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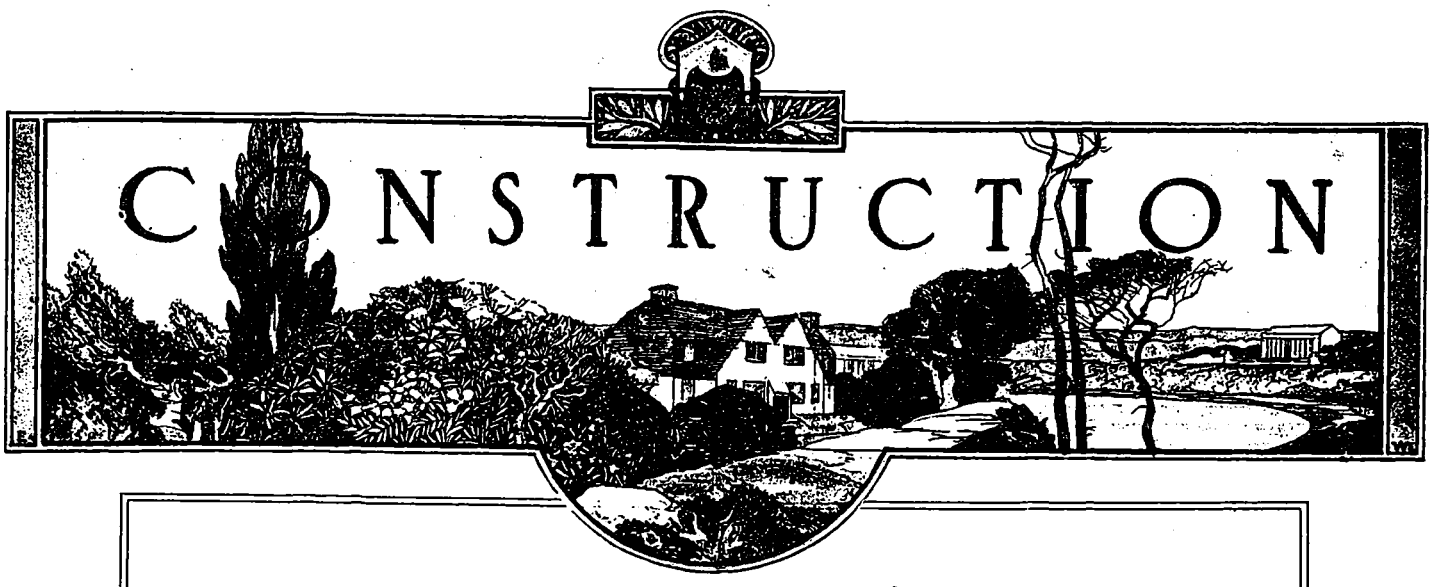

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Full Page Illustrations

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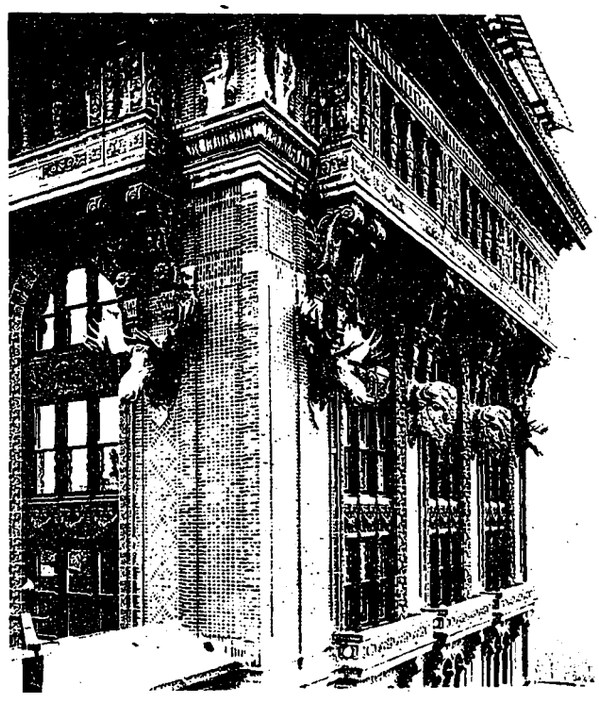
HOTEL VANCOUVER, VANCOUVER, B.C.

FRANCIS S. SWALES, ARCHITECT.

Vancouver's Unique Hotel

The Hotel Beautiful of The Canadian Pacific Railway at Vancouver

PIERCING the skyline as its sixteen stories soar upwards from the crest of the Granville street incline, the new Hotel Vancouver, the largest building in Canada, stands an architectural triumph of development on the Pacific Coast. The palatial building is an indication of what Vancouver has risen to be and what she is expected to be; proof conclusive, also, of the enterprise of the company operating the greatest transcontinental railroad on the American continent. The hotel is the central edifice dominating a fine group of lofty and substantial buildings—the Vancouver Block, the ornate Birks Building and the massive new store of the Hudson's Bay Company. It stands pre-eminent among the city's skyscrapers, now becoming quite numerous. During the past decade Vancouver has developed a metropolitan skyline which is the pride of residents, and which immediately thrusts itself upon the attention of the stranger arriving by sea, as the boats emerge from the Narrows and enter the spacious natural harbor of Burrard Inlet. Towering above all else is the huge hotel building, a monument of optimism; a trifle quaint, perhaps, in architectural design, it is beautiful indeed in its entirety. The design is unique, the object being to give all the rooms outside light. With seven hundred and fifty odd rooms, this was quite a task, but from the photo it will be seen that in this case the architect achieved his desire.

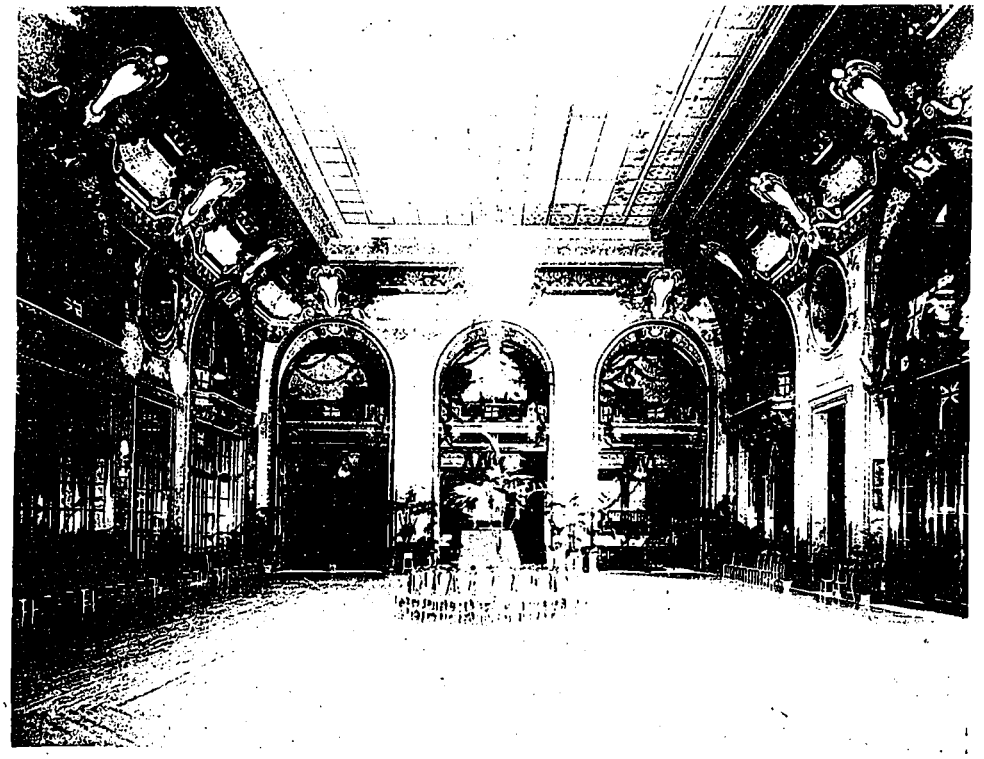


ARCHITECTURAL DETAIL OF FRONT FACADE, HOTEL VANCOUVER.

Certain features in connection with the building stand out with prominence. Throughout all, the aim has been to utilize in the building, as far as possible, material to be obtained in British Columbia, or, failing that, in the Dominion or other parts of the British Empire. The fine grade of pressed rick used on the exterior was manufactured at Clayburn, only a short distance from Vancouver. This brick, of which a huge quantity was needed, is declared by the architect to be equal in quality to the best Scotch brick, acclaimed the world's standard; this statement is of considerable import in view of the fact that Mr. Francis S. Swales, the architect, has had prolific experience in building in the great centres of the world. British Columbia fir and cedar is used in the upper stories; the structural steel for the framework was supplied and assembled by a Vancouver firm. British Columbia granite was used in the construction of the basement story. Belgian, Italian and African marbles were used in parts of the interior, but were all worked in the city. All interior woodwork, oak and mahogany, in the lower stories, was executed by local firms; the kalameined bronze work and practically all of the electric fixtures were also manufactured in Vancouver. In brief, it is a Made-in-Canada building throughout, and is striking evidence of what can be achieved in the Dominion. One of the best views of the hotel is that obtained from the Hudson Bay store, in Granville street, of the north-west corner. From this vantage point the great height and massiveness of the building are very apparent, while its varying skyline appears to advantage. Its size alone would render it impressive, but the architect has risen to his opportunities and has skilfully handled its large masses in a way that appeals to the aesthetic taste of the observer. Jointly with Lord Shaughnessy, President of the C.P.R., and Mr. George M. Bosworth, the Vice-President in charge of the Hotel System, credit for the undertaking and completion of this great enterprise at the present time of financial stringency is due to Mr. Richard Marpole, the C.P.R. executive at Vancouver.

THE MAIN ENTRANCE OF THE HOTEL.

Approaching the hotel from Granville street, one sees first the adequate carriage entrance, with a nicely curved driveway. This entrance has been made a prominent feature, and the



BALL ROOM, HOTEL VANCOUVER, VANCOUVER, B.C.

windowed rooms above, treated in ornamental terra cotta, with a roof of red Roman tiles, have enabled the architect to introduce a pleasing variety in the front of the building. The spacious lobbies leading from the entrance present vistas of an imposing character.

THE LOBBIES.

The first impression upon entering is one of soft and pleasing color harmony on walls, floors and ceilings. The main lobby, leading to the elevators and to the banquet hall, oval room and private dining rooms, is the *piece de resistance* of the decorative scheme. It is the hall through which every guest must pass most frequently, and is therefore appropriately the most distinguished apartment. Above a low, deep-toned marble base, oak panelling extends the full height of the first storey with beautifully carved cornice and door frame. Surmounting all is a groined and vaulted ceiling, richly carved and sculptured. In style the decoration is absolutely original, emanating from the fertile brain of the architect; every detail of the scheme has been specially designed for the Hotel Vancouver.

THE LADIES' TEA ROOM.

At the right of the main lobby a few steps lead to the shaded precincts of the large palm room, with its plentitude of occasional tables and chairs, and its restful air of quiet and repose. On the interior side of the corridor is a spacious writing room. The lobby running east and west is wide and lofty; to the right is the main office and accounting department, while on the left is the cigar stand and news agent's stall.

ROTUNDA, HOTEL VANCOUVER, VANCOUVER, B.C.

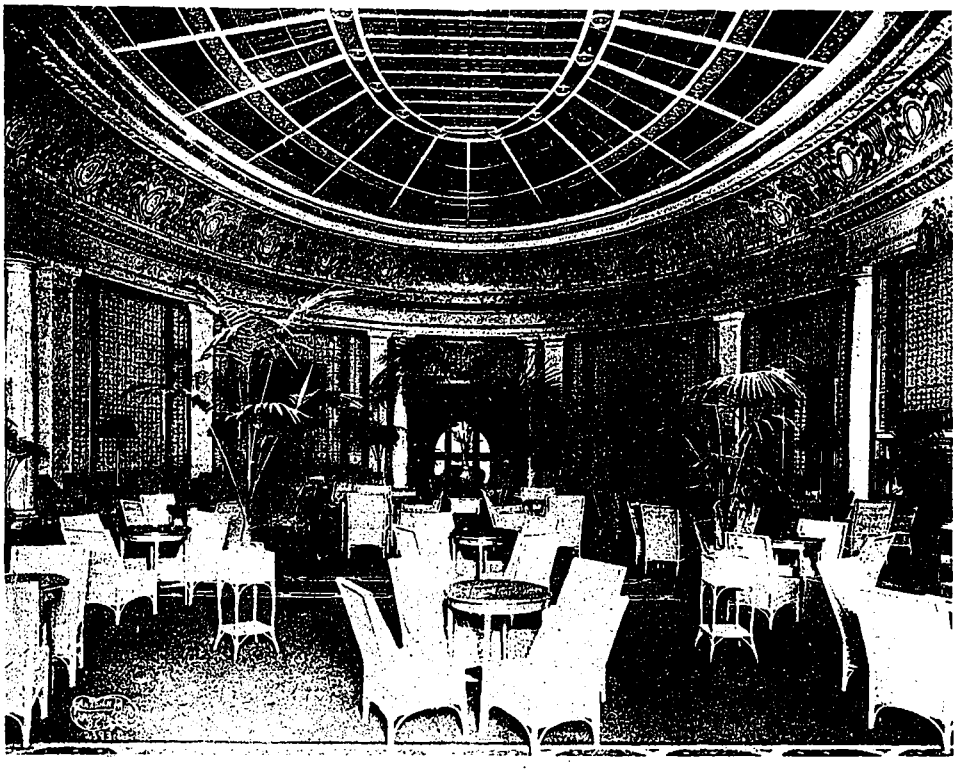
COMMUNICATION SERVICES.

Behind the accounting department of the main office are a number of telephone booths for the use of the patrons, with a cable and marconigram receiving station. An added convenience is the large ticket office occupying the corner of Granville and Georgia streets, where railroad and steamship accommodation may be reserved through the C.P. R.'s own staff.

BANQUET HALL.

A lofty and spacious

hall, for banquets, etc., sixty-six by one hundred and twenty feet and forty feet high, richly decorated and fitted for use as a convention hall, forms the central room to the left of the main lobby. This is expected to be of great service to the city by attracting a number of conventions which are held every year at different points in the United States and Canada on the Pacific coast. The bronze balconies at the mezzanine floor level and the splendid decorative glass ceiling lights and chandeliers are among the most notable ornaments of this splendid hotel.



OVAL ROOM, SHOWING FINE STAINED GLASS ROOF, HOTEL VANCOUVER, VANCOUVER, B.C.

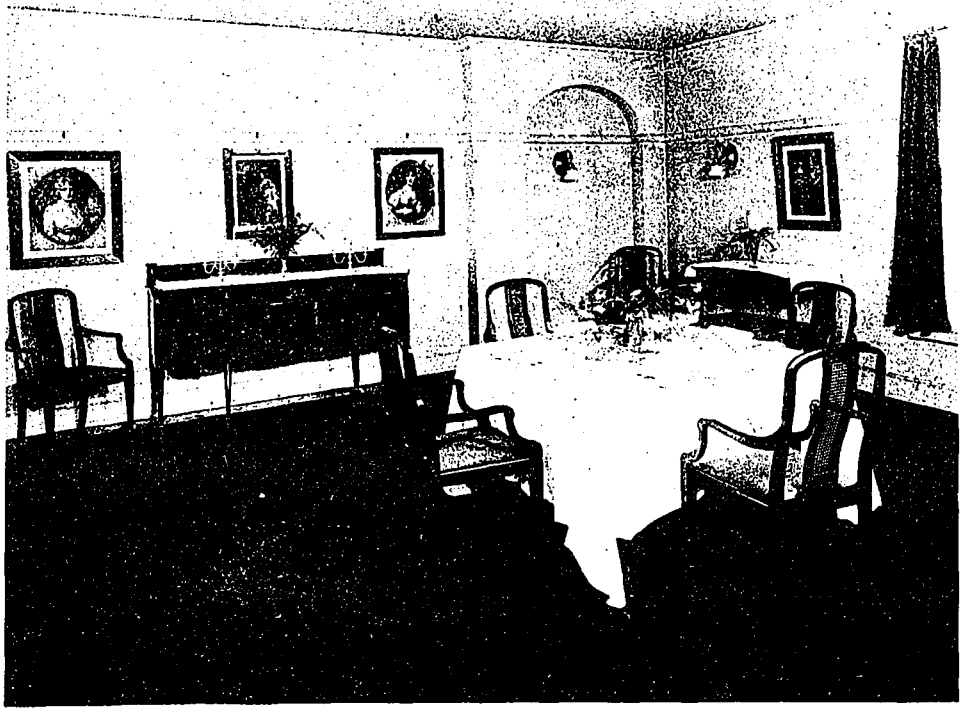
THE MANAGERIAL SANCTUM.

A feature of the main lobby, with its comfortable settees and usual appointments of the foyer, is a mezzanine gallery reached by massive staircases from either side of the entrance, and finished with a balustrade over which one can view the busy scene below. Solidity and simplicity is the keynote of construction here, and where ornamentation is used it is bold and adequate.

Off the east gallery open the suite of managerial offices, where W. A. Turquand guides the helm and conducts the administration and onerous business of the large hostelry, with its accompanying burden of cares and responsibilities.

THE ROOF GARDEN.

The visitor is still further agreeably impressed if he takes one of the many elevators and emerges amid the verdant beauty of the roof garden. Two hundred feet above the street pavement the traveller steps out of the elevator lobby upon the tiled floor of the garden—the flat roof of the hotel transfigured by gorgeous blossoms, and furnished with an army of luxurious armchairs. Here ivy grows and fragrant flowers bloom in profusion. One is up in the air indeed; looking over the parapet, the city spreads away out below like a huge map in perspective, with the people moving on the streets below reduced to pigmy proportions. From this elevated viewpoint the city shows to fine advantage, while the snow-crested and sunlighted mountains to the north, and the sparkling waters of the Gulf of Georgia to the west offer natural vistas picturesque and bewitching in the extreme.



PRIVATE DINING ROOM, HOTEL VANCOUVER, VANCOUVER, B.C.

MAIN LOBBY, LOOKING TOWARDS MAIN ENTRANCE, HOTEL VANCOUVER.

THE HOTEL'S TOWERING PROPORTIONS.

The great size of the hotel is observed from several directions. The ten thousand square yards occupied by its main block, bounded on three sides by Granville, Georgia and Howe streets, would comfortably accommodate a good many fine residences. But below the level of the main floor, and extending towards Robson street, are what might be termed the manufacturing and storage departments. Here are the immense boilers, steam engines, etc., used in the electric light and power service of the hotel. Here also is the refrigerating machinery, turning the sparkling Capilano water into frozen blocks of ice; cooling the drinking water in the pipes to the rooms, and reducing the temperature to near the freezing point in the fifty rooms where food supplies arrive and depart. Also on this level are the spotless and commodious kitchens, fitted with the largest cooking range in the world, and a first-class bakery, which has already earned the new hotel a special reputation for the excellence of its rolls and bread. The pastry and ice cream departments are models of the best that can be produced for and by the artists who preside over them.

Behind the hotel proper is a fully modern laundry, equipped with the latest devices that the art of the machinist can supply; here scores of skilful workers transform dirty linen into spotless white, wash acres upon acres of sheets per diem, and seem wantonly lavish with towels and pillow-cases, etc. When the visitor has wandered around these lower halls of industry he gains some impression of the great size of the hotel. The subterranean passages and plethora of rooms remind one of the interior recesses of a mammoth ocean liner.

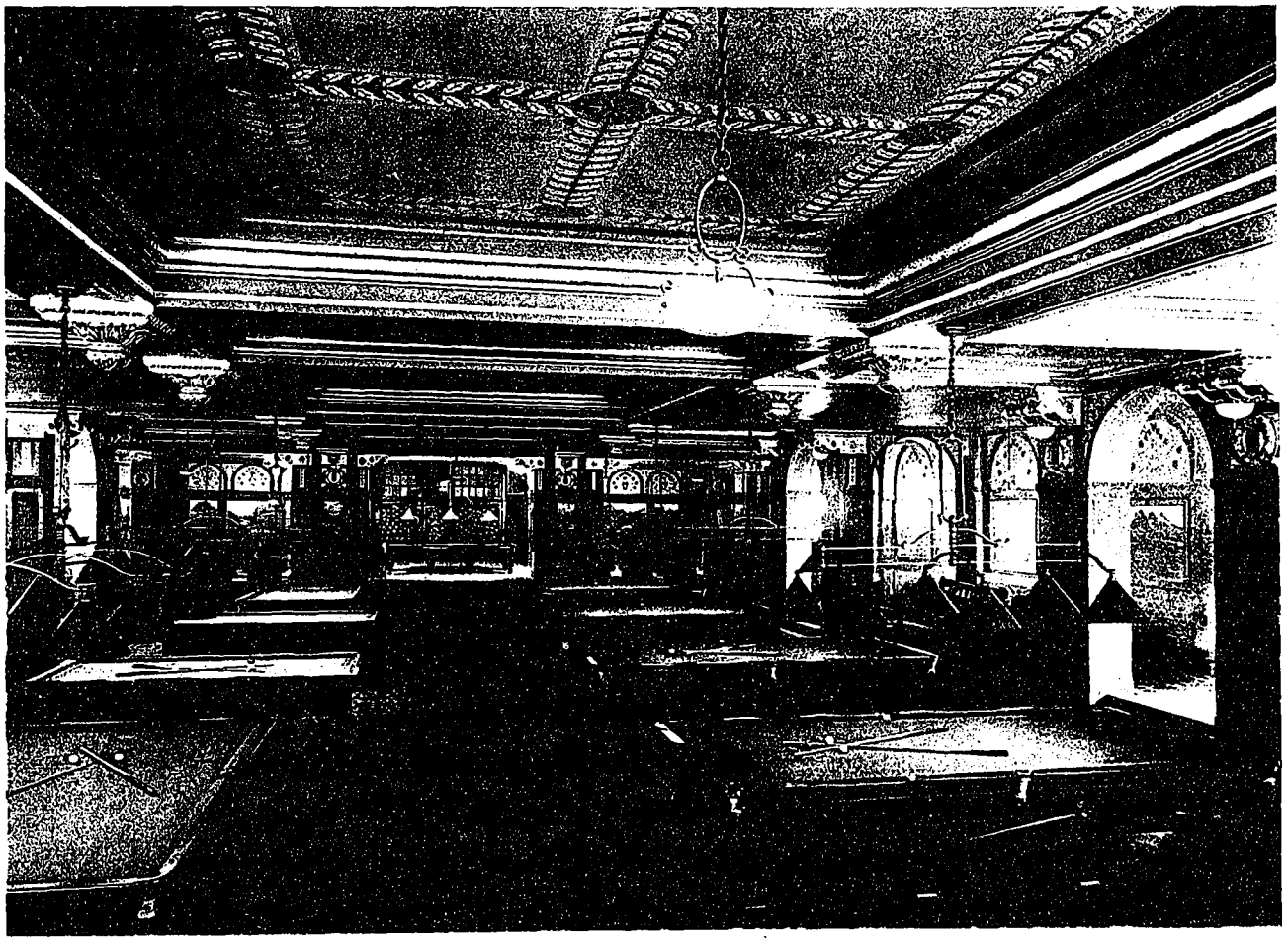
TRAVELLERS' CLUB.

The lower ground floor of the Granville street wing, four feet below the level, styled by a misnomer "the basement," is a series of rooms forming what is practically a club for travellers. It consists of a suite of rooms, inclusive of grill room, sixty by sixty feet, called the British Columbia, or "B.C.," room. It is panelled in B. C. cedar and maple, and decorated with B. C. "big game" heads. A billiard hall, sixty by one hundred feet, with eight tables; a bar one hundred feet long, with walls of Circassian walnut, reminiscent of the fine observation cars on the C.P.R. system; a smoking and writing room, twenty by sixty-five feet; a spacious and well-furnished barber shop with ten chairs, and a continuous suite of large, well-lighted sample rooms—all arranged for the convenience of the commercial "drummer." The premier decoration of this extensive suite of rooms is a continuous dado of panels, illustrative of the scenic spots and fine hotels along the route of the company's railroad.

"The bar" is a room of fine proportions, with the woodwork and color scheme of a rather dark treatment. It is equipped with the latest devices and conveniences for the thirsty one, and the atmosphere is restful and cozy. The main decorative feature is an exquisite mural paint-

ROTUNDA, LOOKING FROM GRANVILLE STREET ENTRANCE, HOTEL VANCOUVER.

ing, eight by seventeen feet, representing Captain Vancouver taking over the Island of Vancouver. The story of the picture carries one back to the final decade of the eighteenth century, when both the British and Spanish explorers were on this coast. Captain George Vancouver left England on April 1, 1791; the following year he landed at Nootka Sound, the Spanish headquarters on what is now known as Vancouver Island, to inform Governor Quadra that the British expected to take possession of this territory. The courtly Spaniard was quite agreeable to departing, and there was a farewell love feast, at which the Spanish Governor entertained the English captain at a repast that caused remarks of amazement at its sumptuousness to be recorded by Captain Vancouver. This scene the artist, Marion Powers Kirkpatrick, commemorates in a spirited and very vivid fashion, adopting a gay and brilliant color treatment which harmonizes well with the surroundings of this underground palace.



BILLIARD ROOM, HOTEL VANCOUVER, VANCOUVER, B.C.

THE BEDROOM APPOINTMENTS.

The seven hundred odd bedrooms are guaranteed effective for the successful wooing of the god Morpheus. They are models of cleanliness, simplicity and comfort, opening off wide, airy corridors, covered with carpet of a restful and subdued color. The elevator service is speedy and efficient. The bedrooms themselves are carpeted in pleasing hues. The plumbing fixtures include remarkably fine bath tubs and a porcelain pedestal supporting the wash basin and its accessories; in addition to the usual hot and cold water taps is a central one, long and tapering, which supplies iced water and relieves the bell boys of a great volume of labor, especially during the rush of summer travel. Needless to add, the four hundred and fifty odd bathrooms in conjunction are furnished with fittings of the latest and most sanitary pattern available. An ingenious electrical arrangement is incorporated in the clothes cupboards, whereby the mere opening of the door turns on the current and gives a brilliant illumination, which in turn is broken by the closing of the door. An excellent fan service from the engineering department keeps the air circulating and prevents that stuffy feeling so often experienced in big hotels.

The special suites comprise a combination of sitting room, bedrooms with bathroom to each.

THE MAID SIGNAL SYSTEM.

Everything that is usually done or can be done in a kitchen is performed in the kitchens of the Hotel Vancouver, but with a special regard to the just fame that this hotel earned for the delicious products of its culinary departments. The vast range already referred to is of the

"island" type—that is to say, it stands like a table in the centre of the kitchen and the cooks can work all around it, which saves many steps to the cooks and reduces labor in the kitchen. Surrounding the range and forming a counter which separates the cooks' departments from the waiters' passages are the heated cupboards in which china and silver dishes, cups, etc., are warmed ready for use on the tables. All the kitchen equipment and numerous labor-saving arrangements were designed by the architect, Mr. Swales, along lines similar to that in the best hotels in London and Paris, incorporating a few improvements even over those.

THE LAUNDRY.

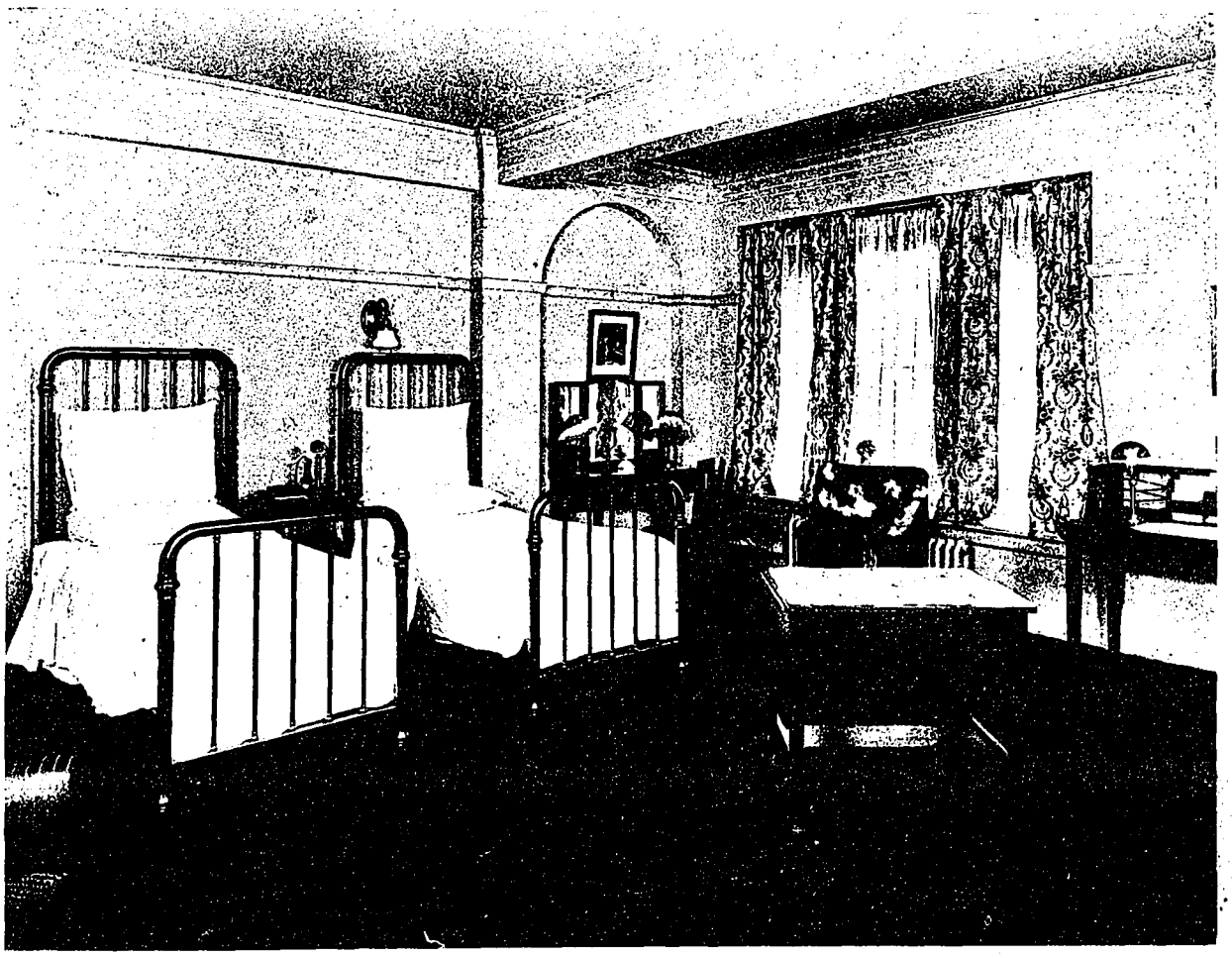
The first thing that meets the gaze of the visitor to the laundry, with its smokestack piercing the clouds, is the trio of rapidly revolving copper cylinders. Perforated like a huge circular colander, they complete the circuit at a speed of one thousand four hundred times per minute. Linen, dripping from the tub, on these rollers loses most of its moisture, and from thence is put into drying closets, the temperature of which would almost qualify them for use as supplementary baking ovens. Huge drums are revolving, dimly visible through the pervading steam, and mangles are issuing towels enough for an army. These latter are caught and deftly folded by two stolid-looking Chinamen with the inevitable almond eyes peculiar to their race. Another couple of Orientals are rapidly receiving and folding sheets as they come from revolving drums. In the ironing room the electric iron is king, dozens of these handy accessories being in use, and tables close by are piled high with mounds of linen belonging to guests of the hostelry. System is the motto of the laundry, itself quite an industry, and the number of operatives is a revelation.

UNSEEN SUPPLIES AND INDUSTRIES.

The ordinary hotel guest is usually ignorant of the extent and importance of what may be termed the commissariat department, which caters to his comfort while under the roof as a guest. It is worth while to visit the basement and rear of the building to inspect the facilities, from the heavy motor wagon which carries the baggage to the automatic egg boiler in the kitchen that will cook the hen fruit to any turn that may be desired by the most fastidious epicure. First comes the light and power plant; here two immense oil burners supply steam to supplementary engines, ultimately passing power to huge dynamos and refrigerating machines. An extensive switchboard dominates the whole, and the plant looks powerful enough for a small city.

PRIVATE SITTING ROOM, HOTEL VANCOUVER, VANCOUVER, B.C.

The butcher shop, with its chopping blocks, its meats and scores of juicy-looking chops ready for the kitchen, has a familiar appearance. In the vast cold storage meat store, whole legs of mutton and great sides of beef hang in prodigal array; in the poultry store, scores of bipeds have been denuded of their feathery dress and now repose in serried ranks, awaiting the advent of the chef. The fish store is more like a fine exhibit of the choice aquaria of British Columbia than an ordinary fish shop. The grocery store is another marvel of the application of science to the care of food; everything is stored in dust-proof cupboards. All the supplies are in full view of the stewards. Nothing can spoil or get upset without being noticed by the man in charge. Temperatures and ventilation are perfect. In the silver and cutlery store is ample provision for a veritable army of guests. Everything is spotless, and the utmost method and system prevails in the underground ramifications of the big hostelry. After a visit to the kitchen departments of the Hotel Vancouver one develops an appetite and wants to go to the dining room next. How seldom does one have such an experience!



BED ROOM, HOTEL VANCOUVER, VANCOUVER, B.C.

TELEPHONE AND TELAUTOGRAPH.

The private branch exchange switchboard of the Hotel Vancouver is the largest of its kind in the Dominion, and is equalled in convenience by those in only a few of the larger cities of the United States.

Among the new features incorporated in the switchboard equipment tending towards the facilitation of the hotel business and accelerating the service of the guests, are the telautograph and the maids' signal service.

The telautograph system is for use among the heads of departments and the switchboard operators. It is a most ingenious electrical invention, by which messages written at one station in handwriting are reproduced by electrical means at one or more stations. The reproductions are made at the time the message is written, all the characteristics of the original being faithfully portrayed. The Hotel Vancouver is the only hotel in Canada, or on the whole of the Pacific coast equipped with the telautograph system. The only other hotels using the system are the larger ones in the leading American cities, such as New York, Chicago, and Detroit.

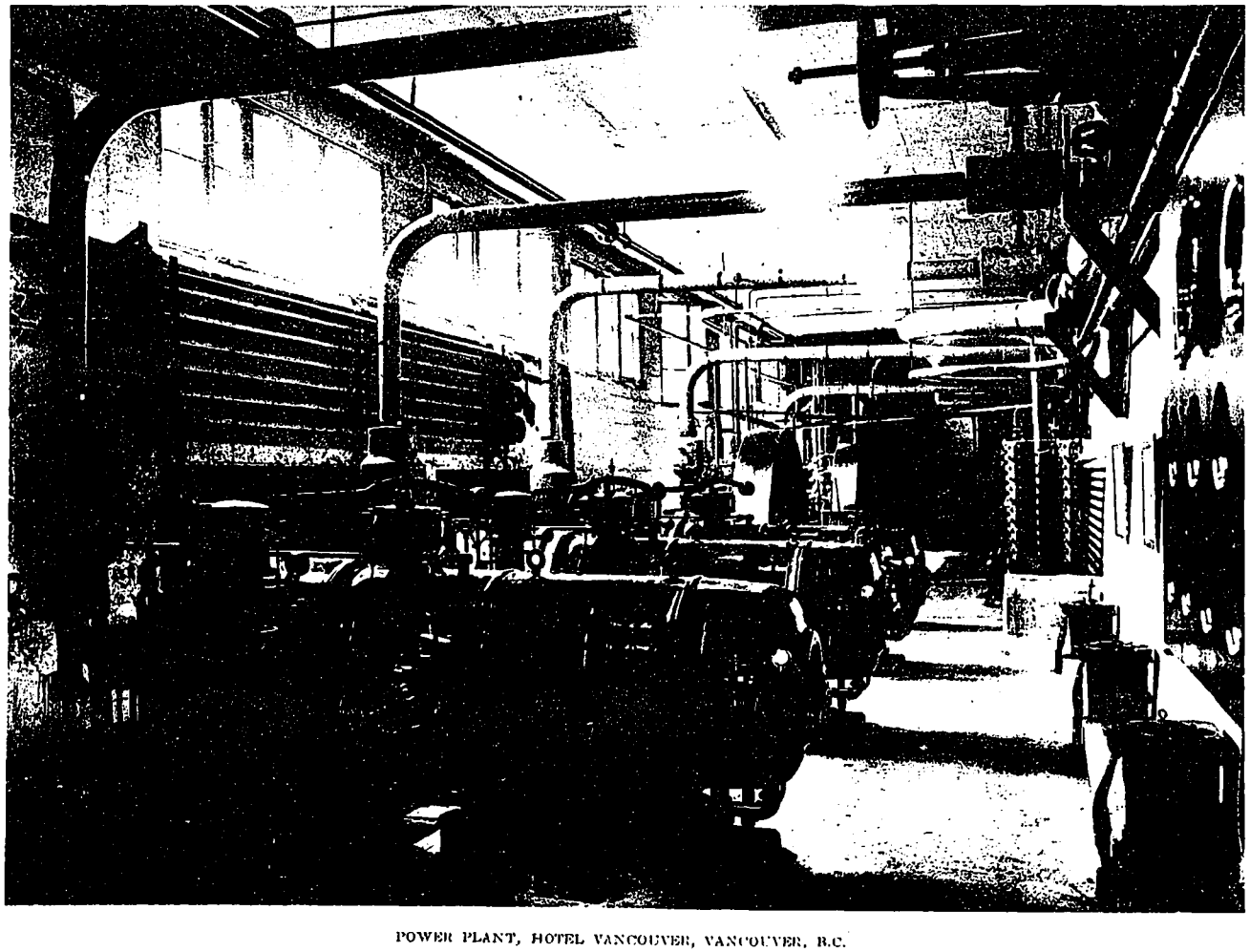
The telephone switchboard is twenty-four feet long, with line equipment for seven hundred and sixty stations, twenty in and twenty out trunks from central office, all multiplied throughout the switchboard and associated with the telautograph and the maids' signal equipment.

In a large hotel such as this, a problem which

has often confronted the management concerns the location of a maid during the time they are supposed to be making up the guests' rooms. To overcome this difficulty there has been installed in the Hotel Vancouver what is termed the "maids' signal service," so that, should any guest desire the services of a maid, the nearest maid can immediately be located and advised of the guest's wishes. The advantages of thus getting promptly into communication with any one of the forty-five maids is one that will be easily appreciated.

The system is worked in conjunction with the 'phone switchboard, the operators of which know at all times the location of every maid on duty in the building. On the switchboard are inserted hundreds of tiny lamps, numbered to correspond with the guest rooms of the hotel. Each maid on entering upon her duties is provided with a small portable lamp which, upon entering a guest room, she inserts in a special socket mounted in the door trim of that particular room; this action on her part makes a corresponding connection with the numbered lamp on the switchboard, lighting the latter and thus notifying the operator that there is a maid in the room bearing that number. Should a guest desire the services of a maid, he or she expresses the wish to the 'phone operator, who accordingly calls up the maid nearest to that room and notifies her that she is required at room so-and-so. Upon vacating a room, the maid detaches and carries with her the portable lamp, thus severing the switchboard connection until she enters another room and inserts the lamp-plug in the socket provided, notifying the operators as before of her location. As a convenience in the successful operation of the hotel, and as a guarantee of quick and effective service in the interests of the guests, this signal service is a most valuable asset and ally of the management.

The hotel, apart from its use as a mere hostelry for the transient, offers facilities for public use which make it an exceedingly valuable adjunct to the city's buildings. The large oval room, exquisite in design, with its chaste panelled walls and ceiling, a particular feature of elegance, is really the principal drawing room of the hotel, but is largely used for society and other functions of a like nature. It is provided with a well-equipped serving room, and behind an ornamental bronze grill to the side is a musicians' gallery. The central features of the oval room is a large open fireplace, flanked by marble columns and beautiful bronze grill doors. The scheme of carving and decoration is striking and original.



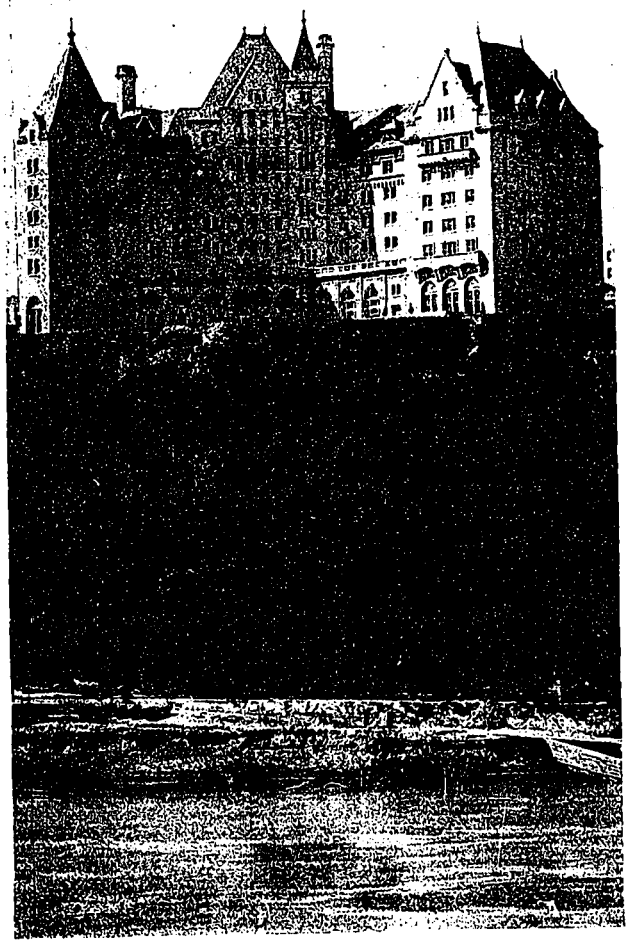
POWER PLANT, HOTEL VANCOUVER, VANCOUVER, B.C.

Hotel Macdonald, Edmonton, Alberta

Latest Addition to The Grand Trunk Railway's Chain of Hotels

IN July, 1915, the Grand Trunk Railway System opened the third of a chain of hotels, which, when complete, will be a considerable factor in connection with the development of the Northwest territory and the city of Edmonton and vicinity in particular. Edmonton has quietly but speedily emerged from an outpost to a most important agricultural, mining and railroad centre; the agricultural and mining development have necessitated railroad development, and the certainty of the future has justified the Grand Trunk Pacific Development Company to undertake and complete the construction of one of the finest hotels on the continent, considering purpose and location.

The site chosen for the hotel is possibly unequaled anywhere in Western Canada, for it combines convenience to the business centre with a wonderful outlook over the valley of the Saskatchewan River. The building is located on MacDougall street, almost at the crossing of Jasper avenue, and directly opposite to the Edmonton Club. The building is planned in such a manner as to take full advantage of the view across and beyond the beautiful ravine of the river, which bounds the entire southerly exposure of the property.



HOTEL MACDONALD, EDMONTON, ALBERTA, SHOWING MAGNIFICENT LOCATION.

The building architecturally is distinctly of the Chateau type, modified to suit its purpose as a modern hotel, and to take advantage of its unique and commanding views. The exterior is entirely of stone, the base of Stanstead granite, the superstructure of Indiana limestone, and roof of copper. The building is fireproof throughout, the frame being of steel, skeleton type, the floors of reinforced concrete and interior partitions of terra cotta.

The main entrance has been placed at the corner of MacDougall street and a private thoroughfare, which has been widened sufficiently to provide a splendid outlook for rooms along the north side of the hotel. In order to take full advantage of the wonderful site, and at the same time provide the most pleasing approach from the city side of the building, the entrances have been set back some distance from the corner, and are approached through a large forecourt and covered loggia.

From this loggia access to the building can be had directly into the rotunda, or for the convenience of lady patrons, through a smaller entry leading directly into a ladies' reception room, with office and elevators adjoining.

From the rotunda a spacious corridor leads right and left, the former to the palm room, the latter to the cafe and main dining room, while midway along this corridor on either side is the coat room and the ante room, the latter leading to the buffet, barber shop and toilets.

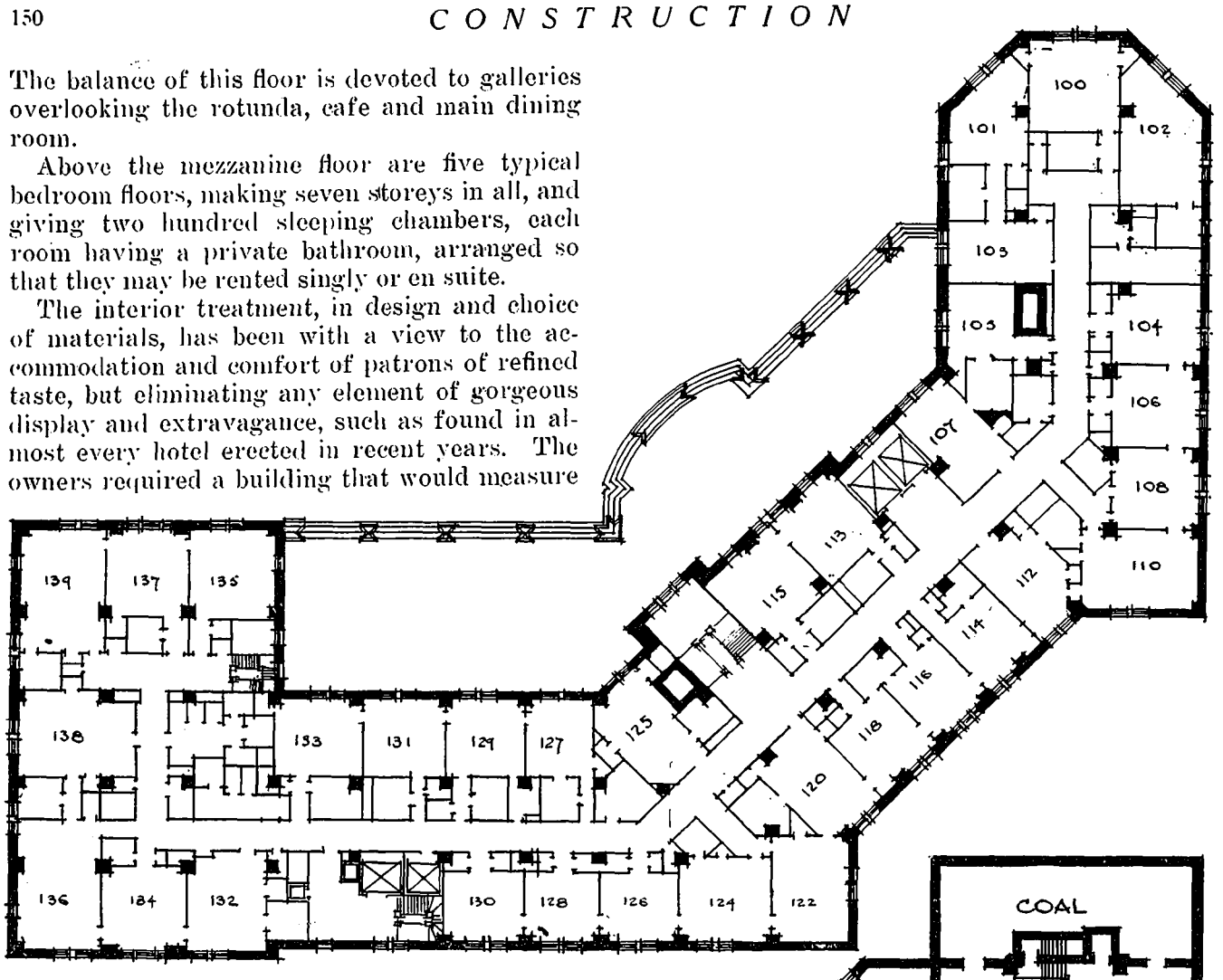
Directly beyond the rotunda is the lounge, lighted by large segmental windows and doors leading to the broad terrace, from which a full magnificent view of the river and the country beyond can be had. A portion of the MacDougall street facade on this floor is given to stores, which have direct communication with the hotel proper.

Between the ground floor and the first bedroom floor a mezzanine gallery provides space for ladies' parlor and drawing room, a banquet room, and a series of private dining rooms.

The balance of this floor is devoted to galleries overlooking the rotunda, cafe and main dining room.

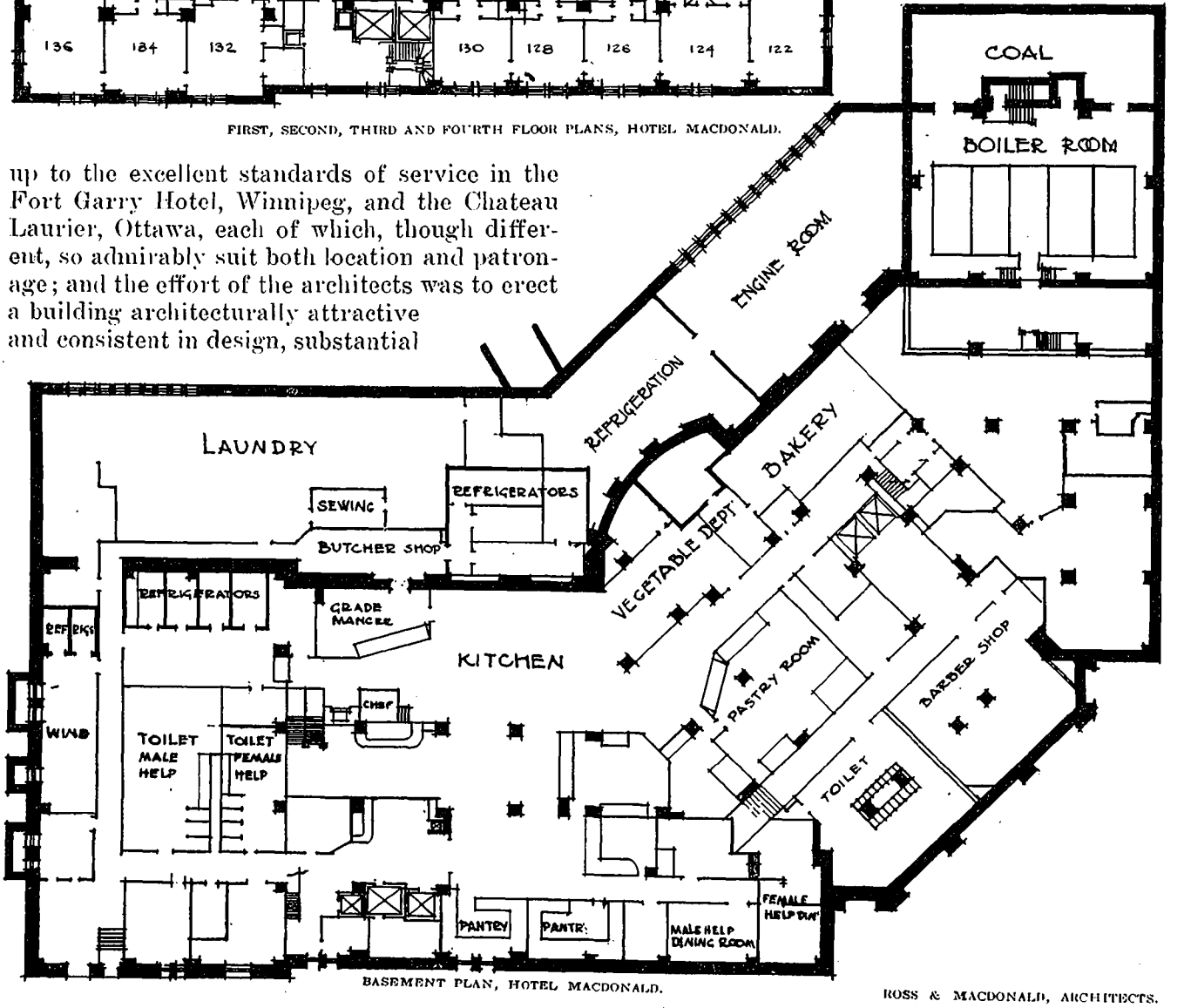
Above the mezzanine floor are five typical bedroom floors, making seven storeys in all, and giving two hundred sleeping chambers, each room having a private bathroom, arranged so that they may be rented singly or en suite.

The interior treatment, in design and choice of materials, has been with a view to the accommodation and comfort of patrons of refined taste, but eliminating any element of gorgeous display and extravagance, such as found in almost every hotel erected in recent years. The owners required a building that would measure



FIRST, SECOND, THIRD AND FOURTH FLOOR PLANS, HOTEL MACDONALD.

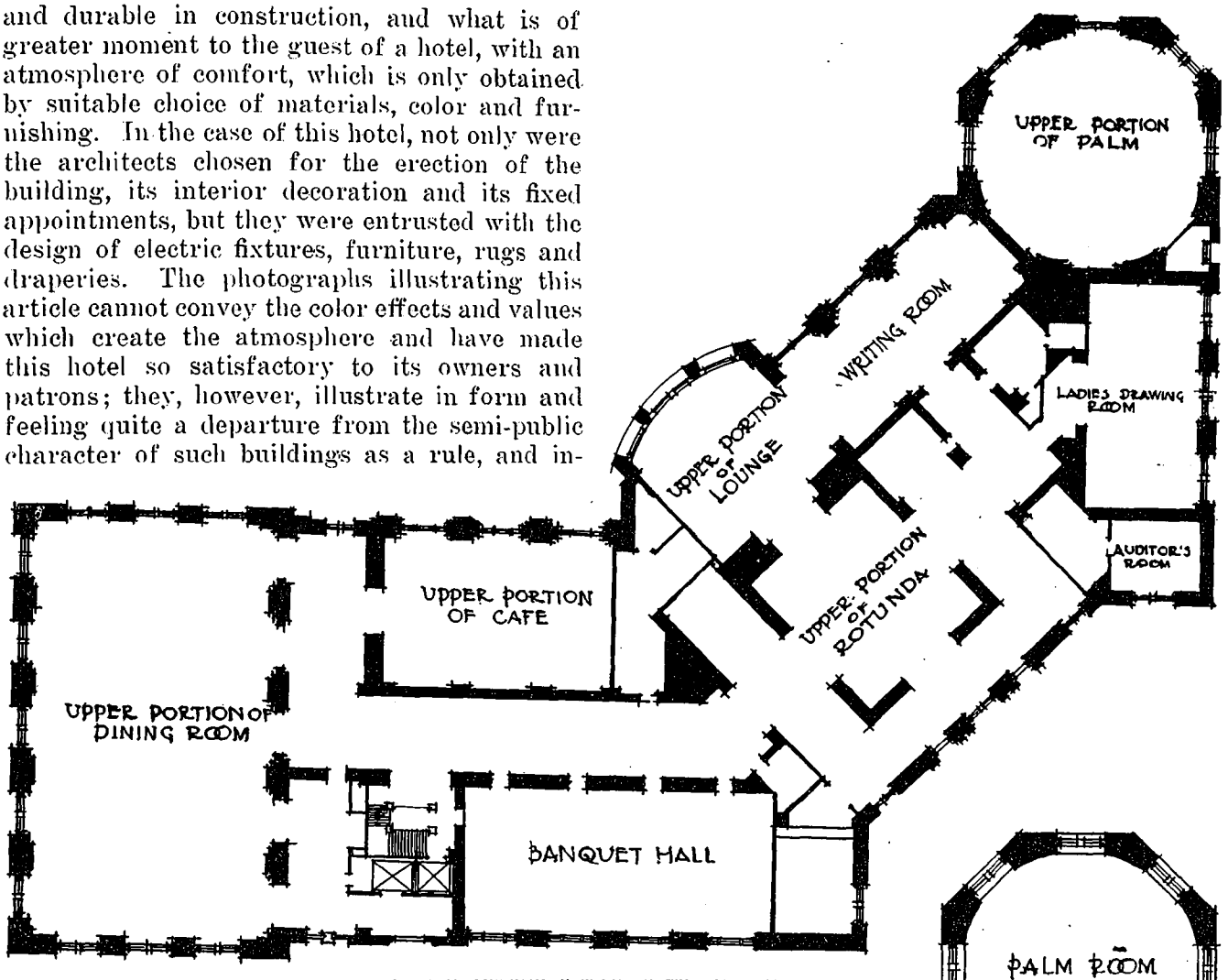
up to the excellent standards of service in the Fort Garry Hotel, Winnipeg, and the Chateau Laurier, Ottawa, each of which, though different, so admirably suit both location and patronage; and the effort of the architects was to erect a building architecturally attractive and consistent in design, substantial



BASEMENT PLAN, HOTEL MACDONALD.

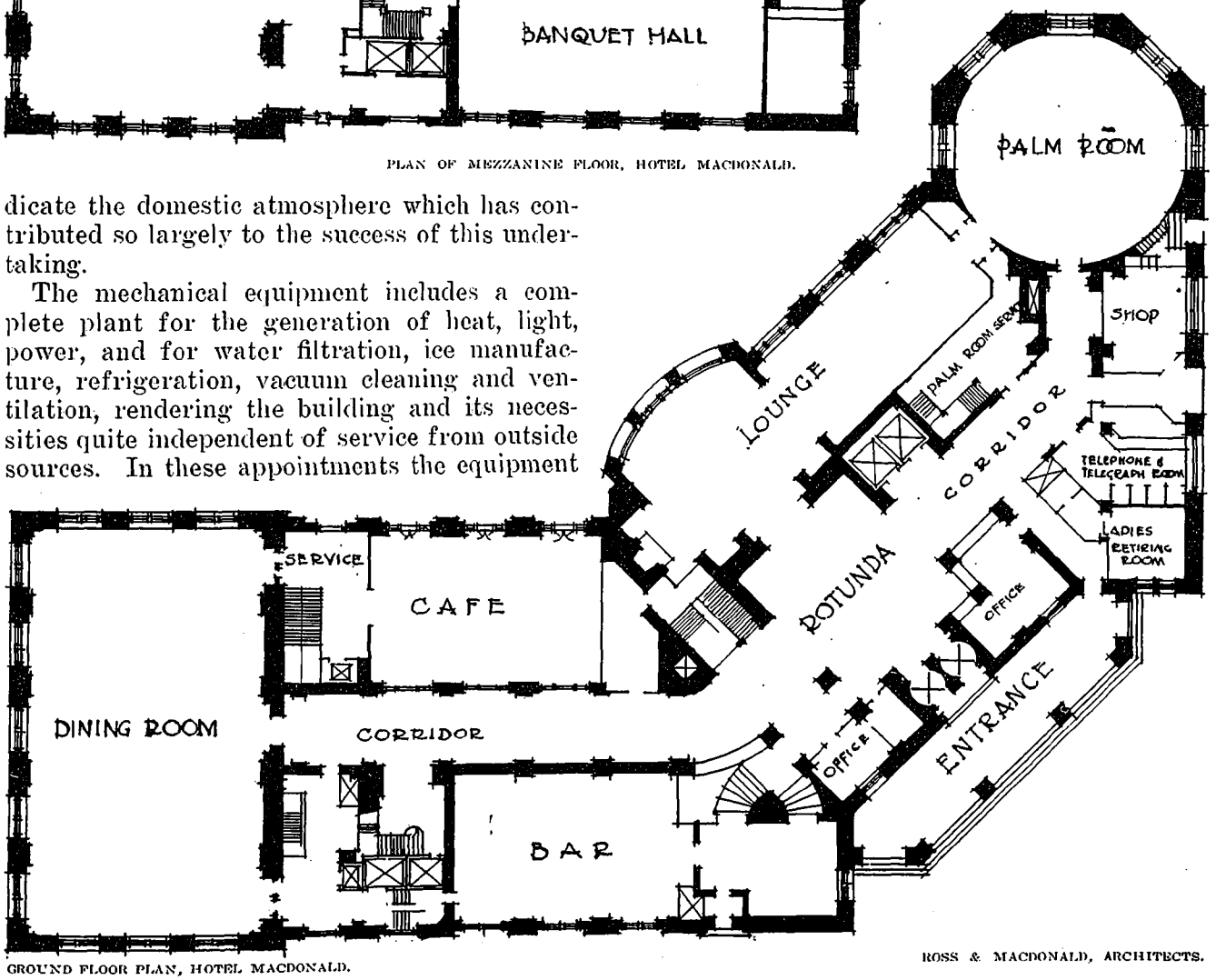
ROSS & MACDONALD, ARCHITECTS.

and durable in construction, and what is of greater moment to the guest of a hotel, with an atmosphere of comfort, which is only obtained by suitable choice of materials, color and furnishing. In the case of this hotel, not only were the architects chosen for the erection of the building, its interior decoration and its fixed appointments, but they were entrusted with the design of electric fixtures, furniture, rugs and draperies. The photographs illustrating this article cannot convey the color effects and values which create the atmosphere and have made this hotel so satisfactory to its owners and patrons; they, however, illustrate in form and feeling quite a departure from the semi-public character of such buildings as a rule, and indicate the domestic atmosphere which has contributed so largely to the success of this undertaking.



PLAN OF MEZZANINE FLOOR, HOTEL MACDONALD.

The mechanical equipment includes a complete plant for the generation of heat, light, power, and for water filtration, ice manufacture, refrigeration, vacuum cleaning and ventilation, rendering the building and its necessities quite independent of service from outside sources. In these appointments the equipment



GROUND FLOOR PLAN, HOTEL MACDONALD.

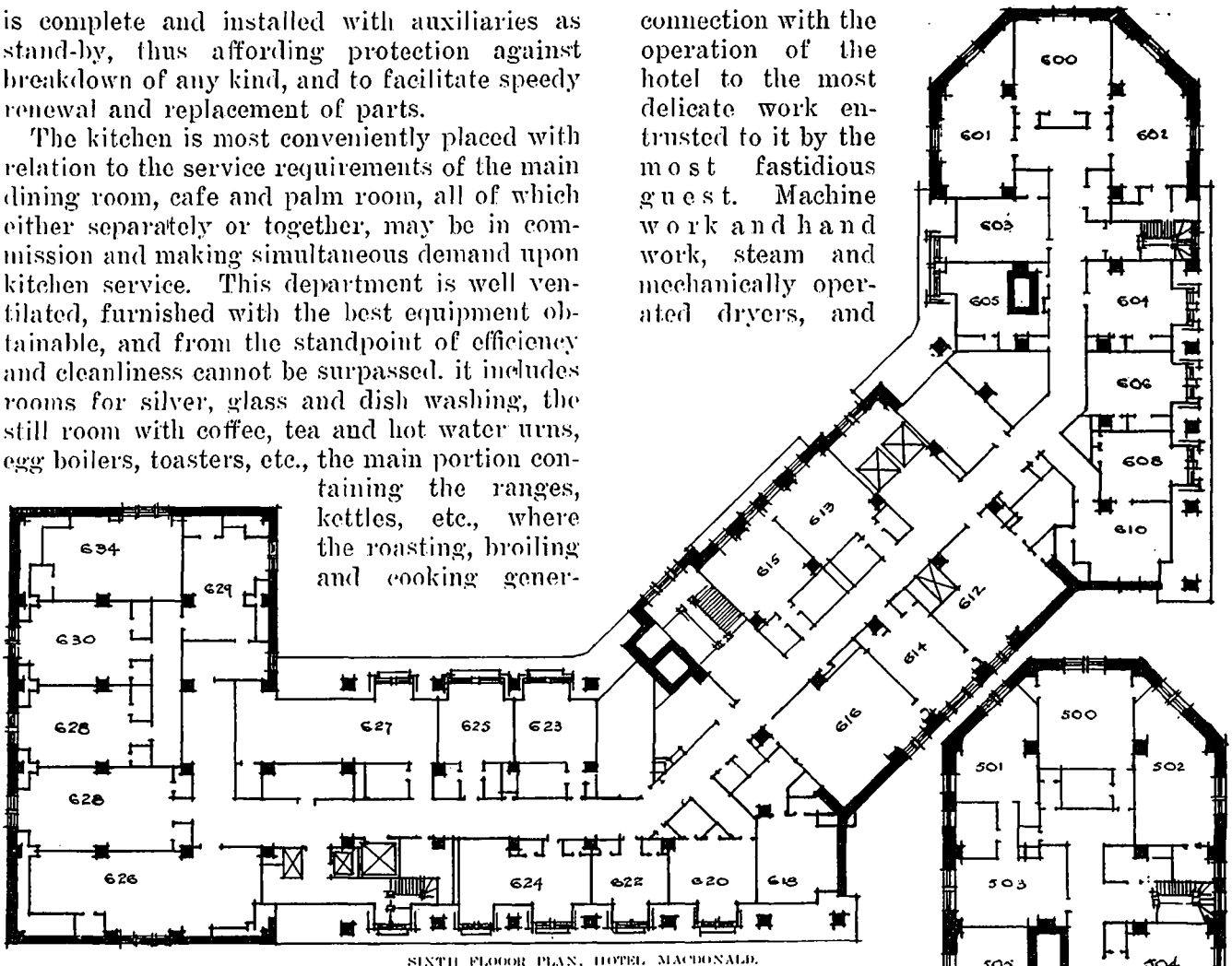
ROSS & MACDONALD, ARCHITECTS.

is complete and installed with auxiliaries as stand-by, thus affording protection against breakdown of any kind, and to facilitate speedy renewal and replacement of parts.

The kitchen is most conveniently placed with relation to the service requirements of the main dining room, cafe and palm room, all of which either separately or together, may be in commission and making simultaneous demand upon kitchen service. This department is well ventilated, furnished with the best equipment obtainable, and from the standpoint of efficiency and cleanliness cannot be surpassed. it includes rooms for silver, glass and dish washing, the still room with coffee, tea and hot water urns, egg boilers, toasters, etc., the main portion containing the ranges, kettles, etc., where the roasting, broiling and cooking generally is done, the baking department for bread and pastry, the butcher shop and general stores.

Throughout the kitchen are refrigerators for meats, fish, oysters, milk and cream, butter and cheese, fruit, vegetables and ices; the whole maintained by and connected with the cold storage system, which furnishes a continuous supply of cold brine throughout the kitchen and to other parts throughout the hotel where local refrigeration is required.

The laundry includes complete equipment for every class of work, from the heavy work in connection with the operation of the hotel to the most delicate work entrusted to it by the most fastidious guest. Machine work and hand work, steam and mechanically operated dryers, and every other necessary appointment to meet the fullest demand.



SIXTH FLOOR PLAN, HOTEL MACDONALD.

FIFTH FLOOR, HOTEL MACDONALD. ROSS & MACDONALD, ARCHITECTS.

Floor plans showing the disposition and arrangement accompany this description and illustrate the means by which the peculiarities of the site were taken advantage of. The building was erected and completed under the direction of the architects for the Grand Trunk Railway System, Ross & Macdonald, of Montreal and Toronto.

The Engineer and Standards of Beauty

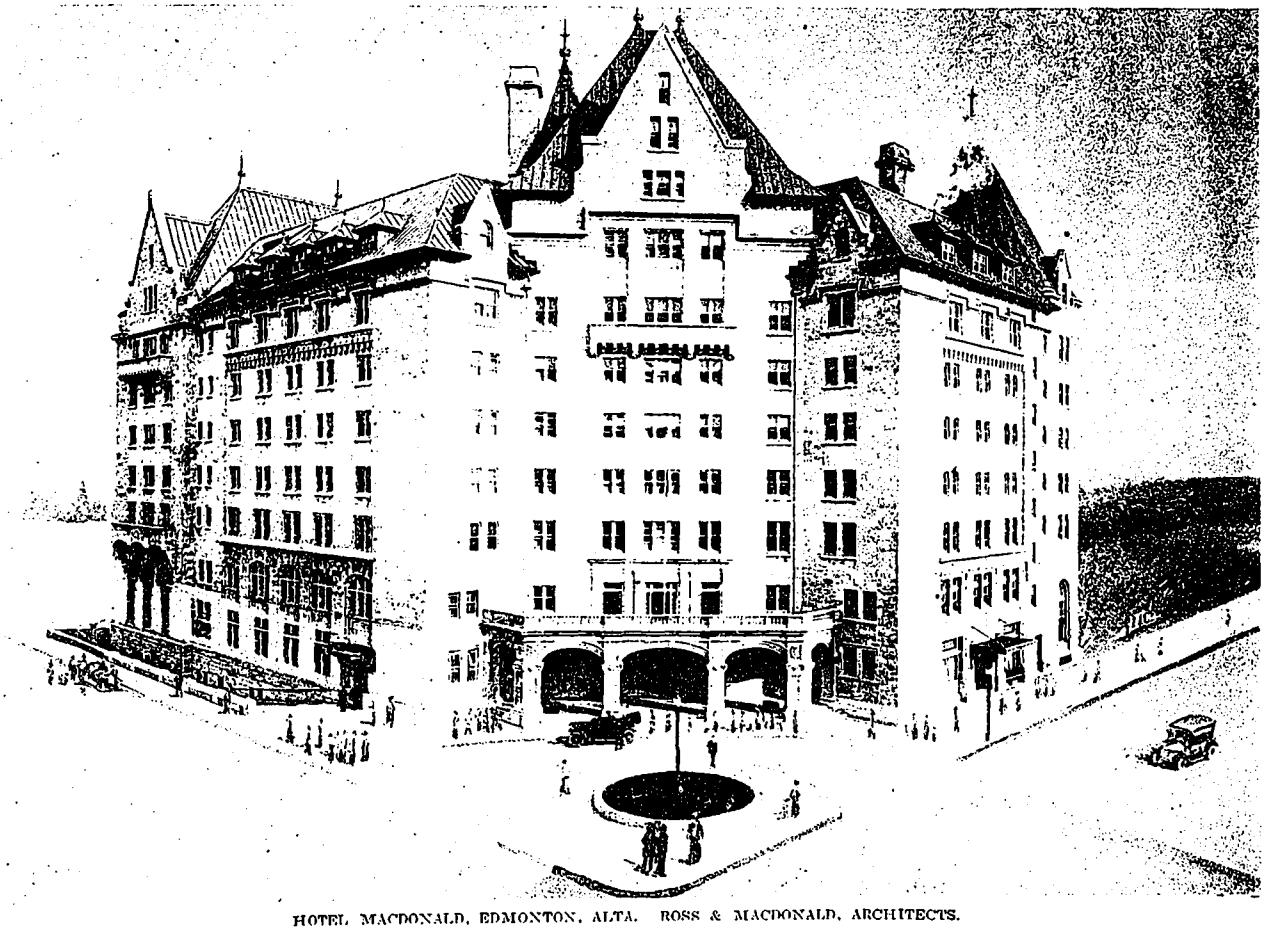
By G. R. G. CONWAY, C. E.

IN a recent address on "Idealism and Art in Engineering," Professor Marx, president of the American Society of Civil Engineers, asked this question: "Is is profitable to beautify engineering structures?" He goes on to say, "Here we stand before a momentous question. If the answer be given by the engineer, or by one who holds that the status of a people is determined not merely by the accumulated wealth of the nation, the quantity of goods produced, and of articles manufactured, then it will be in the positive, ten times over; but if the man of low ideals and mercenary motives gives answer it is likely to be an emphatic "no." This answer has been given too often in our own country, and the blame for the deep scars in the face of Nature, the ugly dams and rugged cuts, must not be laid on the shoulders of the engineer who fain would heal with loving hand and protecting sward the wounds he has struck. Where broad-minded liberality and farseeing policy govern the construction of engineering works, as is the case in countries older than our own, these works stand as worthy art products of the spirit of the times, symbolical of the best and highest in the life of to-day."

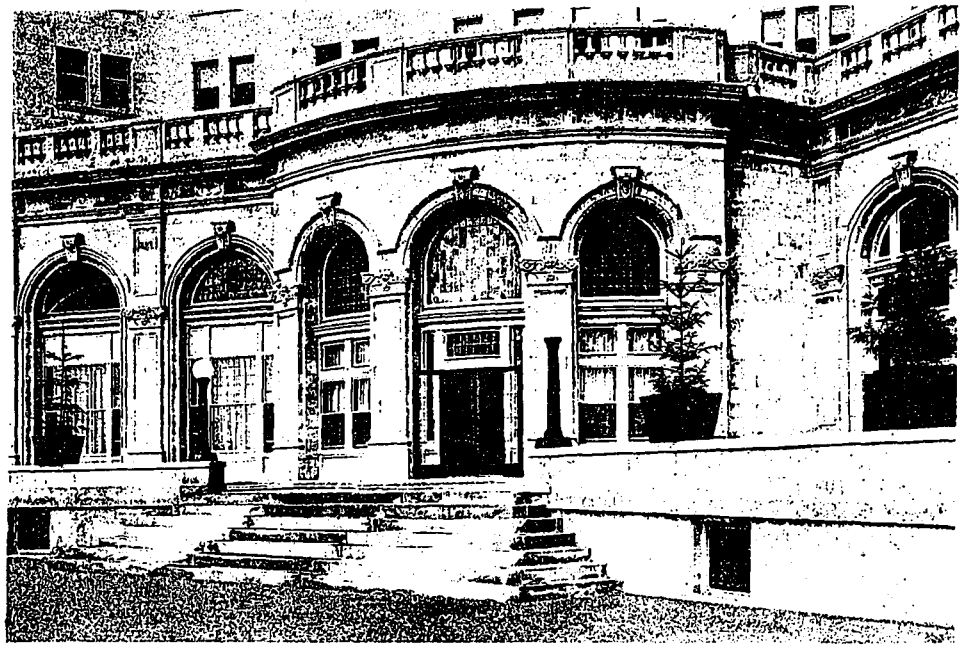
The standards of beauty are enlarged with the growth of knowledge. Many of the works of the ancients are of great beauty, and will always remain beautiful, but beauty and the appreciation of beauty are inherent in ourselves. The creation of beautiful structures can only be attained by a full and true knowledge of the kind of materials used, and by certain subtle distinctions born of integrity of purpose and refinement in handling those materials. Ruskin's well-known aphorism, in which he defines "architecture as the art which so disposes and adorns the edifices raised by man, for whatsoever uses, that the sight of them may contribute to his mental health, power and pleasure," has a meaning for us as engineers.

THE ARCHITECT AND THE ENGINEER.

This is an age of specialization. That, of course, is an idle platitude, for no man can say to-day as Lord Bacon said, "I will take all knowledge to be my province." Even the most versatile engineer can attempt to master but one branch of his profession. In our own society we have among those directing the "great sources of power in Nature for the use and convenience of man," engineers engaged in bridge design, railroads, canals, hydraulics, water supply, and sewerage; electrical, mining, municipal, mechanical and chemical engineers; but in olden days the sister professions of engineering and architecture were practised in many cases by



HOTEL MACDONALD, EDMONTON, ALTA. ROSS & MACDONALD, ARCHITECTS.

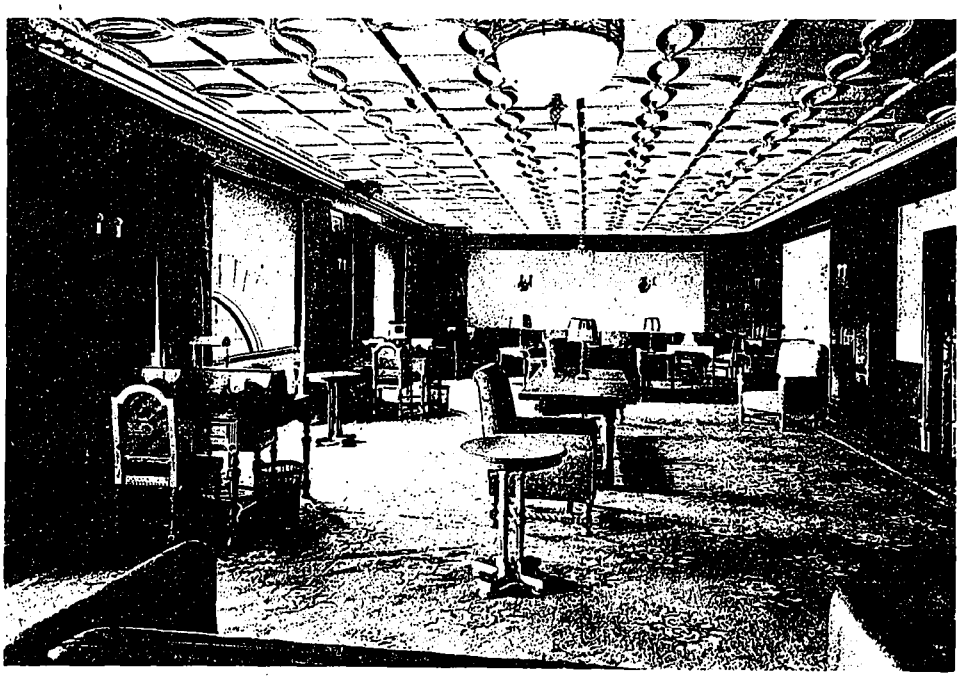


ENTRANCE FROM TERRACE, HOTEL MACDONALD.

the same individual. Roman engineers, designers of the Claudian Aqueduct and the Pont du Gard, produced great engineering works, which are among the finest architectural remains of that great race, and in the Renaissance period were not such artists as Michelangelo, Leonardo da Vinci and Palladio great both in architecture and engineering? In mediæval ages bridges, churches, cathedrals and dwelling houses were designed under the supervision of the priests and clergy, but during the sixteenth and seventeenth centuries these supervisors of craftsmen became more interested in doctrinal controversies, and so both architectural and engineering problems passed from their control, and the new profession of the civil engineer arose, with such pioneers as Brindley, Smeaton, Telford and Rennie.

With the development of steam and all the discoveries of modern science and engineering the separation of the two professions became wider, but I think to-day there is a new spirit that is drawing them together again. *The question, then, of the æsthetic treatment of engineering structures is to-day more fully appreciated by an enlarging circle, and it is one in which the engineer needs and desires the co-operation of the architect. This co-operation of the engineer and architect will have the effect of stimulating a healthy public interest in the need for great engineering structures being made as beautiful as possible. It has been said by a well-known engineer that if two designs are submitted to a board of directors, the one beautiful and the other ugly, the directors will always choose the ugly one, but this, I think, is untrue to-day, and many great corporations are setting a worthy example in encouraging the co-operation of the engineer and the architect.*

Why should not even the humblest railway station be a beautiful object? We no longer believe in Ruskin's fierce denunciation of railway stations, and in these days of constant travel the comfort and beauty of well-designed railway terminals are a delight to travelling man. Why cannot we have beautiful designs for the buildings and chimneys of steam-power plants, for a water tower, for all our bridges, for service reservoirs, and valve houses? We should, though, in every case let these structures speak for themselves and express by their design their meaning, stating plainly, without pretension, what they represent. We do not want a railway terminal to look like a temple for the worship of Minerva, nor a steam plant chimney to resemble Cleopatra's needle.



WRITING ROOM, HOTEL MACDONALD.

BRIDGE DESIGN.

BEDROOM AND BATH, HOTEL MACDONALD.

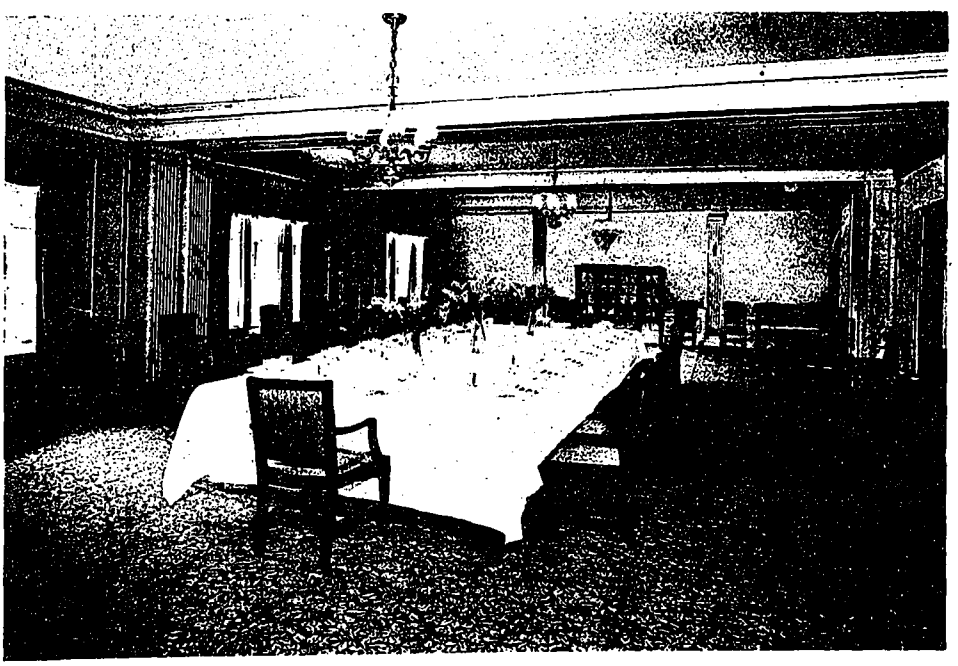
Probably most of the discussion upon this subject has arisen in connection with the design of bridges, and I have noted with pleasure recently the influential engineering press' stimulating thought in this direction. Let us, therefore, examine first the evolutionary changes in bridge design by referring to some old and modern types of bridges. The earliest method of crossing a river was, perhaps, by stepping stones, by logs thrown across the stream, or, where the span was wide, by a bridge of boats. It is, though, outside the scope of my paper to discuss the origin of the several types upon which all modern bridges are designed. Many beautiful bridges have been designed in wood. We have records of some of the earliest that combined great ingenuity with beauty, and to-day in Switzerland and Japan are many notable examples.

For two thousand years the engineer has been able to make masonry bridges beautiful, and although his opportunities in Canada for constructing such bridges are few, a study of the older designs is of great assistance in dealing with reinforced concrete structures, which are in our country taking the place of the cut-stone structures of Europe.

In the Pont du Gard, built by Agrippa, the son-in-law of Augustus, in 19 B.C., you will notice the grand combination produced by the form and proportion of the arches, and the varied effect of dressed and undressed masonry. In this structure, as well as in the Claudian Aqueduct, and the aqueduct at Tarragona in Spain, the engineering skill is remarkable, proving that the Romans were highly skilled in mechanics and hydraulics. In these structures we see the harmony of science and art, twin sisters who should never be separated, and the result stands to-day a triumph of fine building.

In the bridge of Augustus at Rimini the piers are very massive, equal in thickness to one-half of the arch openings. There still remain traces of decoration on the keystones and the ruined cornice indicates that the bridge was one of great beauty. Judging from its massive proportions it is probable that over the piers were elaborate architectural details combined with noble statuary. Structurally it is excellent engineering, and even now, after the lapse of nearly 2,000 years, can be seen the fine workmanship of the old masons.

In the Renaissance period in Italy we could select many types for illustration of beautiful bridges which were erected by architects and



BANQUET ROOM, HOTEL MACDONALD.

MAIN DINING ROOM, HOTEL MACDONALD, EDMONTON, ALBERTA. ROSS & MACDONALD, ARCHITECTS.

engineers. One of the best known, and one which well repays careful study, is Bartholomew Ammanati's famous bridge, which was rebuilt in 1566-1569, called the Ponte della Trinata over the Arno at Florence. Ammanati's genius as an architect and sculptor is well known, and in this

THE LOUNGE, HOTEL MACDONALD, EDMONTON, ALBERTA. ROSS & MACDONALD, ARCHITECTS.

bridge we find careful study given to the engineering details that go to make up a successful structure. There are three spans, the centre ninety feet ten inches, and the two side spans eighty-seven feet seven inches. The arches are two parabolic curves meeting at a centre with a slight angle, which is obscured by an ornamental escutcheon. The arch ring is very heavily moulded, and the spandril panelled, a method which requires very careful treatment to prevent the scale of the design being lost.

During mediæval times many beautiful bridges were built in Great Britain, which are standing to-day more beautiful than ever with the "golden stain of time" upon them.

IRON AND STEEL STRUCTURES.

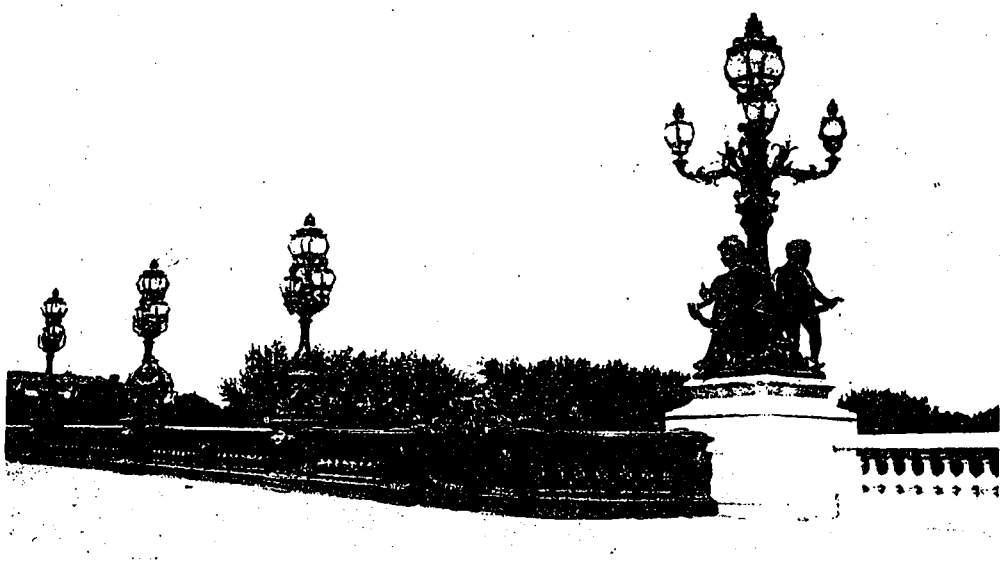
It is, however, when we come to consider the modern development of bridge building, and the introduction of iron and steel, that the æsthetic problems assume a different character from those of simple masonry structures. The development of the use of iron and steel in bridge building has been, to use Herbert Spencer's line of progress in organic evolution, "from simplicity to complexity of structure, and from obscure complexity to a defined simplicity of function." It is this simplicity of function which is the prevailing note of all well-designed steel structures. Michelangelo maintained that to an architect a knowledge of anatomy was essential. Can we not also say that to those who examine iron and steel structures from the purely æsthetic viewpoint a knowledge of the anatomy of a bridge is necessary, and an understanding of the relationship and the functions of all its separate parts? Metal bridges include the majority of all long-spanned arches. The longest single masonry span in existence is two hundred and ninety-five feet, and bridges of reinforced concrete have already been constructed with spans up to three hundred and twenty-five feet. The longest single steel span, as you all know, is that of the Quebec bridge, which is one thousand eight hundred feet. In such structures, therefore, the addition of ornament would be entirely false and foreign to the fundamental principle of their design, and its application, if done at all, could only be carried out consistently by a great increase of weight and sacrifice of economy.

The standard of æsthetic criticism to be adopted must depend, therefore, upon whether the most suitable application of the material used has been made, and when it is possible to select an optional design the choice must lie with the most beautiful outline consistent with economy. The sweeping condemnation of all iron and steel structures that has sometimes been made by artists and architects is due to a false and unfair appeal to standards, which, however true they may be when applied to masonry bridges, cannot be applied to structures which have forms and functions of an entirely different nature.

The first consideration, therefore, in designing all engineering structures after the questions of strength and stability have been satisfied, is that the form of the structure should be determined essentially by the material of which it is composed, and should not copy in some strange fantastic form in some of its details the design of older forms of architectural ornament.

In a discussion which took place some sixteen or seventeen years ago at the Institution of Civil Engineers, Professor Pite said that as a practical designer he would like earnestly and heartily to press home the fact that artistic simplicity would be achieved by disassociating from the mind all architectural phraseology, all architectural ornament, all architectural traditions, such fantasies as the curve and compound curve lines of beauty, and by aiming in metal bridge building at exactly the same beauty of workmanship, beauty of economy of material, beauty of accomplishment that please the mind in any form of mechanical effort. In that way engineers would keep clear of the changing whims of artistic fashion, keep clear in metal of the traditions of an architectural art of stone, of the traditions of an architectural art in wood, and work out in iron with its different qualities and

THE CAFE, HOTEL MACDONALD.



PARAPETS, PONT ALEXANDRE, PARIS. DESIGNED IN COLLABORATION WITH ARCHITECTS AND SCULPTORS.

stresses an æsthetic style based on the absolute scientific necessities of engineering practice, which would, without doubt, afford infinite satisfaction to generations to come.

The earliest attempt to build an iron bridge was made at Lyons in 1755. The arches were actually cast, but the attempt was abandoned as too costly, and the real introducers of iron in bridge building were two ironmasters, in Coalbrook Dale, Reynolds and Derby.

In many simple bridges constructed in Canada to-day to open highways in inaccessible places, a note of simplicity has often been successfully struck. As an example of this the suspension bridge over the Bulkley River at Hagwillgate, B.C., with the simple treatment of the suspension piers, is, I think, entirely satisfactory.

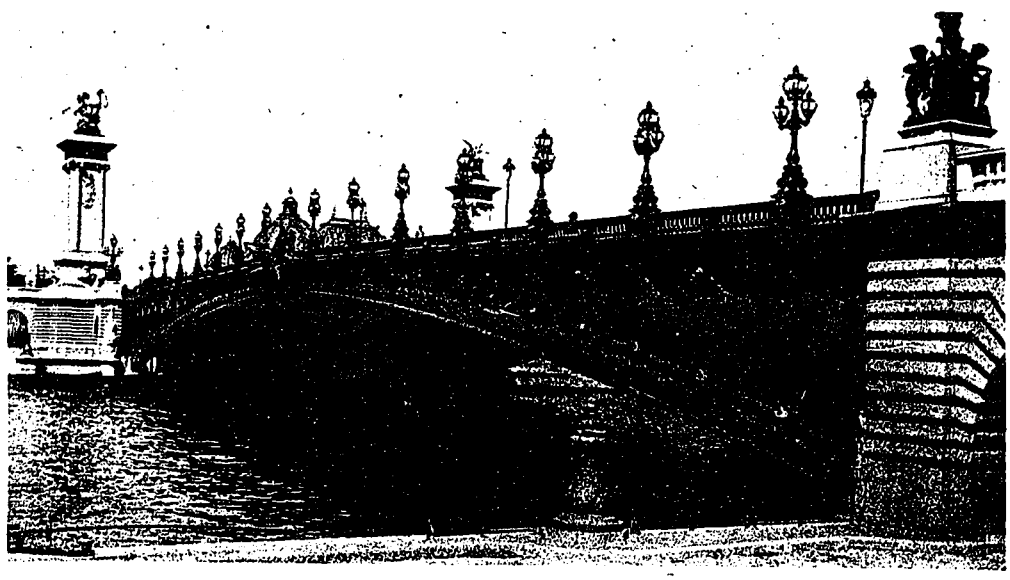
An example of the most perfect collaboration of the architect and engineer appears, I think, in the Pont Alexandre bridge at Paris. This is a three-hinge steel arch, and the whole structure is, to my mind, one of the most beautiful that has been built at any time. It is the work of two engineers, two architects, and two sculptors working in collaboration.

DAMS.

In the construction of dams for the storage of water, for city water supplies, power purposes, and irrigation works, many opportunities occur for the collaboration of architect and engineer. I remember that when the drawings were being prepared in the office of James Mansergh for those wonderful dams in the Elam Valley for the supply of water for Birmingham, Mr. Mansergh asked Professor Pite and Sir Alfred East, the one an architect, the other an artist, to study the site and make suggestions to him upon their architectural treatment. The result is magnificent, and no one who has seen those works since their completion can fail to be impressed with the beautiful designs and their fitness with the surroundings. In this case, and also in the case of the Vyrnwy Dam for the storage of water for Liverpool, the utilitarian work of the engineer has created a beauty spot accessible to tourists.

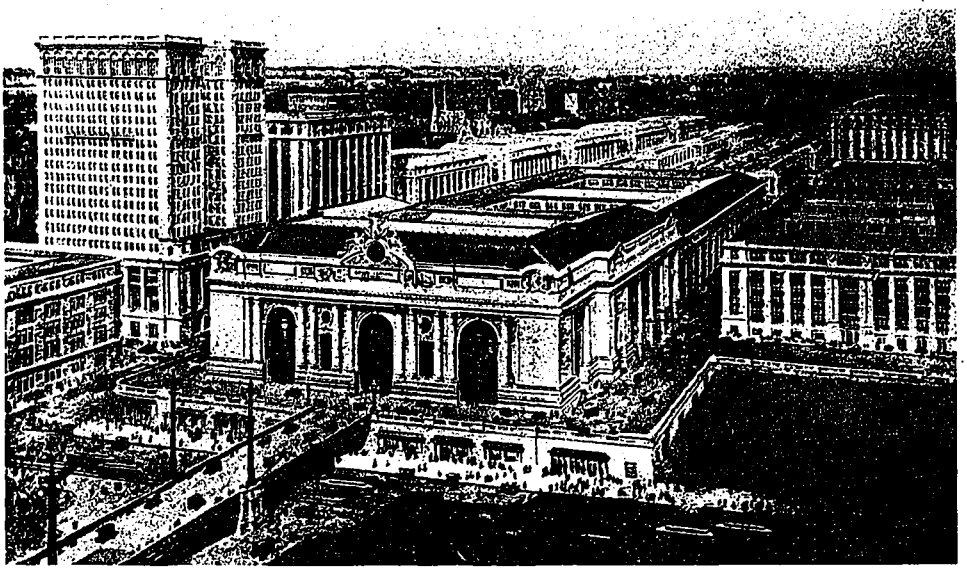
POWER HOUSES.

Canada, in proportion to her population, has in recent years made enormous strides in the development of water power, and from the Atlantic to the Pacific great developments have taken place. In the design of water power plants there is a great opportunity for the engineer to dignify his work by paying more attention to the design of power house buildings and their surroundings. Often these power plants are situated amidst magnificent scenery, and the only blots upon the landscape are the buildings and pipe lines. There are, of course, notable exceptions, such as the power houses at Niagara (on the Canadian side), where an attempt has been made to harmonize these plants



PONT ALEXANDRA, PARIS. EXAMPLE OF THE COLLABORATION OF ENGINEERS, ARCHITECTS AND SCULPTORS.

in such a way as not to detract from the beauty of the Falls. But too little consideration has been given so far by power companies to erection of buildings that will be a delight to the public. I am glad to note that the water power branch of the Department of the Interior has recently taken a great interest in this particular matter, and has been encouraging the idea by offering prizes for the best designs for proposed power houses on the Bow and Winnipeg Rivers. This is an excellent step forward, and I think when plans are forwarded to the Government department for approval the question of the design of power house exteriors should also be considered by the responsible officials. That the architect can successfully make a beautiful power house, even if constructed of reinforced concrete without other material, is shown, I think in the design of Lake Buntzen power house No. 2. This plant has been built upon a site visible for seven or eight miles on an arm of the sea that is a favorite yachting resort, and the design is an imposing one from every point of view, the simple lines and massive preportions harmonizing with the precipitous mountains in the background. This matter is largely in the hands of the engineer, who is not often hampered in his desire to produce a fine building, and in many cases by a careful study of proportions and the economical use of material, no extra cost will be incurred.



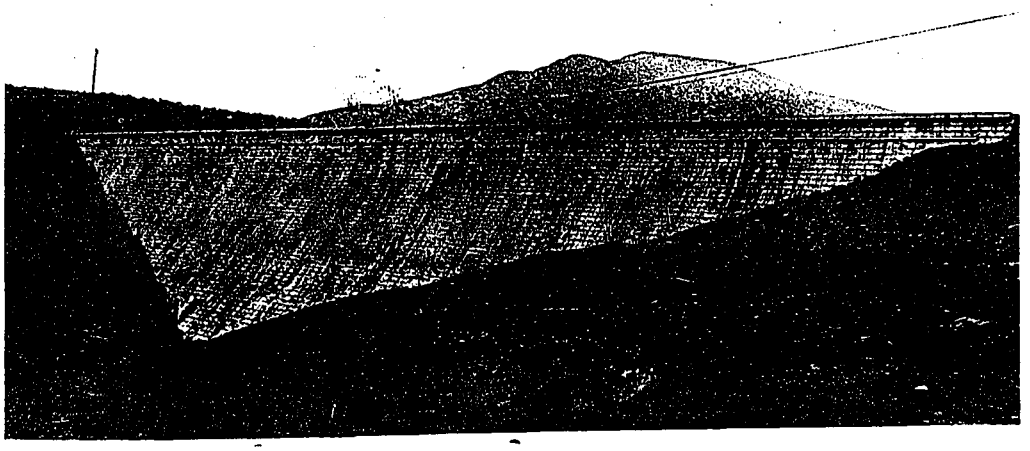
THE NEW GRAND CENTRAL RAILWAY STATION, NEW YORK. EXAMPLE OF COLLABORATION OF ENGINEERS AND ARCHITECTS.

MUNICIPAL WATER SUPPLIES.

In municipal water supplies many opportunities occur on a small scale for graceful treatment of such works as service reservoirs, water towers, aqueducts, etc. In Europe and many places in the United States there are numbers of fine works, showing that municipalities are becoming proud of their property, and while they are seeking to make them permanent, they are also attempting to make them beautiful.

RAILWAY TERMINALS.

In the design of railway terminals to-day it is the generally accepted practice for great railway corporations to employ architects to collaborate with the engineering staff; but often the architectural style adopted is a severely classic one, which does not seem to the engineer to be an expression of twentieth century railway progress. Perhaps some day, under the influence of the engineer, the architect will free himself from the traditions of archæology and classic architecture, and give us a railway architecture that will be an expression of our modern spirit. Examples of the collaboration of the two professions may be seen in the Grand Central and Pennsylvania railway terminals of New York, the Union Terminal at Washington, D.C., and as you are aware, the collaboration of the



MAIN DAM OF THE ASHOKAN RESERVOIR, BROWN STATION, N.Y., LENGTH 1,000 FEET. SHOWS A STRUCTURE THAT REQUIRES NO ORNAMENT BUT CARE IN DESIGNING PARAPETS.

architect and engineer has been carried out in many of the terminals of the three great transcontinental railways in Canada.

MODERN STEEL FRAME AND REINFORCED CONCRETE BUILDINGS.

In the design of modern steel frame and reinforced concrete buildings the modern engineer and architect in Canada have in collaboration one of the most magnificent opportunities of evolving an architectural treatment of their structures unhampered by European traditions. We may, perhaps, criticise the architect for his neglect of a proper study of the main principles involved in the design of great buildings, as he is in danger of becoming merely the adorner or decorator of structures for which he is not primarily responsible. We feel, as I have already said, that the ornament on a building should accentuate and add to the beauty of its proportions, and in the complete design the architect and engineer should be in closest sympathy. To the engineer it seems incongruous to pile row on row of classic orders and details one on top of the other in the facade of a modern steel structure when there is an opportunity of maintaining the leading lines of the construction.

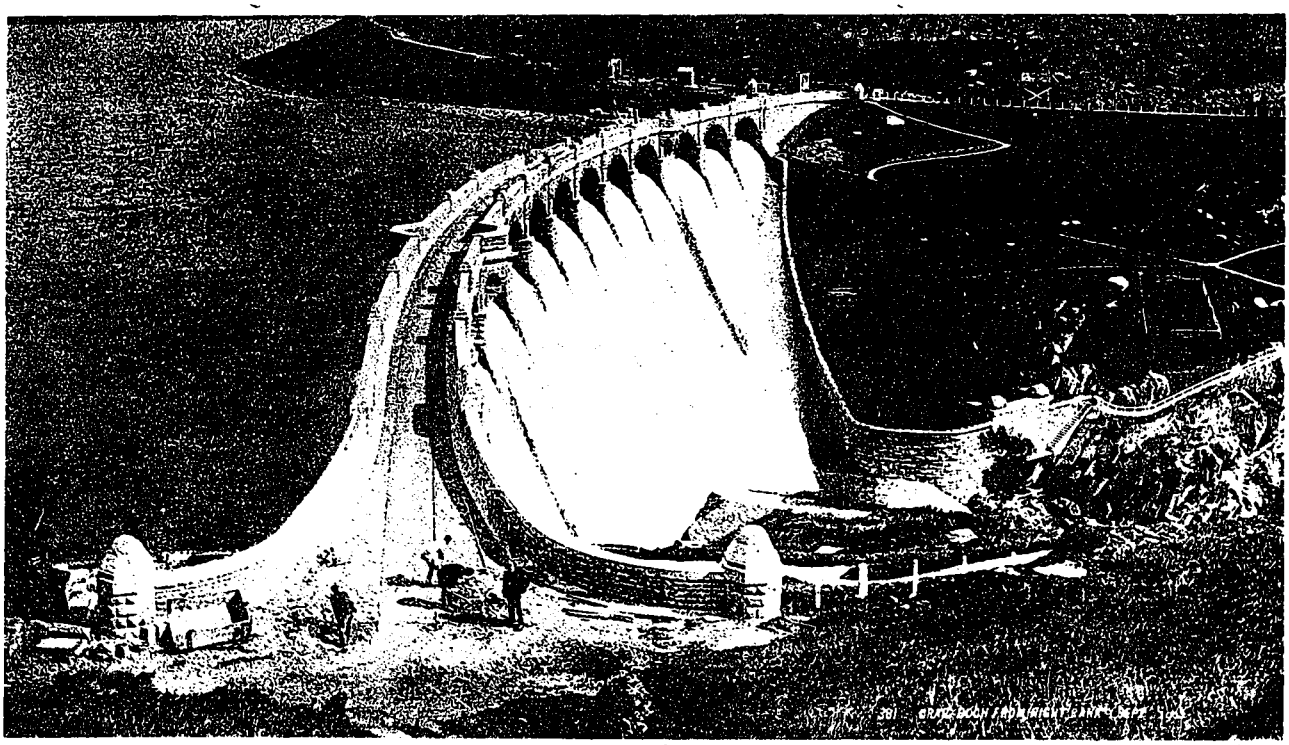
TOWN PLANNING.

In another field of activity there is great scope for the co-operation of the two professions, namely, that of town planning. The civic idea is a very ancient one, and has always dominated the progressive spirit of a great race, and in the creation of beautiful cities this cannot be accomplished by the landscape gardener or architect alone, but by the co-operation of engineers engaged in many different branches of the profession, and it would be well if we as engineers would cordially support and assist the efforts of the new Civic Improvement League in Canada, so as to make our cities healthier and more beautiful in the future.

I have already stated that the canons of beauty change with the advance of knowledge. Old George Herbert, in one of his beautiful poems, has said:

"Man is all symmetry.
Full of proportions, one limb to another,
And to all the world besides,
Each part may call the farthest brother."

So, too, in every well-designed engineering work, be it a bridge, a dam, or a steel building, each part has some duty to perform, some special dependence one part on another, and it is in the proper study of their functions alone that beautiful designs can be produced.



CRAIG GOCH, FROM RIGHT BANK, WALES. DAM OF BIRMINGHAM WATER SUPPLY.

Our citizens should take a keener interest in their great public structures, and aspire to something beyond mere utility. Before we can expect them to do so we must consider our own attitude, and endeavor to educate the public so that the standards of taste and ideals are raised until art in its highest expression pervades every part of our civic and national life. We need a truer education of the public, and of those chief citizens whom the people, in their collective wisdom, send to represent them in council chambers and in the Legislature. As a result of such education we ourselves will create structures which will stand as permanent monuments of a people that endeavored not only to produce great works of utility, but works of beauty, in the service of man.

Some Elements of Smokeless Furnace Design

By Osborn Monnett.*

IT is the purpose of this paper to call attention to the characteristics of a few conventional settings which have been used in the past, and to point out ways in which they may be improved from a smoke standpoint for territories using high volatile, long flaming coal.

HIGH PRESSURE POWER BOILERS.

With the many types and shapes of boilers on the market to-day boiler practice gives opportunity for innumerable combination of stokers and furnaces. The type selected, either of boiler or furnace, does not have as much bearing on the smoke performance as does the manner in which the combination is put together. It is sometimes quite a problem to get a boiler and furnace connected in such a manner that both will have a chance to give the best results.

Chain Grate.—Plate 1, Fig. A, shows in outline an old type, chain-grate setting with a three and one-half feet ignition arch, the stoker being set under the boiler with a clearance of six feet from floor to front header. This setting is typical of the older practice in chain-grate setting, with low, short, flat arch, poor ignition and low capacity. Such an outfit cannot be considered smokeless when carrying any considerable load. The deadening effect of the bank of tubes is such as to extinguish the flame before combustion has become complete, in the same manner that a wire netting will kill the flame from a gas burner, the result being a great deal of smoke. While this setting gives very short flame travel, it must not be inferred that mere length of flame travel is always enough to insure a satisfactory setting. It has been found that on a long gas pass, unless some positive means are taken to cause a mixture, the gases frequently become stratified and do not mix, in which case the combustion cannot be complete.

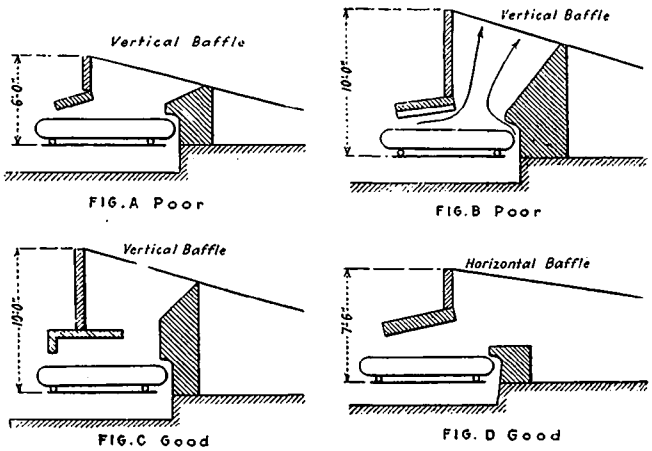


PLATE 1—SOME CHARACTERISTICS OF CHAIN GRATE SETTINGS.

In Fig. B, Plate 1, the boiler has been raised to ten feet under the header; the ignition arch lengthened to five feet and set full extension. This allows more flame travel, but the setting still has some of the defects of the first one and is not good for high capacities. One of the principal defects is that the flow of rich volatile matter may pass into the bank of tubes in an uninterrupted current in the front part of the furnace, while most of the oxygen necessary to burn this volatile matter is passing in at the back part. There is a lack of mixture, and consequently incomplete combustion and low economy.

Fig. C, Plate 1, corrects the above defects by using a longer arch, setting the stoker farther under the boiler, decreasing the floor space occupied and narrowing up the furnace throat opening so that the volatile gases and air mix in a high temperature zone, which easily completes combustion on a ten-foot setting. Experiments have been made to determine the best throat opening for commercial use. Openings from eighteen inches to thirty-six inches have been tried with success, the smaller ones being high in maintenance; thirty inches is about the most satisfactory opening for all around use.

Another factor, which has had a marked effect on the performance of the later chain-grate settings, has been the height of the ignition arch at the gate; where eleven inches was formerly the standard height for a flat arch, it has now been increased to fifteen inches, and the slope of the arch has been increased to two inches or three inches per foot. Where the arch is sprung across the furnace, it is now set level, nine inches above the grate at the skewback, with a nine-inch spring, making eighteen inches in the centre of the arch.

For the horizontal baffle little need be said from the smoke standpoint, as this combination is always satisfactory. Fig. D, Plate 1, shows a setting with seven feet six inches head room, which can be considered ideal for a chain-grate. This dimension may vary considerably without affecting the performance. Six feet six inches may be considered the minimum head room allowable.

It sometimes happens that, with a tile-roof furnace and a low setting, the furnace gets so hot as to have a bad effect on the life of the brick work. This can be offset in many instances by baring the lower row of tubes, using T tile instead of box tile. This allows more

*Presented at a meeting of the Ohio Society of Mechanical, Electrical and Steam Engineers.

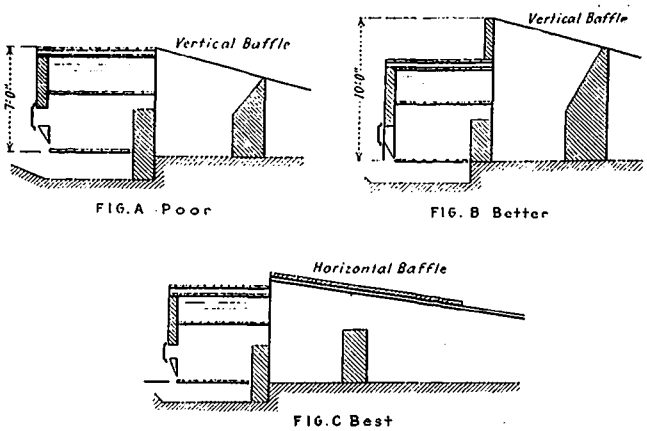


FIG. A Poor FIG. B Better FIG. C Best

PLATE 2—DOUBLE-INCLINED STOKERS AND HORIZONTAL WATER-TUBE BOILERS.

rapid heat absorption into the boiler, increasing the life of the brick work and resulting in a better operating furnace.

Double Inclined Stokers.—For the double inclined type of stoker the short length of flame, discharging directly into the bank of tubes, is undesirable when the fire is being worked. This type of setting is frequently found installed in a seven-foot head room, as in Fig. A, Plate 2. The human element enters strongly into the matter with such a setting, owing to the possibility of having considerable volatile matter pass off rapidly through carelessness. With a case of this kind it is better to set the boiler with a clearance of ten feet, as in B, giving more opportunity for the gases to complete their combustion. One of the safest arrangements is to provide a tile-roof setting with an auxiliary bridge wall, Plate 2, Fig. C, breaking up the current of gases and insuring the mixture of any excess amount of volatile matter which may pass off for any cause whatever. The importance of setting this type of furnace with maximum flame travel is not always realized.

In Plate 3, two different types of boilers are shown with good and bad combustion of double inclined furnaces. It is a safe rule to get a full extension on this type of furnace and never resort to the flush front setting. In the case of Fig. A, Plate 3, the defect of short flame travel is corrected by providing a five-foot dog-house extension between the boiler and furnace and by raising the boiler to get the full benefit of the heating surface as shown in Fig. B. Typical Stirling settings are shown in C and D with flush front and full extension furnaces.

Front-Feed Stokers.—With the front-feed stoker the same practice should be observed as regards flame travel. A clearance of seven feet is not sufficient to get good results with this type of stoker and vertically baffled, water-tube boilers. A very much improved furnace can be obtained by using a head room of ten feet, as in Fig. B, Plate 4, a combination resulting very satisfactorily from every standpoint. This design also gives an opportunity for employing a vertical bridge wall, which is nearly always found to be a desirable feature wherever it can be used, as the radiating surface of the hot brick helps to keep the gases hot as they pass out of the furnace.

With a horizontal baffle it is a simple matter to combine this type of stoker successfully. Sufficient head room only is required to get the stoker under the front header. If this cannot be secured in the head room available, it does not alter the effectiveness of the design to excavate as shown in Fig. C. Sometimes piers, or deflection arches, are used with this setting to break up the current of gases. Where a free opening in such a setting does not go below fifty per cent. of the grate surface of the stoker, such construction is desirable. On a vertical boiler always get the maximum extension possible within reason.

Underfeed Stokers.—Underfeed stokers of different types require different head rooms. See Plate 5. The Jones and American types can give excellent results with a head room of eight feet six inches for a vertically baffled boiler, Fig. B, and seven feet for a horizontally baffled boiler. In the case of the former the effort should be to provide enough flame travel to minimize the danger of unconsumed volatile matter passing into the bank tubes.

In the case of tubular boilers the above named types of stokers can be installed with forty-two inches from the dead plate to the shell, Fig. C, and the combination will result in a satisfactory performance. With stokers of the Taylor type, Fig. D, a ten-foot clearance under the front header makes an ideal combination.

Hand-Fired Settings.—One of the most common types of boiler setting encountered is the ordinary hand-fired, return-tubular setting, such as is indicated in Fig. A, Plate 6. In this setting there is no attempt made to accomplish a mixture of the gases after they have passed the bridge wall. The setting, while fairly efficient commercially, is very smoky with high volatile coal, and many attempts have been made to im-

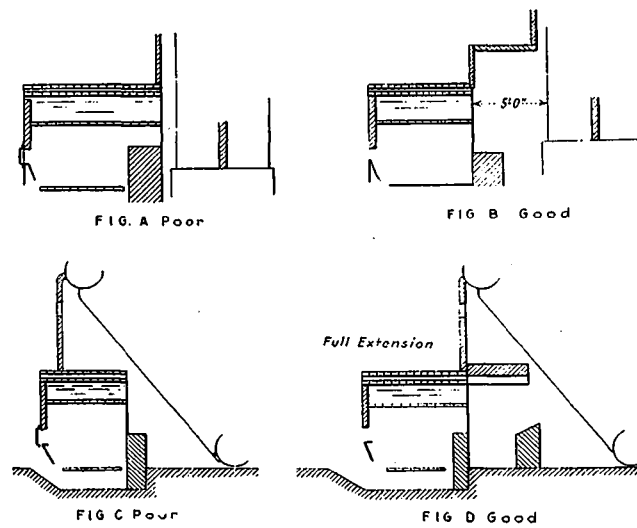


FIG. A Poor FIG B Good FIG C Poor FIG D Good

PLATE 3—DOUBLE-INCLINED STOKERS AND VERTICAL BOILERS.

prove it. Fig. B, Plate 6, shows a full-extension, Dutch-oven setting, by which it was attempted to improve the plain, hand-firing setting. From a smoke standpoint the Dutch-oven setting is a poor combination. Contrary to stoker practice where the fuel is introduced slowly and in small quantities, there is a considerable quantity of coal thrown on the fire at once. The strong radiation from the brick work above the fire has the effect of distilling the gases so rapidly that puffs of dense smoke will be made after firing in spite of every effort to prevent them. Fig. C, Plate 6, shows how to correct this defect by baring the shell to the direct radiation of the fire. This increases the steaming capacity and provides a high temperature zone back of the bridge wall where the gases must mix positively against the deflection arch, which breaks up the stratification and so promotes combustion.

It is not practical to combine a hand-fired, coal-burning furnace with a vertically baffled. water-tube boiler, but it is a simple matter to arrange such a furnace with a horizontal baffle, carrying out the same idea as in Fig. C. The ordinary hand-fired, horizontally-baffled, water-tube boiler furnace is covered with box tile and has nearly all the defects of the Dutch-oven shown in Fig. B, as it is practically a fire-brick enclosed furnace from which the volatile gases will be distilled at a very rapid rate. Fig. D indicates how this can be overcome. The changes indicated are, first, baring the first two rows of tubes over the fire by putting T tile on the second row, thereby avoiding the radiating effect of a mass of fire brick; second, installing a two-span deflection arch to break up the current of gases, as in the case of the return tubular boiler. In both of these furnaces a few simple proportions should be carried out to insure satisfactory results. There should be from twenty to twenty-five per cent. of the grate surface in free opening above the bridge wall. The free opening from the back of the bridge wall to the deflection arch should not be less than forty per

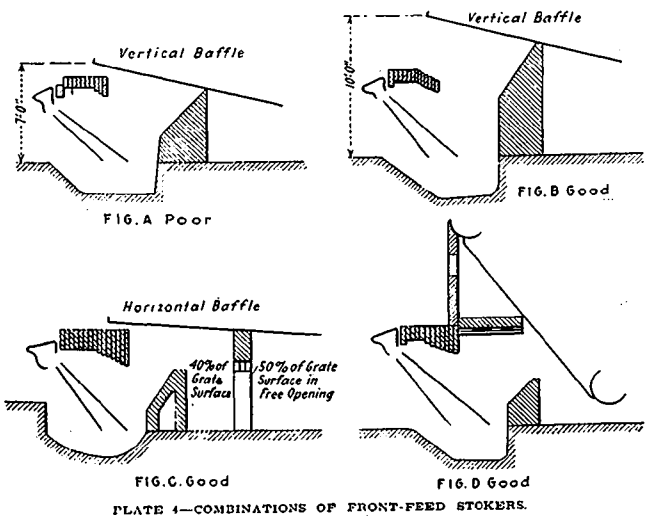


PLATE 4—COMBINATIONS OF FRONT-FEED STOKERS.

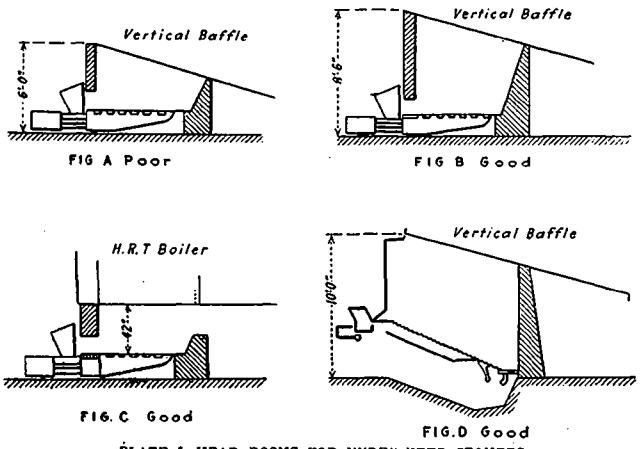


PLATE 6—HEAD ROOMS FOR UNDER-FEED STOKERS.

cent. of the grate surface, while the free opening under the deflection arch should be fifty per cent. of the grate surface. Hand-fired furnaces for high pressure work should be fitted with four air-syphon steam jets, spaced across the furnace above the fire doors, to be used when necessary.

LOW PRESSURE HEATING PLANTS.

The foregoing discussion has been with reference to high pressure power work. The low pressure heating plant presents a problem that in some respects is more difficult than any encountered in high pressure work. The plants are not ordinarily large enough to justify stokers, and, even if such was the case, the character of the attendance is not such as would do justice to the equipment. The temperatures are lower and no steam is available for steam jets or for power to drive apparatus. With such conditions as these to meet it has been found that the down draft principle works out very well.

A little study will show why this is so. The danger of making smoke on a down draft furnace comes from getting green coal on the lower grate, so the longer the fire can remain undisturbed the less chance of making smoke. The rate of combustion on heating loads is low, and allows for long periods during which the fires are not disturbed and no smoke is made. During these undisturbed periods there is accumulating on the water grate a thick bed of coked coal, which, when sliced down to the lower grate, does not make smoke because the volatile matter has all been distilled off. After slicing, the fire can be heavily charged with fresh coal, without disturbing the fuel bed and consequently without causing smoke. It is then in shape for another long undisturbed period.

Another advantage of the down draft principle on heating loads comes from the fact that although the rate of combustion may be at times extremely low, yet the water element directly in the fire furnishes a proportionate amount of steam no matter how low the combustion; so the system is more responsive than would be possible with a plain grate boiler.

The down draft principle can be applied to re-

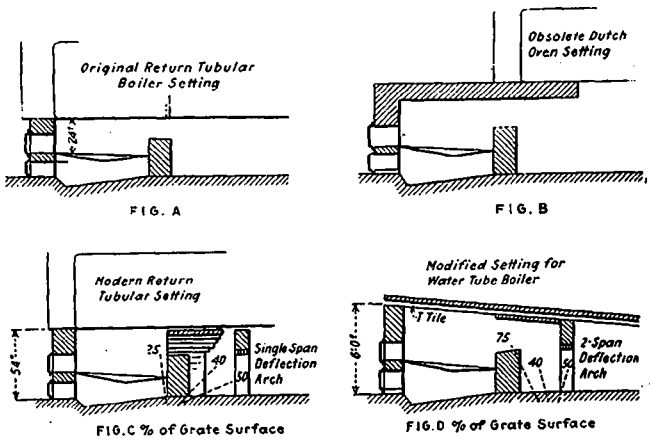


PLATE 6—DEVELOPMENT OF HAND-FIRED FURNACE.

turn tubular or water tube boilers in the larger units. In these units it is advisable to spring an arch in the path of the gas as shown in Figs. A and B, Plate 7. As the rate of combustion on these large units at times approximates power conditions, it is desirable to guard against any excessive amount of volatile matter, which might pass over during these periods, by breaking up the current of gases and giving them an opportunity to burn.

For small units there has been developed in the past few years a number of types of self-contained, steel and cast-iron boilers embodying the down draft principle. In the former type the water element consists of water tubes or pipes extended into headers in the ordinary manner and located in the fire box of a locomotive-type boiler. In the cast-iron, down draft type the water element is cast integrally with each section, forming the upper grate, the shape of the elements being such as to facilitate the slicing of coked coal down to the lower grate without disturbing the main body of fuel before the volatile matter has been distilled from it. This type is made in sizes up to ten thousand square feet of radiation in one unit, and can be installed several in a battery.

In conclusion, I wish to call attention to the necessity of being in possession of all the facts before attempting to work out any given smoke problem. There are so many variables, such as head room, floor space, character of attendants, fuel, etc., to be taken into consideration that each job requires careful study before any recommendation can be made. When proper attention is given to the matter there is no question but what an installation can be obtained which will meet the local conditions.

GREEK ART

Professor Harrower recently delivered a lecture on the "Unity of Greek Art" at the Aberdeen Architectural Association, in the course of which he stated that anyone desirous of illustrating all the unifying influences of the art of the Greeks would naturally choose sculpture, but some characteristics were presented even more clearly in their architecture, such as clarity, lucidity, balance, simplicity, harmony and proportion, as well as strong conservatism, organic growth, and the discouragement of chaotic individualism, and, above all, the appeal to sense and intellect rather than to emotion. All these qualities were to be found in Greek literature, and it was not too much to say that the fundamental principles of Sophoclean tragedy took concrete form in the Parthenon. Greek theorists did not regard architecture as one of the fine arts, for it was not mimetic and did not represent anything, least of all that which the Greeks considered as the proper object of artistic representation, the human form and the human spirit. Plato united architecture with music as possessing an ethical value and influence. It was a common Greek belief that a man could ruin himself body and soul by bad music as surely as by drunkenness or any other vice. Professor Harrower went on to say that he himself was insensitive to architecture, and if any architect chose to put two hopelessly degraded copies of the Choragic monument of Lysicrates one above the other to form a tower, he did not gnash his teeth, but supposed it was classic and right! Not the least entertaining suggestion of a clever paper was the reference to Mr. Andrew Carnegie, who said they would not find one ennobling thought in Homer's barbarisms. "This criticism," the professor said, "should be listened to with the respect due to Mr. Carnegie's well-known critical eminence and fine literary taste." Such addresses, though they convey little fact, are useful and illuminating to the architectural student, showing as they do the range of mental images which is only possessed by those whose education is not bounded by the limits of their calling.

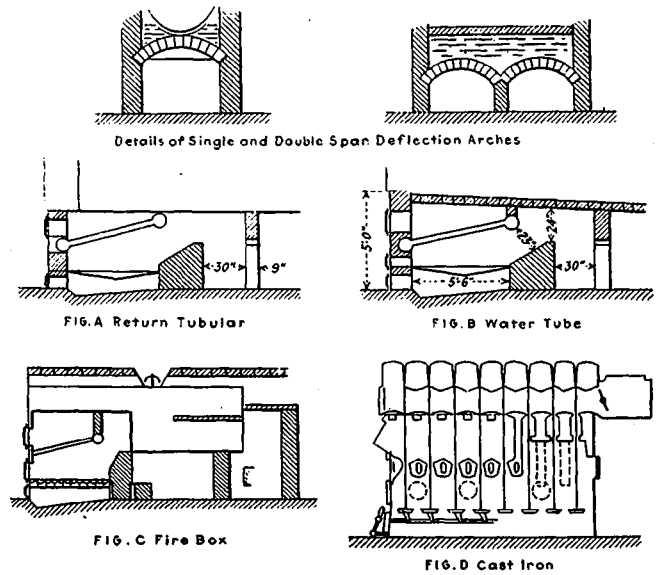


PLATE 7—TYPES OF DOWN-DRAFT EQUIPMENT FOR HEATING LOADS.

CONSTRUCTION

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

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FRASER S. KEITH - - - EDITOR AND MANAGER

Vol. IX Toronto, May, 1916 No. 5

CANADIAN HOTELS

Canada owes much to the great railway corporations in establishing a system of hotels that, for appearance and comfort, are not surpassed anywhere in the world. The two most recent additions to this group, the Hotel Vancouver at Vancouver, B.C., and the Hotel MacDonald at Edmonton, which are featured in this issue, are not only noteworthy examples of the architecture of the country, but exemplify in a striking manner the faith of the railway companies in our Canadian West. They have both been built at a period when in most lines, both on the Prairies and in British Columbia, development was at a standstill. There is no doubt but that the early future, if not the immediate present, will amply justify the enterprise displayed in the erection of these two superior structures.

ARCHITECTS AND ENGINEERS IN COLLABORATION

The article in this issue by Mr. G. R. G. Conway, entitled "The Engineer and Standards of Beauty," is of more than passing interest to all architects and engineers, and strikes a chord that reaches the very heart of a situation that calls for consideration and action. In this article the author makes a plea for closer co-operation between these two important professions and points out a number of notable achievements the result of the collaboration of the architect and the engineer. It is a lamentable fact that many engineering structures possess a degree of ugliness that make them an eyesore to the neighborhood in which they are situated, and which would not have been erected had the services of an architect been secured to act in conjunction with the engineer. That the two professions can work in close harmony and sympathy are exemplified in the Grand Central and Pennsylvania railway terminals in New York, and the Woolworth building of the same city, and in Canada by the Birks building in Vancouver and the Lake Buntzen power house, to which might be added other examples showing conclusively that this procedure is the proper one to follow. This question was discussed by Professor W. R. Lethaby, F.R.I.B.A., in an address, which shows the extreme attitude of the architect towards the engineer, in which he says in part "I feel strongly that the engineer and the architect are clearly called to the reform of one another. Perhaps as the more pleasant side of the dual problem we may speak of the reform of the engineer first. Now, it seems to me that there is a scientific cant about which is every whit as harmful as artistic cant. The engineer seems to take it for granted that his is the high destiny to make the world hideous. He stands above human considerations; the powers with which he deals have 'come to stay,' and so on. As far as we can see he looks forward to a time when England shall be like Clapham Junction all over. He does not seem to stop to inquire whether it be desirable or not, nor, having made up his mind that it is desirable, does he stand on the order of his doing. He loves to run at odd angles, to wriggle about as in the tube passages, to strap girder to girder, and trig and hitch them up in the most (it seems to a mere architect) shabby and awkward way he can think of. Witness the wonderful air tubes lately added to the train tubes. It is all haphazard.

On the other hand, the average engineer is apt to look upon the architect as an idealist, whose first requirement is appearance, utility being a secondary consideration. These viewpoints show that there is ample room for a better understanding between the architect and the engineer. It is obvious that by working one with the other they can achieve results which neither one could alone, enriching both architecture and engineering, and producing examples of construction which will be highly efficient and have every requirement as to appearance that may be desired.

Architectural Digest

Articles of More Than Passing Interest From Our Contemporaries

LIVING ART.

A review of the great architectural periods of history reveals a fact which we believe is frequently lost sight of now, and which partially accounts for the poverty of the architectural results which distinguish the work of the present day. In the past the architect, whether in the form of a master mason or master craftsman of mediæval times, or in that of the architects of the early Renaissance period, trained in a bottega and familiar with the allied arts, both in practice and theory, may be said to have held the view that art was one and indivisible. We cannot imagine the designers of the great works of mediæval France employing sculpture as an accessory feature; they were rather working, in conjunction with the imagers, to crate a masterpiece by the means of the common fund of skill, which was the heritage of the craftsmen of the day.

The Mediaeval cathedral and the mediaeval bridge were alike the expression of the greatest engineering knowledge of the age: in fact, it is very questionable whether, given stone alone as a means of structure, the most skilful modern engineer could produce anything more scientific than the vaults and supports of Reims, Amiens, and Beauvais, or more intricate than Henry VII.'s Chapel. The mediæval builders a tthe culmination of the Gothic period, whether we cal lthem master masons, architects, imagers, or sculptors, put the whole knowledge and skill of the times into the solution of the problems before them, with the result that the buildings erected surpass those of later ages in unity of conception and the expression of power.

The Greeks consciously limited their constructive problems, which were neither complicated nor difficult; but their architecture, divorced from its sculptural accessories, would be incomplete compared with the results which were produced. The Greek temple without its sculptured pediment would never have impressed the world with the sense of matchless perfection which we admire, nor can there be a doubt that the exponents of the two arts worked side by side in absolute co-operation and understanding of each other's objects.

In Egyptian architecture it is painting rather than sculpture which was called to the aid of architecture, but the pages of Champollion show how much the Egyptian painters added to the meaning of architecture, and how completely the two arts were interdependent on one another; and in the days of the Renaissance we see the added effect given to architecture by the men who more thoroughly than any other understood the correlation and interdependence of the arts. In the case of Alfred Stevens we see how the systematic study of the three arts enabled a man who lived in a nadir of European artistic history to produce a work such as the Wellington Memorial, in which we have the expression of architectural and sculptural art as one indivisible unit, not as accessory additions to one another; whereas now architect and sculptor pursue their ways independently, calling upon each other's help when the essential lines of structure are too far advanced to permit the combined expression of art as a whole. So in our bridge building the architect is eliminated except in a subordinate capacity, in which he is called in to tone down mistakes which are ineradicable and which absolutely mar a whole conception. It is difficult in the complexity and specialisation of our modern life to suggest an adequate remedy. Few of our achitects have the means or the enthusiasm and love for art which can replace means to follow in the steps of Stevens and give the best years of their lives, not to gaining connection and clients, but to acquiring such a knowledge of art as a whole as will enable them to deal with its greater problems; nor, it must be added, could many achieve the results produced of a great genius like Stevens; though, on the other hand, we doubt not that if forty architectural studnets followed in his footsteps year by year the whole history of modern English architecture would be revolutionized.

The other alternative seems to require specialization in the direction of effort and determination to seek fortune along certain considered lines, and involves the architect whose bent is to undertake the solution of great constructional problems like bridge building, factory and warehouse construction, and railway architecture, associating himself not with another architect but with an engineer No man can call in and work in perfect harmony with an expert in another calling—which is what satisfactory design necessitates; but if he undertakes his life work in partnership with such a man the two will learn to understand each other's principles and will know exactly where and how they can best employ their joint efforts. In the same way the architect who seeke his fortune in the direction of the solution of monumental design would be immensely aided by working in partnership with a sculptor, a painter, or with both: it is, we feel, in some such manner alone that we can again produce living art. Mr. T. P. Bennett, A.R.I.B.A., has written a useful little bood entitled "The Relation of Sculpture to Architecture"* which should serve a useful purpose in calling attention to a very important subject which is little understood. The greater architectural success of modern French work is due not alone to the better education acquired by the average French architect, but also to the recognition that architect and sculptor should understand the principles of each other's arts and work together for a common end. The design of the modern French monument is the result of the closeness of this co-operation, and in many cases they are worthy successors of the great works of the Renaissance; whereas in this country if all the monuments erected during last century could be swept away we should be gainers and not losers on a balance.

But no manuals for the architect can enable him to dispense with the personal co-operation of the sculptor, and it may be suggested that if our stpdents spent a year or a year and a half studying side by side with sculptors in the schools they would fully understand this themselves. It is only the uninitiated and the ignorant who will ever underrate the complexity and intricacy of the problems of another art or imagine that in their own person they can ever be absolute arbiters in matters of æsthetics. The genius of Stevens, stimulated by years of training, enabled him to design and carry out a great monument which belongs to architectural and sculptural art alike; but the training he had would not have enabled him to cope with a practical problem without a further long period of apprenticeship. Our work must always be undertaken with a knowledge that we are handicapped by the short spon of human life, that limitation which prevented the genius of Stevens from being of the service, it might have been to humanity and art.

Only the co-operation and understanding can we emulate the work of the artists of the past, which was the result of the collective work of artists in different types; only in that way can living art be produced and the sum of beauty increased in spite of the eternal truth of the saying, "Ars longa, vita brevis est."—"The Builder."

IMPORTANCE OF LINSEED OIL.

Of all the materials which obtain mention in an architect's specification there are few that receive so little attention in the supervision of work in execution as linseed oil. Specifications too often require that all the paint is to be mixed with "best linseed oil." Others, whose authors are acquainted with the fact that in the trade "best" linseed oil is not the highest quality, stipulate that "genuine" linseed oil is to be used. As very much of the satisfaction of an architect's clients is affected by the behavior of the paint, it seems worth while to give some further consideration to the humble and neglected component, linseed oil.

There are few branches of the building trade in which indifferent and scamped work are more prevalent than the painter's, and much of the difference between good and bad work is due to the great variations in quality, and hence in durability, of paint that are possible in the vehicle. These variations are due, first, to the nature of the raw material from which the oil is expressed; second, to numerous alternatives that may be adopted in the preparation; third, to the degree of purity that is to be found in the finished product.

The property which gives linseed oil its special value as a vehicle in paint is that when exposed to the air it gradually dries and hardens into a solid substance, more or less transparent, somewhat elastic, and insoluble in water. This drying and hardening is the result of absorption from the atmosphere of a large quantity of oxygen, forming a body known as linoxyn, the final oxidation product of linseed oil when exposed to the air. The criterion of quality as a component of paint distinguishing various specimens of oil may be stated as the relative proportion of oxygen that each will absorb.

The raw material from which linseed oil is expressed is the seed of the flax plant, and the quality of the oil depends in the first instance on the source from which the seed is obtained. Baltic seed comes from Riga and other ports on the Baltic coast of Russia, and is the seed of flax grown in the north of Russia; Black Sea seed comes from Odessa and other ports on the Black Sea and is grown in the south of Russia; American seed comes chiefly from the Argentine, and East India seed is exported from Calcutta and Bombay. The relative excellence of the oil obtained from these sources is denoted by the number of cubic centimetres of oxygen absorbed by one gramme of each, which is given as: Baltic oil, 191; Black Sea oil, 186; American oil, 156; East Indian (Bombay), 130; Calcutta, 126.

The seed as imported is seldom free from dirt and other seeds, such as those of hemp and rape, the oils from which are very inferior in drying property to linseed. These seeds are usually smaller than linseed, and can therefore be separated by sieving, and the first variant of quality, due to manufacture, depends upon the thoroughness of this preliminary operation.

Oil is obtained from the seed by crushing and pressing, and in these operations there are again variations which affect the quality of the oil. The very best is the result of crushing and pressing cold, but commercial oil is nowadays practically always prepared by hot pressing, which is far more economical and secures a more thorough expression, though the oil contains a much larger proportion of mucilaginous matter, chlorophyll, etc., which impair its quality. Two systems of oil extraction are used, the English and the Anglo-American. These do not differ greatly, and their results do not materially vary in quality.

The oil, as it comes from the press, is known as raw or unrefined linseed oil. It is not clear and bright, but cloudy, and contains impurities detrimental to its employment as a paint component, and these must therefore be removed as far as possible to produce "refined linseed oil." Refining formerly was effected by exposing the oil to sunlight for some months in glass vessels or shallow tanks; but this method is slow and costly, and for commercial oil is now superseded by treatment with heat and sulphuric acid. The sun-refined oil is, however, undoubtedly much superior in quality, and for picture-painting should always be preferred.

High as is the capacity of raw linseed oil in its pure and natural state for drying by the absorption of oxygen, this capability can be increased by heating the oil to a temperature of 400 deg. to 500 deg. F. for a few hours, and still further by the addition of certain bodies known as "driers." Oil thus treated is described as boiled linseed oil. The boiling may be effected by direct action of fire upon the containing vessel or by steam heating, or boiled oil can be produced by chemical process, aided by moderate heat and the injection of air. By whatever method it is produced, boiled oil is thicker and dries more rapidly than raw oil to a hard, lustrous coat. It is, however, usually darker in color, and the extent of the darkening is in the fire-heating process determined by the degree of temperature and time expended on the operation. As for painter's use a light-colored oil is usually preferable, the alternative methods have been introduced with the object of attaining this desideratum. A very satisfactory pale, quick-drying oil can be pro-

duced by the action of concentrated actinic light from Uviol lamps on raw oil kept at a temperature of about 180 deg. F. whilst oxygen is passed through it in a fine stream. For the manufacture of enamel paints a very much thickened oil is prepared by keeping the raw linseed oil at a high temperature for a considerable time in the presence of air, but without the addition of driers—i.e., by boiling to excess, so to speak.

It will thus be seen that there are in the manufacture of linseed oil, whether raw or boiled, many operations which may be more or less carefully and skilfully performed, as well as variant methods which affect the result, so that manufacture as well as raw material is a determining factor of ultimate quality. In the preliminary process of manufacture it was shown that incomplete cleansing of the seed might entail the presence of inferior oils in the finished product. We are, however, subject to the possibility of inferior oils being also added as adulterants. Boiled oil is in addition open to substitution of many varied mixtures, some of which nearly approach good genuine oil in quality, though the majority are very inferior.

Adulterants of linseed oil are chiefly mineral and rosin oils. The latter is particularly objectionable by reason of a peculiar feature in its drying properties. It dries, but in the course of a few weeks the coat becomes soft and tacky again, and even if rosin oil is used for a bottom coat and good linseed oil paint laid over it, the defect will make itself apparent. As the drying oils are highly complex organic substances, and their value as components of paint depends upon certain ill-defined and little understood properties, accurate valuation is a matter of some difficulty, and only to be attempted by expert oil chemists.

A simple test for the presence of rosin or of mineral oils in either raw or boiled linseed oil is to boil a small quantity with an alcoholic solution of caustic potash until it is completely saponified, then pour the solution into water; if the oil be pure, a clear mixture will be obtained; if it contains either of the oils named, it will be cloudy and turbid.

The flash point is also a good test for detecting the adulteration of linseed oil with mineral or rosin oils. Linseed oil, whether raw or boiled, flashes at about 570 deg. F. Mineral oils, such as are used for its adulteration, flash at from 380 deg. to 420 deg. F., and rosin oil at from 300 deg. to 330 deg. F.

As the value of an oil for use in paint depends very largely upon the extent to which it can absorb oxygen, it is fortunate that this can be determined by the amount of bromine or iodine that will combine with the oil to form derivatives, and this amount is expressed by what is termed the iodine value. This for linseed oil is 173-200, that of rosin oil is 28, and of mineral oil practically nil, whilst hemp, rape and other usual accidental adulterants of lesser drying quality all have lower figures than linseed. If, therefore, a sample of drying oil has a low iodine value, it indicates a poor quality or adulteration with non-drying oil.—The Architect.

PERSONAL.

E. R. Beckwith, architect, Kingston, Ont., is about to leave for England for a visit of a few months.

C. L. Gibbs, architect, of Edmonton, Alta., has enlisted and will go overseas with the University of Alberta Company.

Messrs. Leonard Foulds and A. B. Bowes, structural and civil engineers, are now located in their new office, 166 Bay street, Toronto.

W. J. T. Wright, formerly of Wright & Howard, consulting engineers, 121 Simcoe street, is now Senior Lieutenant of the 67th Overseas Depot Battery.

Messrs. Wm. Steele Sons Co., Philadelphia, Pa., architects and engineers, have opened a Canadian office in the Ryrie Building, Yonge and Shuter streets, Toronto.

The office of Eustace G. Bird, architect, formerly in the Bank of Toronto Building, is now located in the Grand Trunk Building, corner of King and Yonge streets, Toronto.

John T. Howard, formerly of Wright and Howard, consulting engineers, 121 Simcoe street, is now with the firm of James, Loudon & Hertzberg, Excelsior Life Building, Toronto.

Captain Hertzberg, of James, Loudon & Hertsberg, Toronto, who is now with the Canadian Engineers in France, has been awarded the Military Cross for distinguished conduct.

Mr. Clare McGiffin, of W. R. McGiffin & Co., Ltd., general contractors, Toronto, was married on April 26th, and, after an extended trip to American cities, will reside in a new home recently completed near the Old Mill on the Humber river.

H. Tyler Kay, who has been advertising manager of the Consolidated Engineering Company, Chicago, Ill., and formerly of the Flintkote Mfg. Co., Boston, Mass., has accepted the position of advertising manager of the National Radiator Company, Johnstown, Pa.

Messrs. Vallance, Archibald and Chausse, architects, of Montreal, and J. W. H. Watts, architect, of Ottawa, representing the executive committee of the Royal Architectural Institute of Canada, were entertained at a luncheon given by the Toronto Chapter, at the National Club on April 22nd.

The International Time Recording Company of Canada, Ltd., has recently moved into their new home, corner of William and Anderson streets, Toronto. Mr. F. E. Mutton, late of the National Cash Register Co., where he occupied the position of Canadian District Manager, has been appointed general manager.

A "World's Salesmanship Congress" will be held in Detroit, July 9th to 12th, inclusive, which will be attended by delegates from all parts of the world. It is expected that Presdient Wilson will deliver the opening address, and to insure his attendance, a monster petition has been presented at the White House, bearing the signatures of five thousand Detroit business men.

Because Hugh Watkins, quantity surveyor, of London, Eng., for the new Parliament Buildings, Winnipeg, is of military age, he was unable to secure a passport to this country, in order to work in connection with the local structure, and the Department of Public Works had to write to the Canadian High Commissioner in London, asking that the expert be allowed to come to Canada. The plans for the new dome are completed in London. The final assembling of the material in Winnipeg will be done by Mr. Watkins, and he will get the quantities surveyed and put into shape before tenders for the construction of the dome are called.

REVIEW.

The Canadian Kaustine Co., C.P.R. Building, Toronto, are interesting the Canadian architects and others in their system of sewage disposal, as described in literature recently issued, which explains their apparatus for contributing to the health and comfort of the rural home, school or other buildings situated in districts lacking sewers. The claim is made of superiority over septic tanks or other means of sewage disposal.

Victoria, B.C.—The Minister of Lands announces the issue of Timber Series Bulletin No. 16, entitled "British Columbia Western Larch." Known variously as tamarack, red American larch, larch, Western tamarack and hackmatack, the sterling qualities of this species are described in the bulletin for the information of lumber dealers and wood-users. The annual cut in British Columbia of late years has averaged sixty-two million feet board measure, the range of Western larch being between the Rockies and the Cascades, south of the main line of the C.P.R. Suitable for many uses, and in some unsurpassed. Western larch supplies material for dimension, poles, piles and posts, ties, framing, outside and interior finish, tanks, troughs, grain elevators, refrigerators, silo stock, wood-paving, telephone cross arms, fencing, etc. Copies will be mailed upon application to the Forest Branch, Victoria, B.C.

WILL ADVERTISE TORONTO.

The Publicity Committee, which was recently appointed to prepare a report on the advancing of Toronto's interests as a manufacturing and commercial centre, has recommended the creation of a Central Bureau, with the duty of reception of visitors and delegates to conventions, the advertising of the city, and showing to prospective investors the industrial sites and commercial activities of Toronto.

TECHNICAL SOCIETIES.

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

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

CANADIAN CEMENT AND CONCRETE ASSOCIATION.—President, Peter Gillespie, Toronto, Ont.; Secretary-Treasurer, Wm. Snaith, The Thor Iron Works, Toronto, Ont.

CANADIAN CLAY PRODUCTS' MANUFACTURERS' ASSOCIATION.—President, J. E. Frid, Hamilton; Secretary-Treasurer, G. C. Keith, Toronto.

CANADIAN ELECTRICAL ASSOCIATION.—President, Col. D. R. Street, Ottawa, Secretary, Alan Sullivan, Confederation Life Building, Toronto.

CANADIAN FORESTRY ASSOCIATION.—President, William Power, M.P., Secretary, James Lawler, Journal Building, Ottawa.

CANADIAN GAS ASSOCIATION.—President, Arthur Hewitt, General Manager Consumers' Gas Company, Toronto; John Kellior, Secretary-Treasurer, Hamilton, Ont.

CANADIAN INDEPENDENT TELEPHONE ASSOCIATION.—President, W. Doan, M.D., Harrietsville, Ont.; Secretary-Treasurer, Francis Dagger, 21 Richmond street West, Toronto.

CANADIAN INSTITUTE.—198 College Street, Toronto. President, J. B. Tyrrell; Secretary, Mr. J. Patterson.

CANADIAN NATIONAL ASSOCIATION OF BUILDERS' EXCHANGES.—Western Section—President, C. R. Frost, 609 Second St., Edmonton, Alta.; Secretary-Treasurer, A. M. Frith, 224 McDougall Ave., Winnipeg. Eastern Section—President, Geo. Gander, Toronto; Secretary-Treasurer, P. L. Fraser, Builders' Exchange, Toronto.

CANADIAN SOCIETY OF CIVIL ENGINEERS.—President, G. H. Duggan, Montreal; Secretary, Prof. C. H. McLeod, Montreal.

LONDON BUILDERS' EXCHANGE.—President, A. C. Nobbs; Secretary-Treasurer, F. S. Barclay.

ONTARIO ASSOCIATION BUILDERS' EXCHANGE.—President, T. R. Wright, London, Ont.; 1st Vice-Pres., C. T. Pearse, Hamilton; 2nd Vice-Pres., A. Tomlinson, Chatham; Treasurer, Geo. Oakley, Jr., Toronto; Secretary, A. E. Flower, Toronto.

MANITOBA ASSOCIATION OF ARCHITECTS.—President, Col. J. B. Mitchell, Winnipeg; Secretary-Treasurer, R. G. Hanford.

MONTREAL BUILDERS' EXCHANGE.—President, John Quinlan; Secretary, D. K. Trotter.

ONTARIO ASSOCIATION OF ARCHITECTS.—President, C. H. Acton Bond, Toronto; Treasurer, J. P. Hynes, Toronto; Secretary, R. L. Wolsey, Toronto.

PROVINCE OF QUEBEC ASSOCIATION OF ARCHITECTS.—President, E. B. Staveley, Quebec; Treasurer, N. MacVicar, Montreal; Secretary, J. Emile Vanier, 5 Beaver Hall Square, Montreal.

QUEBEC BUILDERS' EXCHANGE.—President, J. A. Marier; Secretary-Treasurer, Alf. Cote.

ROYAL ARCHITECTURAL INSTITUTE OF CANADA.—President, H. C. Russell, Winnipeg, Man.; Hon. Secretary, Alcide Chausse, No. 5, Beaver Hall Square, Montreal, Que.

SASKATCHEWAN ASSOCIATION OF ARCHITECTS.—President, W. G. VanEgmond, Regina; vice-presidents, A. G. Creighton, Prince Albert, R. M. Thompson, Saskatoon; sec.-treasurer, F. W. Knight, care of Storey & VanEgmond, Regina; Council, Prof. A. R. Greig, Saskatoon, R. G. Bunyard, Moose Jaw, H. Cooper, Saskatoon.

SOCIETY OF CHEMICAL INDUSTRY.—Wallace P. Cohoe, Chairman; Alfred Burton, Toronto, Secretary.

TECHNICAL SOCIETY OF PETERBORO.—Bank of Commerce Building, Peterboro. President, N. C. Mills, P.O. Box 995, Peterborough, Ont.

TORONTO BUILDERS' EXCHANGE.—President, S. R. Hughes; Secretary, A. E. Flower.

UNION OF CANADIAN MUNICIPALITIES.—President, T. L. Church, Mayor of Toronto, Ont.; Hon. Secretary-Treasurer, W. D. Lighthall, K.C. Ex-Mayor of Westmount; Asst. Secretary, G. S. Wilson, 62 Coristine Bldg., Montreal.

Construction News

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

BUSINESS BUILDINGS.

BRANDON, MAN.—C. Crawford will erect business building and flats on Rosser avenue.

GALT, ONT.—Willard Estate will erect addition to business block.

MONTREAL, QUE.—Bell Telephone Co. have awarded contracts for office building.

OTTAWA, ONT.—Architect W. E. Noffke has awarded contract on Blackburn Bros.' office building.

CIVIL ENGINEERING.

EAST ANGUS, QUE.—Westbury, East Angus, Que., have called for tenders on bridge.

EAST OXFORD, ONT.—F. J. Ure, Woodstock, has called for tenders on drains.

LANSDOWNE, MAN.—Bridge to be erected over Mud River, plans by M. E. Boughton, Arden, Man.

MERRITTON, ONT.—Riordan Pulp & Paper Co. will erect a bridge.

OTTAWA, ONT.—Dominion Government are preparing plans for asphalt road, Quebec to Valcartier; Engineer F. C. Askwith has called for tenders on concrete equipment, also on asphalt and wood block paving.

PARIS, ONT.—Town Council have called for tenders on bridge of concrete construction.

PERTH, ONT.—Town Council have called for tenders on bridge.

RATHO, ONT.—Township of Blandford have called for tenders on bridge.

SANDWICH, ONT.—Tenders have been called for concrete pavement on Belle Island and reinforced concrete drain by Owen McKay, engineer, Walkerville.

TORONTO, ONT.—Toronto Harbor Commission have called for tenders on concrete work.

WOODSTOCK, ONT.—F. J. Ure, engineer, has called for tenders for sewers, pavings and drains.

CLUBS, HOSPITALS, THEATRES, HOTELS.

BAYSWATER, ONT.—Knights of Columbus have secured site for building.

MONTREAL, QUE.—Hervey Institute will erect building on Windsor street and Claremont avenue.

MOOSE JAW, SASK.—Canadian Film Corporation are erecting a theatre.

MT. DENIS, ONT.—National Sanitarium Association will erect building. Architects Denison & Stephenson, Toronto, have called for tenders.

ORILLIA, ONT.—Architect W. H. Croker is preparing plans for hospital addition.

PICTOU, N.S.—Architect L. R. Ryan, Aglesford, N.S., has called for tenders on hospital addition.

QUEBEC, P.Q.—D. Brochu, 63 St. John street, has plans for a new theatre.

SAULT STE. MARIE, ONT.—Architects Walker & McPhail, Windsor, are preparing plans for theatre of F. W. Fawcett.

ST. JOHN, N.B.—Board of Health will erect isolation hospital at Howe's Lake.

ST. MARY'S, ONT.—G. Norris, Grand Central Hotel, will make alterations to building.

TORONTO, ONT.—Revised plans are being prepared for Masonic Temple on Spadina road; R. H. Campbell, 100 Yorkville avenue, has awarded contract for sun room addition to hospital.

TRAIL, B.C.—Knights of Pythias will erect club building.

WINNIPEG, MAN.—Alex. MacDonald has provided site, etc., for Home for Friendless; Architect J. D. Atchison, Trust and Loan Building, is preparing plans for addition to sanitarium.

ELECTRICAL CONSTRUCTION.

REGINA, SASK.—Department of Telephones have called for tenders on equipment.

ROSETOWN, SASK.—Rosetown Northern Rural Telephone Co. will make extensions.

SASKATOON, SASK.—City Council have called for tenders on power house extensions.

SAULT STE. MARIE, ONT.—City Council have called for tenders on sub-station.

TORONTO, ONT.—Hydro Electric Co. have called for tenders on sub-station.

WELLAND, ONT.—Hydro Electric Commission will erect power house addition.

FIRE LOSSES.

BEETON, ONT.—Public school destroyed, loss $6,000.

BROUGHTON, N.S.—Soldiers' Quarters building destroyed.

CHARLO STATION, N.B.—Store of J. A. Reid destroyed, loss $8,000.

COMBERMERE, ONT.—Hudson House destroyed, loss $20,000.

DRUMHELLER, ALTA.—W. E. McDonald, store destroyed, loss $10,000.

ETZIKON, ALTA.—Sargeant & McKenzie, store destroyed, loss $25,000.

FREDERICTON, N.B.—Fredericton Steam Laundry, damaged, loss $5,000.

HAMILTON, ONT.—Carling Brewing Co., warehouse destroyed, loss $1,000.

KINGSVILLE, ONT.—Erie Tobacco building destroyed, loss $20,000.

MONTREAL, QUE.—R. G. Dun & Co., premises damaged, Board of Trade Building.

PETROLEA, ONT.—Richmond's livery building destroyed, loss $3,000.

PORT McNICOLL, ONT.—P. H. Beattie, drug store destroyed, loss $3,500.

QUEBEC, P.Q.—E. Myrand, St. Foy road, residence destroyed, loss $3,500; Frs. Rossignol, Ninth avenue, destroyed, loss $3,000; E. Tremblay, 102 Cremazie street, building burned, loss $3,000; A. Faucher, Arago street, house and stable damaged, loss $2,100; J. M. Dore, First avenue, residence damaged, loss $2,500.

RUSSELL, MAN.—Union Bank building destroyed, loss $15,000.

SPEERS, SASK.—L. Huyck, store destroyed, loss $3,000.

ST. JOHN, N.B.—McLean, Holt & Co., foundry damaged, loss $5,000.

ST. THOMAS, ONT.—Residence of F. J. Moore destroyed.

THREE RIVERS, QUE.—G. Morissette and H. P. Gourin, building destroyed, loss $75,000.

TODMORDEN, ONT.—Residence of Mr. Reeves, 3 Bee street, destroyed, loss $3,500.

TORONTO, ONT.—F. Leber, 283 Rhodes avenue, store destroyed, loss $3,000.

WINDSOR, ONT.—Neal Co., bakery destroyed, loss $30,000.

PLANTS, FACTORIES AND WAREHOUSES.

BERLIN, ONT.—Regal Motor Co., 433 King east, will build. Architect W. C. Cowan has plans; Onward Manufacturing Co. will erect new building.

BRANDON, ONT.—Imperial Oil Co. will erect warehouse here.

BRANTFORD, ONT.—Hartley Foundry Co. will make additions to buildings.

BROCKVILLE, ONT.—Canada Foundry & Forging Co. will make plant additions.

DONNACONA, QUE.—Donnacona Pulp & Paper Co. will erect mill, work started.

GALT, ONT.—Perfect Machinery Co. will erect factory.

GUELPH, ONT.—Guelph Carpet Co. have called for tenders on additions; Guelph Stove Co. will make factory additions. Architect W. H. Mahoney has plans.

HAMILTON, ONT.—Maple Leaf Garage propose erecting building; Corrundum Hart Wheel Co. have awarded contract for new factory; Ford & Featherstone, King street north, propose erecting new factory; Imperial Cotton Co. will make factory additions; Grasselli Chemical Co., Ottawa street, will make factory addition; Dominion Sheet Metal Co. will erect addition.

HARROW, ONT.—W. R. Clark Canning Co., Montreal, will build canning factory.

KILLARNEY, MAN.—Crescent Creamery Co., Winnipeg, will build creamery building here.

LEAMINGTON, ONT.—Rock City Tobacco Co., Quebec, will erect tobacco factory.

LONDON, ONT.—Architect J. M. Moore is preparing plans for warehouse of Webster & Harvey.

MONTREAL, QUE.—Architect A. Mahoney, Guelph, Ont., is preparing plans for addition to plant of the Canada Stove Co., Main road and St. Laurent.

NIAGARA FALLS, ONT.—Pollard Manufacturing Co. have awarded contract for new factory; Blystone Manufacturing Co., Cambridge Springs, Pa., have secured site for factory here.

PETERBORO, ONT.—Quaker Oats Co. will make factory additions.

PETROLIA, ONT.—Architect T. A. Gordan, Sarnia, is preparing plans for building of the Lambton Flax Co.

RENFREW, ONT.—Renfrew Machinery Co. will rebuild burned buildings.

ROULEAU, SASK.—A. C. Hunt, Calgary, Alta., will erect flax mill here.

SIMCOE, ONT.—Unique Shoe Co., Toronto, will erect factory here; architect not selected yet.

ST. THOMAS, ONT.—St. Thomas Pure Milk Co. will erect creamery building.

STRATFORD, ONT.—Avon Knitting Co. have awarded contract for factory addition; McLagan Furniture Co. have started work on factory addition.

TORONTO, ONT.—Canada Nitro Product, 911 C.P.R. Building, are preparing plans for plant; A. R. Clark Co. have awarded contract for factory additions; Architect W. G. Hunt has plans prepared for Gurney Foundry factory additions; F. S. Mallory, architect, is preparing plans for munition plant; Coocy Machine Co., 321 Howland avenue, are having plans drawn by Architect J. W. Siddall for new warehouse; T. Eaton Co. have plans for new building to be erected.

WINDSOR, ONT.—Heintzman Co. will make alterations, Architects Walker & McPhail; Maxwell Motor Car Co. will erect buildings.

PUBLIC BUILDINGS AND STATIONS.

BIRCHCLIFFE, ONT.—Village Council will erect public building.

EDEN MILLS, ONT.—Village Council will erect public hall.

HAMILTON, ONT.—Grand Trunk Railway will erect new station; Superintendent Gordon in charge.

LINDSAY, ONT.—Town of Lindsay will erect town hall tower.

MARKHAM, ONT.—Agricultural Society will erect hall and rink.

NIAGARA FALLS, ONT.—Town Council will erect addition to fire hall.

ORILLIA, ONT.—Municipal Building will be reconstructed by day labor by W. L. Bennett.

PORT ARTHUR, ONT.—Saskatchewan Co-operative Elevator Co. have plans drawn for terminal building.

TORONTO, ONT.—City of Toronto are preparing plans for new fire hall addition; tenders have been called for interior work of Administration Building by the Board of Education; Architects Curry & Sparling have called for tenders on Trust & Guarantee Building.

RESIDENCES, STORES AND FLATS.

AMHERSTBURG, ONT.—Architect G. Jacques, Windsor, has plans prepared for residence of Dr. Laferte.

AYLMER, ONT.—A. W. Pierce is preparing plans for residence.

BELMONT, ONT.—Architect W. Murray, London, is preparing plans for residence of Dr. Beattie.

BRANTFORD, ONT.—Architects Barber & Tilley have called for tenders on residence.

HAMILTON, ONT.—J. W. Lusk, 185 Kensington avenue, will erect a residence; J. E. Saddler, 152 Charlton avenue, will erect a residence; J. Vickers, 285 Rosslyn avenue, will build dwelling; J. C. Morrow, 217 Caroline street, will erect apartment house; C. G. Hudson, 10 Edinburgh street, will erect four houses; H. McDowell, Avondale avenue, will erect a residence Taylor Mnfg. Co. will install two store fronts, 223 King street east; A. Stewart, 615 Main street east, will erect two houses. E. H. Wark will erect a residence on Sherman avenue; McKay Bros., Lister Chambers, will erect two houses; Sparks & McKay, Elm avenue, will build six houses; D. Hamilton, 56 Glendale avenue, will erect three houses on that street; P. Gorelli, 935 Burlington street, will build a residence; R. Sharp, 23 Eastbourne street, has awarded contract for dwelling; R. S. Mason, 21 Somerset avenue, will build eight houses; W. McLarity will build a residence on Lorne avenue; Williamson & Torrance, 469 King street east, have awarded contracts on twelve houses; E. R. Bond, 652 Main street, will erect two houses on Cedar avenue; E. W. Louden, Lottridge & Cannon, will erect a residence.

KINBURN, ONT.—R. Groves will erect a residence.

KINGSTON, ONT.—J. Connor will erect residence on Frontenac street; I. Allan will erect a residence on Victoria street.

LISTOWEL, ONT.—H. Karges has awarded contract for two houses.

LONDON, ONT.—C. J. Pink, 451 Hamilton road, will erect a residence; Major H. N. Abel, 61 Craig street, will erect a residence, Watt & Blackwell, architects; J. Smallman, Elmwood avenue, will erect residence and garage; J. Rutherbough, 1006 Wellington street, will erect residence; Copp Syndicate, 22 Belgrave avenue, will build ten houses in South London; N. A. Roberts, 155 Ridout street, will build houses in South London; Hyatt Bros., 1288 Egerton street, will erect eight houses on Ridout street; Max. Feruler, 502 Hill street, will erect apartment house on Dundas street; Architect J. V. Munro, Bank of Toronto Chambers, is preparing plans for residences; R. Pearson, 459 Grey street, has plans for new residence; H. Bottrill, 258 Wharncliffe road, has plans for store and residence.

MONTREAL, QUE.—Montreal Locomotive Co. will erect a residence; E. Gerard, 3292 Berri street, will build two houses; F. W. Fairman Estate, 232 St. James street, will make alterations to apartments; Z. Cordeil, 3 Desjardin avenue, will erect a residence; N. Martineau De Normaville, will erect a residence; E. P. Wright, 214 Bishop street, has plans for two stores; Reverend Fathers Jesuites, Imm, Conception will erect two houses; J. Cusofe, 592 St. Christophe street, has plans for fifteen houses; D. Riendeau, 57 Mentana street, will erect three houses; M. E. Field, 2114 Waverley street, will erect stores and flats.

NIAGARA FALLS, ONT.—Architect C. M. Borter has called for tenders on residence of E. Baxter.

NORVAL, ONT.—J. Cunningham has called for tenders on new residence to be erected.

OTTAWA, ONT.—Architect J. P. McLaren has awarded contracts on Mellenagham store building.

PORT ARTHUR, ONT.—Architect H. R. Halton is preparing plan for stores and apartments.

QUEBEC, P.Q.—H. M. Cote, Cartier avenue, will erect two four family apartments; Alex. Packney, 31 Aberdeen street, will erect three-family residence; W. Brochu, Aberdeen street, will erect two three family residences; Lavoie & Frere, Cartier avenue, will erect apartment house; A. O. Beriau, Cartier, will make addition to building; Honore Gingras, 108 Artillery, will erect two-family residence; N. Pare, 2nd street, will build residence on Stadacona; P. A. Alain, St. Joseph street, will make building alterations; Joseph Savard will erect a store.

SARNIA, ONT.—W. A. Watson, 160 Front street, has awarded contract on residence to D. Giffen.

SAULT STE. MARIE, ONT.—Architect T. R. Wilks, Queen street, has plants drawn for new residence; R. T. Lane, Queen street, has plans for new residence.

STRATHROY, ONT.—Architects Watt & Blackwell, London, have awarded contract for residence.

SYDNEY, N.S.—W. T. Fanjoy will erect residence on Bentinck street.

TORONTO, ONT.—H. Lucas, 118 Felstead, has plans prepared for two pair houses to be erected; J. Price, 100 Greenwood avenue, will erect a pair of houses on that street; Goodyear Tire and Rubber Co. will erect a large number of houses for employees; Dr. J. G. Caven, 88 Bloor street east, has awarded contract for residence; E. Thurlow, 1950 St. Clair avenue, will erect a residence in Cherry Gardens; J. M. Walkey, 326 Shaw street, will erect a pair of stores; J. Skelton, 85 Lawton avenue, will erect residence on Moore avenue, R. Barrett, 20 Roblock, will erect three stores and residence; T. A. Gibson, 327 Lippincott, will erect a residence; A. R. Wilhamson, 504 Broan road, has plans for an apartment house; J. Hermiston will erect four houses on Coleman avenue; Adam Walker, 169 Lauder avenue, will erect store and apartments; A. Edmunds, 105 Oakwood avenue, will erect residence on Thome crescent; Muir & Lamb, 30 Hazelwood avenue, will erect a pair of houses; E. Taylor, 162 Delaware avenue, will erect apartment house on Breadalbane street; Horton Walker, 20 Toronto street, will erect residence and garage; J. Pickering, 200 Rushton road, will erect duplex house; Col. W. R. Lang, S.P.S., will make addition to residence; F. Flubacher, 92 O'Hara, will erect residence on that street; F. E. Lankin, 223 Fulton street, will erect three pair of houses; W. Pidgeon, 41 Nairn avenue, will build a pair of houses; C. Lucas, 919 Carlow avenue, will erect three pair of houses and garage; W. H. Little, 530 St. Clarens avenue, will erect a residence; J. Lucan, 508 Dupont street, has called for tenders on three houses; Rowlands Estate will install store front, 64 Elm street; J. R. Barton, 201 Major street, has plans drawn for residence; J. G. Hedges, 1054 Ossington avenue, will erect storage sheds; Bredin Galbraith, 22 St. Leonard avenue, has awarded contracts on residence; W. J. Nixon, 32 Columbine avenue, will erect a pair of houses; John Price, 100 Greenwood avenue, will erect residence; J. Stone, 49 Coleman avenue, will erect four houses; R. Waterman, 448 Summerhill avenue, will erect a residence; J. W. Butchart, 1 St. Ives avenue, will erect a residence on St. Leonards; J. T. Twigg, 28 First avenue, has plans for a residence; A. Copeland, Ravina crescent, will erect dwelling; McIlroy & Lowry, 42 Mountveen, will erect two houses; Architects Hynes, Feldman & Watson have plans for new residence; S. B. Green, 650 Annette street, will erect a residence on Conduit street; H. Hocken, care Title & Trust Co., will build residence and garage; J. and T. Bishop, 68 Pembroke street, will build three houses on Ozark crescent; W. G. McClenn, 499 St. Johns road, will erect residence; H. H. Wood, 97 Avenue road, has plans for a new house; W. Moad, 48 Oakwood avenue, will erect residence; E. Hawken, 906 Kingston road, will build a pair of houses on Pickering avenue; C. T. Tyler, 885 Cumberland avenue, will erect a residence; C. Cudmore, 62 Pacific avenue, will build two houses on Glendenning avenue; W. Argue, 235 Broadview avenue, will erect store and residence on Bathurst street; J. F. Alexander, 8 Temple avenue, will build two family house on that street; L. Frampton, 26 Tuburn avenue, will build a residence; W. J. McWaters, 28 Kingswood road, will erect residence; W. Hughes, 39 Ashton avenue, will erect store and dwelling; A. Gordon, 35 Maher avenue, has awarded contract for residence; E. Johnston, 84 Balsam avenue, will erect a pair of houses; Architect F. S. Baker has plans for residence on Warren road; C. Hough, 16 Atlas avenue, will build on Gordon avenue; F. L. Spiers, 95 Glenholme, will erect duplex residence.

VANCOUVER, B.C.—B. C. Marine Co. will erect building.

WALKERVILLE, ONT.—H. Wilson will erect three family apartments on Windermere road.

WEST OXFORD, ONT.—Architect R. McNichol, Woodstock, has called for tenders on residence of C. J. Cook.

WINDSOR, ONT.—Architect J. C. Pennington will erect residence on Victoria street; Architects Walker & McPhail have awarded contracts on S. Bigg's residence; Architect G. Jacques is preparing plans for stores and apartments; Architect Leybourne & Sewell have awarded contracts on Mrs. G. Hallet's residence.

WINNIPEG, MAN.—T. Eaton store building contracts awarded to Carter, Hall, Aldinger Co.

SCHOOLS, COLLEGES AND CHURCHES.

ANNABEL TOWNSHIP.—Architect H. W. Robinson, Hepworth, Ont., has plans for alterations to S.S. No. 7.

AVON, ONT.—Architect W. G. Murray, London, Ont., has called for tenders on school for R.R. No. 1, Springfield.

BASSWOOD, MAN.—Architect F. Evans, Winnipeg, has called for tenders on new school here.

BELLEVILLE, ONT.—Children's Aid Society will erect shelter.

BIRCHCLIFFE, ONT.—Architects Carter & Ford have plans for new Anglican church, Rev. C. E. Luce.

BISHOP'S CROSSING, QUE.—Contract has been awarded for new school to C. H. Parker, Sherbrooke, Que.

CAYUGA, ONT.—Contract has been awarded to Wm. Rolston for school addition.

CONQUEST, SASK.—Architects Storey & Van Egmond, Regina, have plans for new church here.

DUMBLANE, SASK.—School Trustees have called for tenders on new school.

DUNACH, B.C.—Department of Public Works, Victoria, have called for tenders on school.

EAST SELKIRK, MAN.—Town Council will erect four-room school.

FINCH, ONT.—School Board have called for tenders on new school.

FREDERICTON, N.B.—St. Paul's Presbyterian Church will build; pastor, Dr. W. H. Smith.

HAMILTON, ONT.—Architects Mills & Hutton have awarded contracts on Robertland school.

HAZENMORE, SASK.—School Trustees, secretary, H. O. Willey, have called for tenders on school.

HAVRE AU BOUCHE, N.S.—Contracts have been awarded on new Presbyterian church.

HULL, QUE.—Architect C. Brodeur is preparing plans for convent of the Grey Nuns of the Cross, Ottawa, Ont.

KINBURN, ONT.—Architect J. P. MacLaren, Ottawa, has called for tenders on school equipment.

LONDON, ONT.—Architect A. E. Nutter is preparing plans for technical school.

MONTREAL, QUE.—Protestant School Board have awarded contract on school; Com. Catholic School, 85 St. Catherine street, have plans for educational house.

NIAGARA FALLS, ONT.—Architect J. U. Collins has awarded contract for school of Union S.S. No. 2.

OLIN CREEK, COWLEY, ALTA.—S.D. No. 3135, Cowley, will erect school; secretary, Olin Creek, Alta.

PASQA, SASK.—Leamington S.D. No. 193 have called for tenders on new school; secretary, W. H. Durie.

PORT CREDIT, ONT.—School Board will have plans prepared for new four-room school.

SANDWICH, ONT.—Architects G. Jacques & Co., Windsor, have called for tenders on Separate School.

SMITH'S FALLS, ONT.—Architects Wm. Newland & Son, Kingston, are preparing plans for new school.

ST. EDOURD DES MECHINS, QUE.—Architect T. Raymond, 43 Caron street, Quebec, has called for tenders on R.C. church to be built here.

STE. PERPETUE, QUE.—Architect P. Levesque, Quebec, is preparing plans for R.C. church.

STOUGHTON, SASK.—La Salle S.D. No. 734 have called for tenders on school; secretary, R. H. Richardson.

TORONTO, ONT.—Architect Cecil C. King, 128 Heath street, is preparing plans for Glenmount Methodist Church; Architects Burke, Horwood & White have called for tenders on Pauline Methodist Church; Board of Education are preparing plans for Orde street school; Architects Smithers & Calley, 121 Greenlaw, have plans for Boone avenue church; Davisville Baptist Church will erect chapel; Architect C. J. Read has called for tenders on R.C. school; Board of Education have called for tenders on specialties for Administration Building, including temperature regulators, plumbing, etc.

WILTON PARK, ALTA.—Wilton Park S.D. No. 508 will erect new school; secretary, G. B. Beatty.

YOUNGSTOWN, ALTA.—School Trustees, D. 2186, have called for tenders on school.

MISCELLANEOUS.

BELLEVILLE, ONT.—W. S. Cook & Son will erect storage warehouse.

BLENHEIM, ONT.—Springsteen & Co. will erect a garage.

CARLETON PLACE, ONT.—Taylor Bros. will erect garage; tenders called.

DAVIDSON, SASK.—Wilkies Ltd. will erect a garage.

FORT WILLIAM, ONT.—Mutual Elevator Co. have awarded contract for new elevator; Davidson & Smith are preparing plans for elevator addition.

GUELPH, ONT.—Tenders have been called on sewer pipe.

HAMILTON, ONT.—Architect F. J. Rastrick has awarded contract for stables to cost $6,000.

LONDON, ONT.—Grand Trunk Railway preparing plans for coal chutes.

MERRITON, ONT.—Riordan Pulp & Paper Co. will purchase pipe and piling.

NAPANEE, ONT.—W. J. Normile has plans prepared for new garage.

OTTAWA, ONT.—Department of Railways and Canals have called for tenders on cement.

SASKATOON, SASK.—City Council are having plans prepared for stock yards; City Council will erect power house.

THORNHILL, ONT.—Toronto City Council have awarded contract for barn at Industrial Home and stable at the Island.

TORONTO, ONT.—Architect J. A. Thatcher has awarded contracts on Standard Bakery building; Architect G. M. Miller has plans prepared for nine garages; Gillett Co., Fraser avenue, have awarded contracts on grain storage building; Holden Morgan, 579 Richmond west, are building three garages; I. G. Hough, 346 Parliament street, has called for tenders on concrete foundations; Engineers James, Loudon & Herzberg have plans prepared for garage; City Council will have car barns erected on St. Clair avenue; G. Kerr, 80 Spadina road, will erect dairy building, plans drawn; Board of Education require ornamental iron, pain and lumber; Architects Denison & Stephenson have awarded contracts on Gurney Foundry addition; City Council have called for tenders on furnishings for registry office.

VANCOUVER, B.C.—Begg Motor Car Co. will erect garage on Georgia street; Department of Marine, Ottawa, have awarded contract for freight sheds.

VICTORIA, B.C.—City Purchasing Agent, W. Galt, has called for tenders on supplies.

VICTORIA, B.C.—Marine Department have called for tenders on storage sheds.

Architects, engineers and contractors are invited to contribute information on construction work, whether it be proposed or in progress, and such information will be published in these columns.

Contractors and Sub-Contractors

As Supplied by The Architects of Buildings Featured in This Issue

HOTEL MACDONALD, EDMONTON, ALBERTA.

Architects, Ross & MacDonald, Montreal and Toronto.
Brick (plain), Acme Brick Company, Edmonton; (fire), The Imperial Supply Co., Calgary.
Boilers, International Engineering Co., Amherst, N.S.
Carpets and rugs, Toronto Carpet Company, Toronto; Guelph Carpet Mills Company, Limited, Guelph.
Curtains and hangings, Matthew W. Clemens, Toronto; T. Eaton Co., Limited, Winnipeg.
Casements and window construction, doors and window trim, Concrete work, Koebing Construction Co., New York.
Contractors (general), The Canadian Stewart Company, Limited, Montreal and Toronto.
Decoration (mural), F. S. Challener, R.C.A., Conestogo, Ont.
Electric fixtures, Tiffany Studios, New York
Electric wiring and apparatus, L. K. Comstock Co., Montreal.
Elevators and hoists, Otis-Fensom Elevator Company, Toronto.
Fire alarm system, Edwards Break Glass.
Fire doors, McFarlane-Douglas, Limited, Ottawa.
Fire escapes, inside type iron stairs, Alberta Ornamental Iron Co., Redcliffe, Alberta.
Fire extinguishers, "Pyrene."
Flooring, Cushing Bros., Limited, Edmonton.
Furniture, T. Eaton Co., Limited, Winnipeg; Wm. J. Craig, Toronto; Krug Furniture Co., Berlin, Ont.
Glass (plate), Pilkington Bros., Montreal; (wired), Edmonton Paint and Glass Co., Edmonton; (light globes), Tiffany Studios, New York; (leaded), J. C. Spence & Sons, Montreal.
Hardware, Russell & Erwin Mfg. Company, New Britain, Conn.; (jobbers, Revillon Hardware Co., Edmonton).
Inspection by Canadian Inspection and Testing Laboratories, Montreal.
Interior fittings, cabinet woodwork and decoration, Bardwell-Robinson Co., Minneapolis; Barnet Phillips Co., New York.
Inter-phone system, Western Electric Co., New York.
Kitchen utensils, Marshall Wells Co., Winnipeg.
Laundry machinery, American Laundry Machinery Co., Toronto.
Marble, Vermont Marble Co., Peterborough, Ont.
Ornamental iron, Alberta Ornamental Iron Co., Redcliffe, Alta.
Paints (interior), Wm. C. Redlich Co., New York; (for steel), Dominion Paint Works, Walkerville, Ont., "Superior Graphite"; (concrete floor panit), Patterson-Sargent Co., Edmonton.
Plaster work (ceiling), Smith & McCallin, Denver, Col.
Plumbing (fittings), Art Brass Co., New York; (sanitary fixtures), Camden Potteries, Cluff Bros., Toronto.
Power machinery (prime movers), Goldie & McCulloch Co., Galt, Ont.; (motors and generators), "Sprague" and "Triumph," Rudel-Belnap Machinery Co., Montreal; (air compressors), Westinghouse; (pumps), Platt Iron Works.
Refrigeration equipment, White Enamel Refrigerator Co., St. Paul, Minn.
Refrigeration machinery, Triumph Ice Machinery Co.
Radiators (manufacturers), Taylor-Forbes.
Roofing (copper), McFarlane-Douglas, Limited, Ottawa.
Screens, T. Eaton Co., Limited, Winnipeg.
Stone (Indiana limestone), E. F. Giberson Co., Bedford, Ind.; (granite), Stanstead Granite Quarries Co., Limited, Beebe, Que.
Structural iron and steel, Dominion Bridge Co., Winnipeg.
Tile, Adolph Grant & Co., New York.
Terra cotta, Ebsary Fireproofing Co., Winnipeg.
Vacuum cleaners, Spencer.
Weather strip, "Acme" Strips, The Smiley Co., Edmonton.
Plumbing, heating and ventilating, H. Kelly & Co., Minneapolis.

OMISSION.

In article used in our April issue describing the National Cash Register plant the name of James, Loudon & Hertzberg was inadvertently omitted in reproduction of view showing steel framework, which was designed by this firm.

MARKET FOR GLASS.

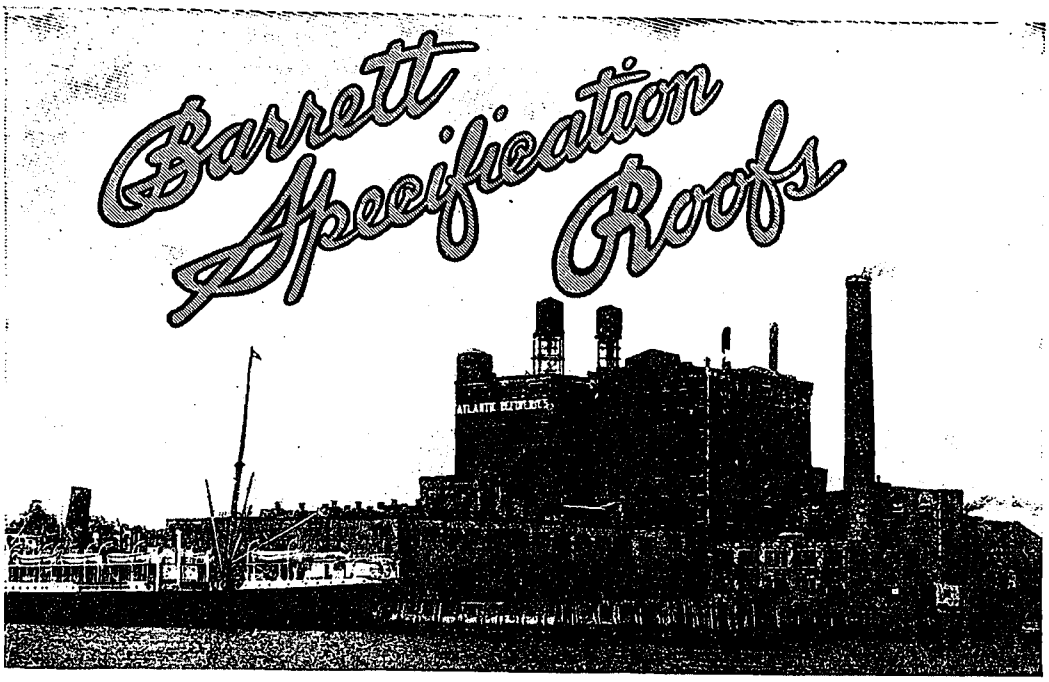
Recent trade reports indicate that a market for glass is to be found in Asuncion, Paraguay. Before the war, importations were largely from Belgium and Germany, while present imports are from Spain or in small lots from commission houses in Buenos Aires. The glass from Spain costs approximately $8.00 per 100 square feet, F.O.B. Spanish ports.

AN EFFECT OF THE GREAT WAR.

An important result and a lasting condition that will arise from the present activity in plants now turning out munitions will be the converting of the new machinery installed to the manufacture of peace time products. Representatives of many industries are to-day seeking new lines to keep in operation the extra equipment necessary for the present work in hand, so that Canada in future will be in a position to not only supply the home market with many products now imported, but will be in a position to enter the foreign market and obtain a large share of the trade now placed elsewhere. Many specialties can be turned out on the machinery now making munitions, so that the market which in the past has been supplied for foreign countries can be taken care of at home, giving employment to many and developing Canada's export trade at the same time. The opening up of Canada's undeveloped resources will make demands on the country's industries now established, as well as creating many new opportunities for capital, and it is encouraging to see steps being taken along the road of expansion, to meet the approaching prosperity of Canada.

Timber Bulletin.—The Minister of Lands has approved the issue of Timber Series Bulletin No. 18, entitled "British Columbia Red Cedar Shingles." This four page leaflet deals with shingles manufactured from the famous red cedar of the province, and shows how to get the best value from them by proper laying. Useful information about the various classes or grades of shingles is given, as well as concerning the kind of nails to use, and how to prepare and lay shingles are contained in the bulletin, which may be had upon application to the Forest Branch, Victoria, B.C.

Made in Canada



Keeping a Sugar Refinery Dry—

Barrett Specification Roof on Atlantic Sugar Refinery, St. John, N. B.
Architect: William Higginson, New York City.
Roofing Contractors: E. G. M. Cape & Company, Limited, Montreal.

THE big sugar refinery at St. John, N.B., is a splendid example of the many ways of using the marvelous water-resistant powers of coal tar pitch.

The ground floors, where there is considerable dampness to be resisted on account of the nearness of deep water, are paved with 14,000 square feet of Tar-Rok Sub-Flooring—a tar concrete which is spread directly on the ground with plank flooring bedded in it, giving a strong, solid, dry and inexpensive basement floor.

Between the floors, to prevent leakage from one floor down to the next, are 170,000 square feet of Barrett Specification Waterproofing consisting of five layers of felt, all mopped and cemented together with pitch.

The roof consists of 70,000 square feet of pitch and felt laid according to The Barrett Specification.

The Tar-Rok floor and the Waterproofing will last as long as the building stands, without any attention.

The Barrett Specification Roof will withstand wind and weather for upwards of twenty years without the expenditure of a penny for care or repair. It is the least expensive of all permanent roofing to build, and as its maintenance cost is nothing, the unit cost, that is, the cost per square foot per year, is far below that of any other roofing known to man.

Barrett Specification Roofs rank as slow burning construction, take the base rate of fire insurance, and are approved by the Underwriters' Laboratories.

Special Note We advise incorporating in plans the full wording of The Barrett Specification, in order to avoid any misunderstanding. If any abbreviated form is desired, however, the following is suggested:

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

A copy of The Barrett Specification, with roofing diagrams, mailed free on request.

THE PATERSON MANUFACTURING COMPANY, LIMITED
MONTREAL TORONTO WINNIPEG VANCOUVER

THE CARRITTE - PATERSON MANUFACTURING COMPANY, LIMITED
ST. JOHN, N.B. HALIFAX, N.S. SYDNEY, N.S.

ARCHITECTURAL TRAINING

Scholastic training in architecture is a comparatively modern idea. With our present widespread facilities for college training in the arts and sciences it is difficult for us to keep in mind that the architectural school is essentially a creation of the past century, and that no such facilities for study were accessible to ancient architects or those of Renaissance days. The great centres of continental Europe in the days of the Renaissance, Paris, Padua and Salamanca, with their splendid universities dating back to mediaeval times, says the "American Architect," had no place for the architectural student, and the traditions of architecture were transmitted from master to pupil by personal association. In those days it scarcely merited the name of profession in the same sense as did the law or medicine, nor was it considered worthy of being studied in similar institutions.

Our present systems of collegiate training in the profession of architecture are based upon the idea of forming the young and undeveloped mind along broad and sane lines. Cultural courses and supplementary studies form quite as important a part of the work as the study of pure design, and the work of our modern architects is characterized by a sophistication that can be directly traced to the broadening influences of the college.

It may be questioned, however, whether or not in this system of education the attention paid to breadth of view does not sacrifice that high sincerity in architecture which is after all necessary for the production of really great works of art. There is in the busy classes of a modern architectural school little of the close personal relationship between master and pupil that developed the great architects of the Renaissance—a relationship that must have fostered and transmitted from one generation to the next the idealism of architecture. The type of architect to whom the production of sincere and beautiful buildings is of supreme importance and the economic profit a mere incident is unfortunately greatly in the minority in America. We are, as a class, too prone to accept the practical limitations put upon our art and to erect buildings that are compromises at best, rather than structures that represent our utmost of artistic ability.

It is not, however, by any means established that our modern methods of education are responsible entirely for the character of the modern architect and his work. Conditions have so changed, and as a result the demand of the public has been so insistent for the practical versus the ideal that the architect of the Renaissance would find little opportunity in the life of the present.

THE NEW ILLINOIS ARCHITECTS' LICENSING LAW

According to a recent report presented by Francis M. Barton, secretary of the Board of Examiners of Architects of Illinois, the working of the architects' licensing law in that State has involved the readjustment of certain ideas as to the relation of other professions allied to the practice of architecture. The report sets forth that the legality of the board's interpretation of the Act constituting the department has been fully sustained by the Supreme Court. Continuing, the report states: "This board has found its greatest work to be the elimination from the architectural field of various architectural firms, which operate under an alias, such as architectural engineers, civil engineers, industrial engineers, designers, builders, etc. Most of these violations are assisted by a licensed architect, who is either financially interested, a partner, or who secures a salary. This board has eliminated at least twenty such illegal combinations in the last few months, and expects to eliminate all others from the architectural field in the near future. These combinations are to a great extent the result of lack of enforcement of the law or improper interpretations of the meaning of the wording of the Act. Attention is called to the fact that all structural engineering on building is part of the architect's work and cannot be performed by others, except under the direction of a licensed architect; and that the architect is responsible for all engineering data shown on his sealed plans, whether performed by him or not."

UNIQUE HOTEL CONTRACT

To go out and order the greatest hotel in the world quite as one would order a suit of clothes sounds like the dream of a rarebit fiend, or the imaginary adventures of a modern Aladdin. That, however, is just what happened in New York the other day, when Charles H. Ingersoll, the watch manufacturer, and his associates approved a contract for the delivery of a $15,000,000 hostelry.

The hotel is planned to be erected in the Times Square district of New York; the $15,000,000 is to cover the cost of the site, the building and its equipment. The building is designed to occupy an entire block front, and is to be twenty-eight storeys high. It is planned to contain two thousand five hundred rooms or more—nearly twice as many as the largest hotel now existing. It was desired to know in advance that the hotel building would not cost more than the sum which the corporation or association desires to spend. Hence the single contract, which covers the services of architects, engineers, builders and decorators, in addition to building materials and the furnishings.