
Mail Chute, Cutler Mail Chute Co.

BANKERS' BOND BUILDING, TORONTO.

Cut Stone, Page & Company.
Mason Work, F. & A. E. Ham.
Carpentry, A. & F. Fisher.
Painting, F. G. Roberts & Company.
Plumbing, McNaughton & Mackenzie.
Heating, McNaughton & Mackenzie.
Bronze Doors & Grilles, Douglas Bros.
Electrical Work, R. A. L. Gray & Co.
Vaults, J. & J. Taylor, Ltd.
Sculpture Work, Ira Lake.

ALLEN THEATRE, WINNIPEG.

General Contractor, A. McDonald.
Structural Steel, Dominion Bridge Company.
Heating, Green & Lister.
Plumbing, Green & Lister.
Decorations, T. Jagman.
Plaster Work, J. Davidson.
Electrical Work, Mundy Roland.
Marble & Tile, Hooper Company.
Sheet Metal Work, Winnipeg Ceiling & Roofing Company.
Ornamental Iron Work, Manitoba Bridge Company.
Stone Work, Olliver & Munson.
Brick, J. D. Woods.
Brick, Alsip Brick & Tile Co.