THE JOVRNAL ROYAL ARCHITECTVRAL INSTITVTE OF CANADA

Vol. XI, No. 10 OCTOBER, 1934 TORONTO

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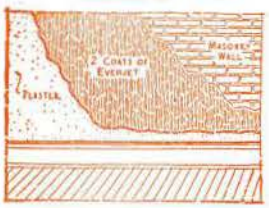

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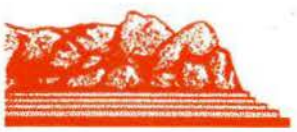

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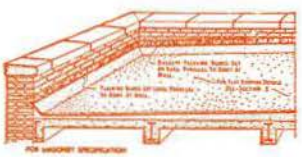

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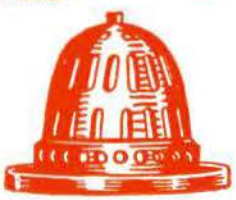

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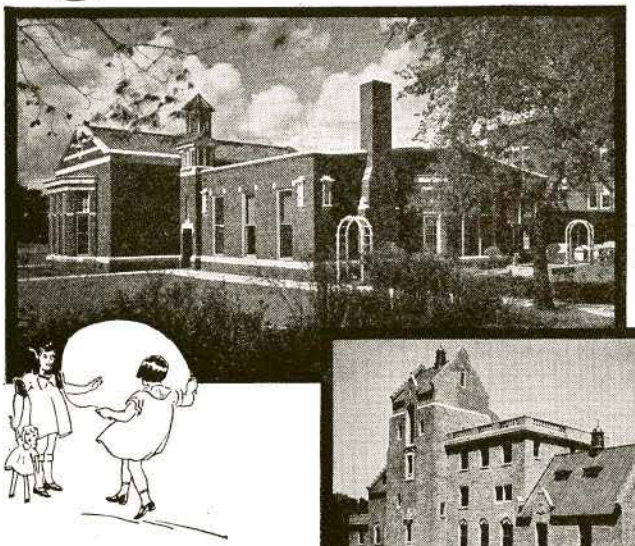

At left, above: Kindergarten Unit, Oakton School, District 76, Evanston, Illinois. Childs & Smith, architects.

Below: Neurological Institute, McGill University, Montreal, Quebec. Ross & Macdonald, architects; McDougall & Friedman, engineers.

The point is that JOHNSON systems of automatic temperature control are adapted to buildings of every size and type and to all heating and ventilating schemes. Quebec, Illinois, or California—whatever the climate—the problem is essentially the same. Heating plants must be adequate for the most severe weather, encountered on very few days during the winter. Fifty years of experience have made it possible for the JOHNSON organization to develop proper technique in the control of every type of heating and ventilating installation so that proper temperatures will be maintained under *all* weather conditions.

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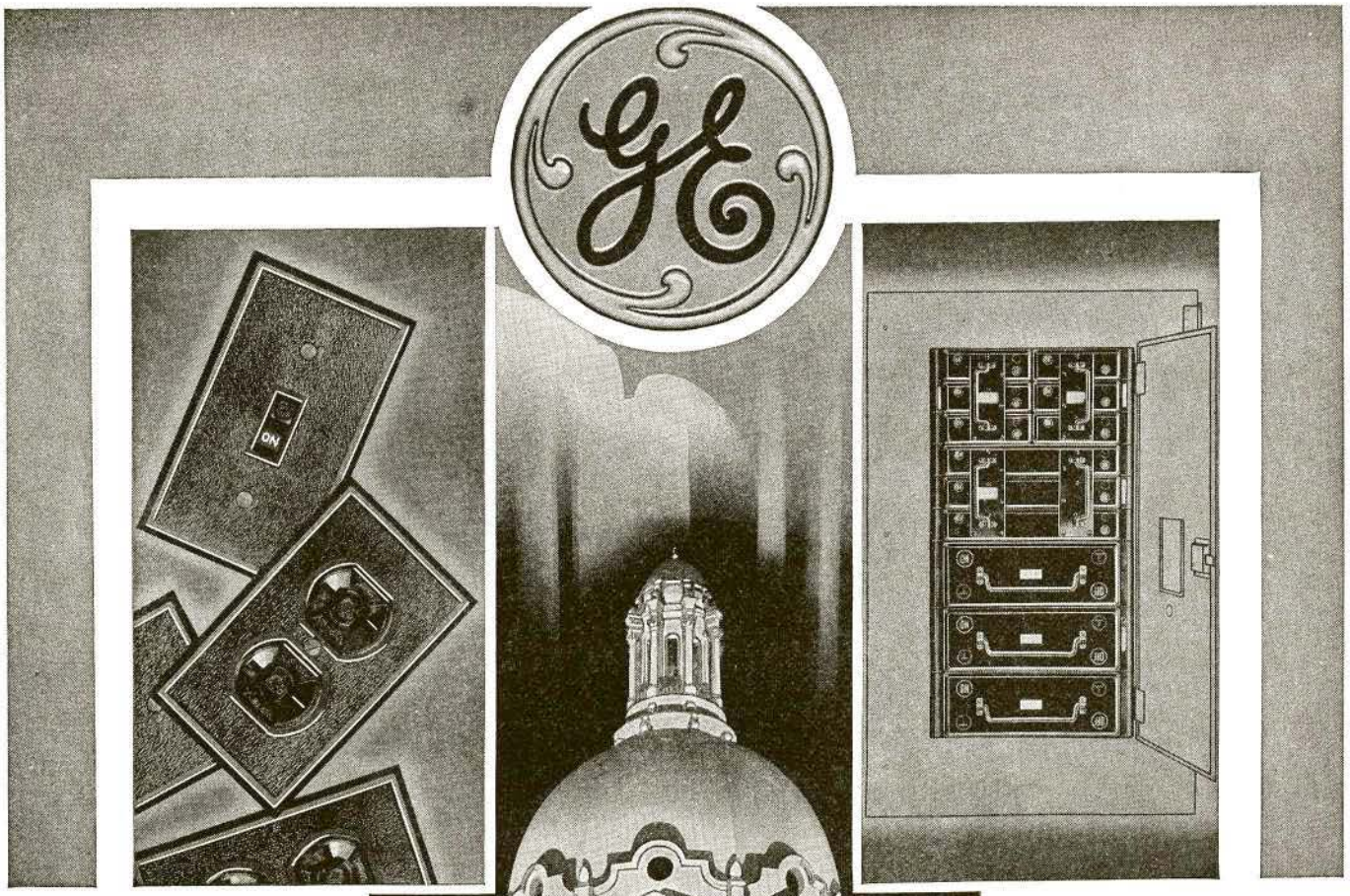

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A charming photograph taken this Autumn in Mr. O'Connor's Conservatory.

Above and below: interior and exterior views of the conservatory-swimming pool, connected with the residence of Mr. F. P. O'Connor, Dawes Road, near Toronto.

The Art of Gracious Living

Architects contribute to—indeed make possible—this art of gracious living. From their training and experience, they bring beauty to that which is the foundation of family life—the home itself.

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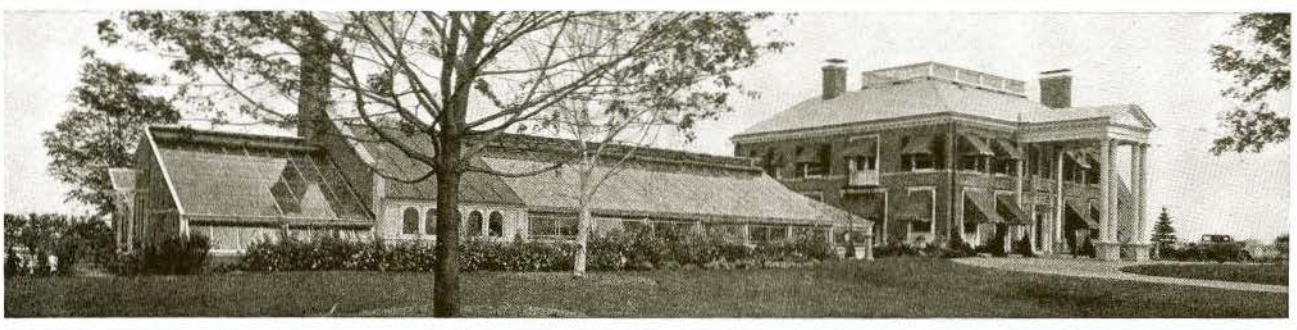

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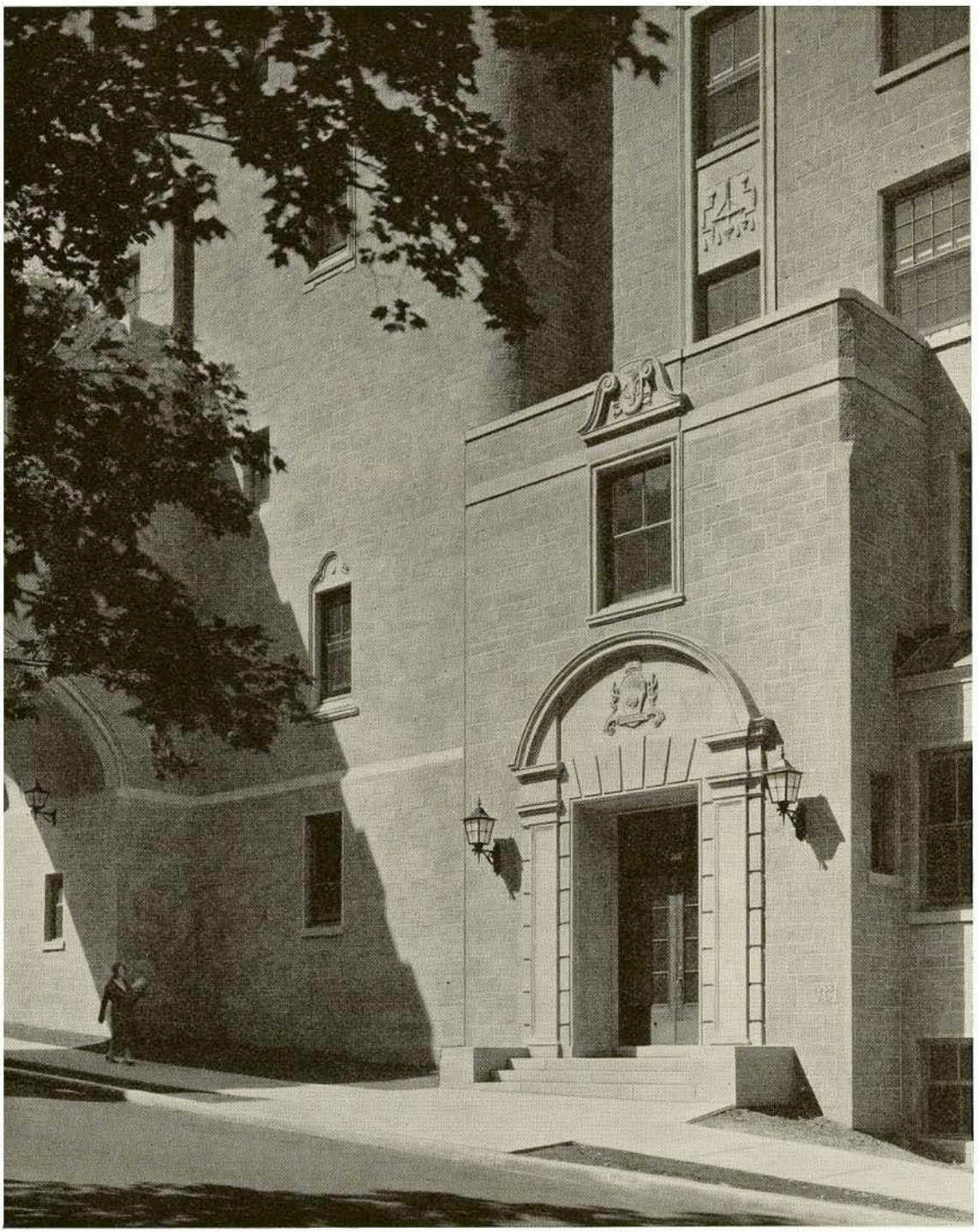
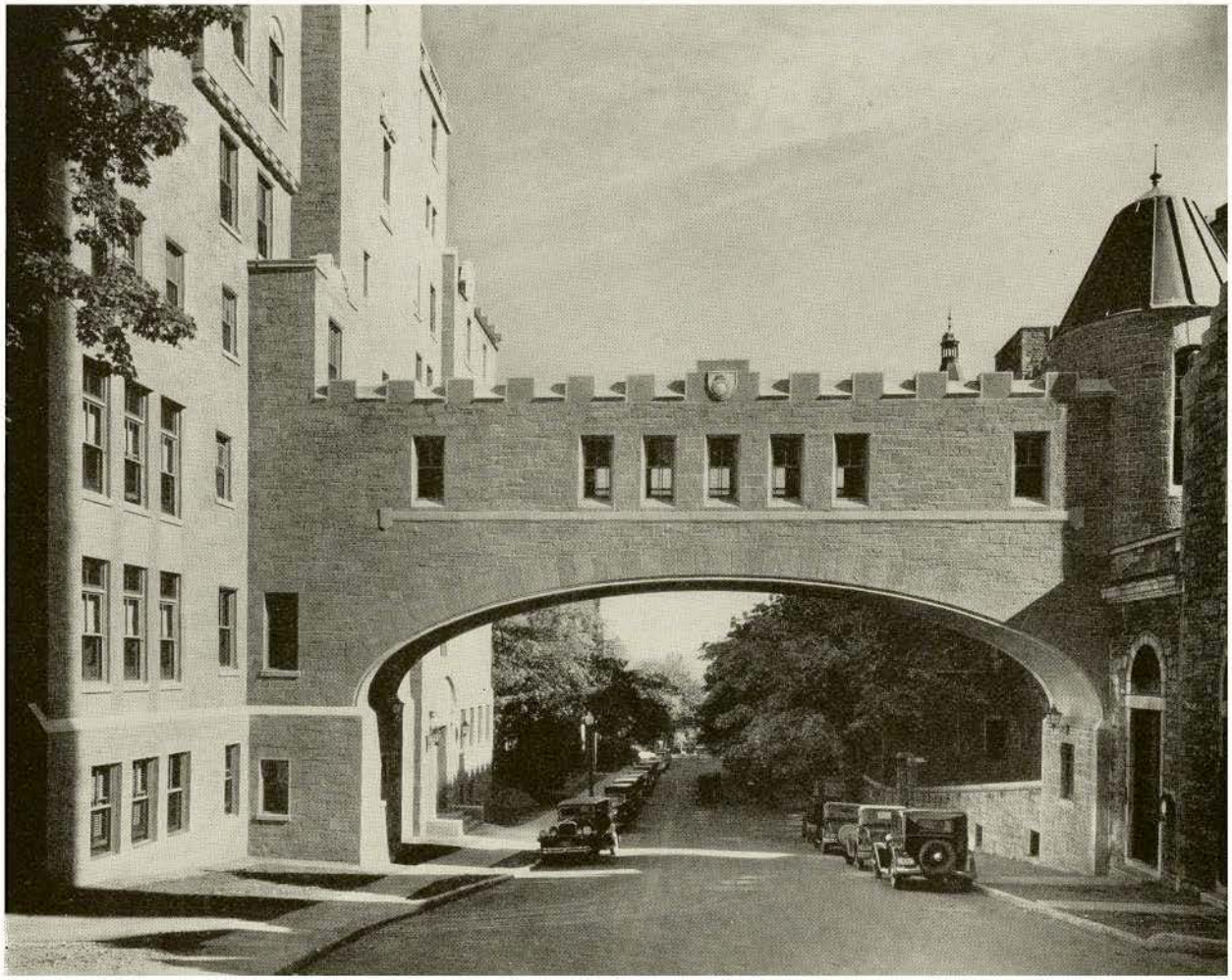


MAIN ENTRANCE — NEUROLOGICAL INSTITUTE, MONTREAL

Ross and Macdonald, FF.R.A.I.C., Architects



PHOTOGRAPHS BY ASSOCIATED SCREEN NEWS LIMITED

BRIDGE OVER UNIVERSITY AVENUE — NEUROLOGICAL INSTITUTE, MONTREAL

Ross and Macdonald, FF.R.A.I.C., Architects

THE MONTREAL NEUROLOGICAL INSTITUTE

THE recent completion and opening of the Montreal Neurological Institute marks another epoch in the history of McGill University. In its broadest sense it has been conceived and planned by Dr. Wilder Penfield and his associates, and by means of the generous contributions from the Rockefeller Foundation and several prominent citizens of Montreal, it has been built to minister to human need and as a centre of research and discovery in the field of medical science known as Neurology and Neurosurgery.

Other large centres have neurological centres, but this building is the first of its kind designed and erected in Canada for this distinctive purpose. The Institute is erected on University property on the east side of University Street, its rear windows overlooking the Percival Molson Memorial Stadium. The building was planned, designed and its construction supervised and directed by the Architects, Ross and Macdonald, with Messrs. McDougall and Friedman, and Wilson and Kearns as Consulting Engineers. The whole of the building is faced with grey limestone and the type of architecture was selected primarily to harmonize with the surrounding buildings of the University and the Royal Victoria Hospital, but a particularly distinctive quality has been obtained as the accompanying illustrations will indicate.

On the exterior of the building there are inserted in various places decorative motifs of appropriate significance. For example at the third floor level above the main entrance, the representation of two types of ancient trephines used in France by Guy de Chauliac in the 14th century.

At the initiation of this important undertaking the board of governors of the university desired that all of the materials and workmanship should be of the best quality available and that they should

be of Canadian origin and manufacture, all things being equal as to price and quality. As regards labour, they expressed a desire that fair wages be paid; a provision was therefore made in the contract by which a minimum wage per hour was set up for labour to be employed on the buildings, and further, a selected list of general contractors invited to bid, were given by the architects a selected list of sub-contractors from whom alone they were to obtain bids on the various sub-trades, and in their tender they were required to indicate their selection of the sub-contractors to be employed upon the work; they were not required, however, to give the amounts of the respective sub-bids.

Now that the work has been completed, the architects and general contractors bear testimony to the fact that the above arrangement has been most satisfactory; it has resulted in the best of workmanship, pleasant relations on the job and during construction an atmosphere of enthusiasm, interest and contentment in every branch of the work. It could not be otherwise, because it started and was carried on in a spirit of mutual respect, interest and confidence.

Among the problems to be faced in the planning of this building were the following:

It was to be both a hospital and an institution of research and education. By the character and nature of its work it had to be planned with regard to proximity to and connection and convenient communication with both the Royal Victoria Hospital and the Pathological Institute. By reason of the outstanding reputation, skill and personality of Dr. Wilder Penfield, the director and inspiration of the Institute, other men of skill and attainment from far and near desiring a period of association and study in the Institute had to be provided for, and the necessity of quietness and sound absorption was a matter of first importance.

The ground floor contains the janitor's and maids' quarters, general linen storage, blanket and mattress sterilizing rooms, the receiving room, rear service entrance, and communication by subway with the adjoining pathological building.

The main entrance from University Street is on the first floor. The entrance vestibule itself is impressive because of the architectural treatment and materials used in construction. It leads to the main reception hall with office and doctors' cloak rooms adjacent. In design and decoration the reception hall is quite a departure from the usual form and colour effect. In general it is modern, but the motifs used signify the history and traditions of medical science. A striking but most effective and pleasing scheme of decoration has been applied to the ceiling of this hall, unfortunately the difficulty of getting a photograph without distortion renders it impossible to properly illustrate this decoration in the accompanying photograph of the hall. The background portrays the microscopic cells within the brain in proper arrangement with the smallest arteries. In the centre of the ceiling is the head of Aries, the ram, which in astrological symbolism supervises the brain. About or surrounding this is a Greek quotation which being interpreted says "I have seen the wounded brain healed."

The reception hall contains a statue bearing the legend "La nature se devoilant devant la science" (Nature unveiling herself before science). This is after the statue by Barrias in the Louvre, Paris, and the only artistic attempt to express the conception of biological research. The replica now placed in this building was made by A. Galli in white statuary Carrara marble, although the original was made of a variegated coloured marble.

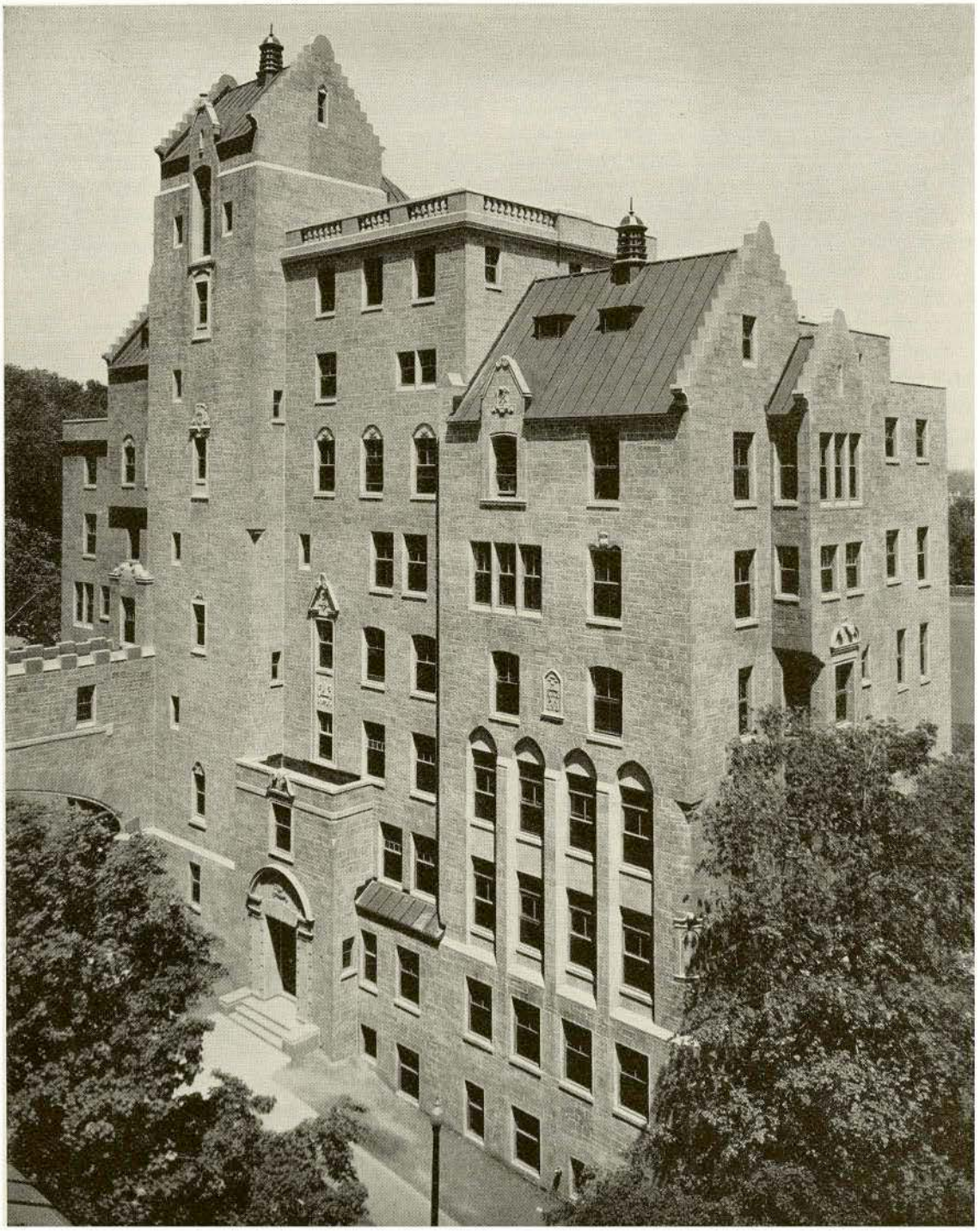
Corridors lead left and right to the lecture theatre, the photographic and micro-photographic rooms, studies, offices and examination rooms. The second, third, fourth and fifth floors provide the hospital facilities of the Institute. The second and third floors each have four-bed and twelve-bed public wards with the necessary waiting rooms, utility, toilet, laboratory, linen, kitchen and a room for dressings. There are also two observation rooms on each floor for critical cases and recovery. Each floor has connection to an outdoor solarium overlooking the Percival Molson Memorial Stadium and commanding a magnificent view. The fourth floor provides two semi-private, three-bed rooms, eight private rooms, and one isolation one-bed suite, together with utility rooms, laboratory, kitchen, nurses' rooms, nurses' stations and sunroom.

The fifth floor contains the operating suite with its operating room and visiting doctors' gallery, encephalography room and visitors' gallery, room for visiting doctors, doctors' dressing room, surgeons' room, instrument cleaning, gowning station, anaesthesia room, sterilizing and linen rooms.

The X-ray department includes the X-ray and transformer rooms, dark room, X-ray filing and dictaphone rooms, X-ray viewing room and dictation room. On the same floor is the suite of consulting and examination rooms, patients' waiting rooms and secretaries' offices.

The sixth floor is set apart for research and consists of offices for the director, the secretary and neuropathologist, laboratories for the chemist, fellows, pathological fellow, routine technicians and for individual research workers, a well equipped library, formalin and general storage rooms.

The seventh floor consists of squash racquet courts, treatment room, physiological fellows' office, physiological room, animal rooms, and animal kitchen.



NEUROLOGICAL INSTITUTE, MONTREAL

Ross and Macdonald, FF.R.A.I.C., Architects

The eighth floor provides complete residential accommodation for eight fellows.

Communication at third floor level by a bridge over University Street, between the Institute and the Royal Victoria Hospital, has been provided.

The mechanical equipment of the building presents several features of interest. The heating is carried out by forced hot water system using cast iron radiators. High pressure steam for heating and all other apparatus is obtained from the Royal Victoria Hospital and after being metered is carried across in a tunnel under University Street. Convertors and pumps for the heating system are located in the basement of the Pathological Institute, which is located just to the south of the building and all services are carried through a short tunnel joining the two buildings. Domestic hot water tanks are also located in the Pathological Institute. These tanks are equipped with an outside economizer through which all returns are run before being pumped back to the hospital.

In all of the laboratories throughout the building the hazard of damage and destruction to piping has been faced and Duriron piping and fittings used as an acid-resistant in the drainage systems.

The building is equipped with an extensive ventilating system, all principal rooms having both supply and exhaust. Supply fans, together with the necessary heaters, filters and air washers are located in the basement. Separate systems are provided for the operating rooms and for general purposes throughout the building. A number of exhaust fans are also provided in order to prevent the possibility of odours from one part of the building getting into another through the exhaust ducts. The supply ventilating system is automatically controlled both for humidity and temperature.

The electric supply is obtained from the central power plant at McGill University. Alternating current is brought in at 4,000 volts to a transformer room located between the Neurological and Pathological Institutes and is stepped down to 220 volts, 3-wire, for use in both buildings; 220 volt, 3-wire direct current is also brought from the McGill power plant and is used for certain motors

RECEPTION HALL — NEUROLOGICAL INSTITUTE, MONTREAL

Ross and Macdonald, FF.R.A.I.C., Architects

and also serves as an emergency stand-by for lighting in case of failure of the alternating current supply.

A very complete nurses' call and signal system has been installed. Lighting fixtures are of various types suitable for the widely different needs of various departments of the building.

Compressed air and vacuum services are piped to all laboratories and operating rooms, and vacuum service alone to all wards.

At the recent opening of the Institute, distinguished men of science from Great Britain, France and the United States, paid tribute to the design and general layout, and the manner and absolute smoothness with which every detail has been studied and worked out in the planning and construction of the Institute is a tangible example of what can be done by whole-hearted endeavour to produce a building worthy of the University, its benefactors and the builders, E. G. M. Cape & Company, Montreal.

ARCHITECTURAL ECONOMICS

CONSTRUCTION AND MATERIALS

BY ERIC W. HALDENBY, B.A.Sc., M.R.A.I.C.

NO architect can proceed very far with the design of any structure without giving serious consideration to the manner of its construction and of its exterior and interior finish. Obviously his desire is to obtain for his client, as economically as possible, the most durable type of building construction, finished in the most prepossessing and suitable manner. The architect must investigate carefully the local conditions as to the supply of skilled labour and accessibility of materials. It is not economical to build a complicated concrete structure, for example, in an out-of-the-way place if mechanics have to be brought in to build the forms and place the reinforcing, whereas the same structure might be extremely economical if built by local labour using a different type of framing. The architect should carefully consider every form of construction before making his decision. There seems to be a tendency to rush into certain popular new methods and to abandon well known and tried forms of building when careful investigation may prove that the simple type is the most economical. Expensive material is not always the best or the most suitable. The careful handling of an inexpensive material may give much better results than an unstudied use of costly importations. It is amazing how wood is rapidly disappearing in building yet it has a great many other advantages besides that of cheapness.

Consider first the materials for the structure of the building. The building will be framed either in steel, concrete or wood or a combination of these. The walls may be load bearing or they may be merely spandrels. The decision as to this will rest almost entirely on a comparison of the cost as bearing walls are only economical up to certain height. If there is provision to be made for future stories, it may be better not to use bearing walls at all.

Where buildings are relatively high, it is advisable to reduce the dead load wherever possible; generally this can be accomplished by using light weight aggregate for concrete floor construction and using steel skeleton rather than reinforced concrete.

It is possible that two similar buildings, even if erected only a few blocks apart, may require a different structural solution, e.g. for a congested site where very little storage space is available for materials, tin pan joist construction involves less of a construction problem than would be involved, if some form of block joist construction were used.

In determining the structural medium of construction, consideration must always be given to the architectural values. For example, where the architectural design requires a spacious banking room in a multi-storey office building, it would be folly to use anything other than steel girders even though other considerations made it advisable to use concrete construction throughout the other portion of the building.

Also conditions of use are to be considered. One can conceive of a condition where acid fumes or moisture incident to the processes of manufacturing might adversely affect wood or steel and render concrete construction necessary even to the extent of pouring comparatively expensive concrete trusses for the roof construction.

As a framing material we know that steel has many economic advantages. It is erected quickly in any weather and is almost a necessity for really high buildings. Its disadvantages are that it usually has to be transported long distances, requires very skilled erectors and it must be fireproofed. Steel joists of various types are coming

into common use and effect a saving over concrete slabs in some cases.

Concrete is an ideal building material for many purposes. Reinforced concrete framing is economical especially where heavy floor loading is necessary. If the building is high, the architect must consider how much space he can afford to lose in large concrete columns. Concrete is more difficult to handle in cold weather thereby increasing the cost of construction. The accessibility of the supply of sand and crushed stone or gravel for the aggregates is important. Of course, cement is obtainable readily throughout Canada. Concrete slabs either of the flat type or the joist system in its various ramifications are in common use. Investigation should be made as to which type is the most suitable for the particular work in hand. Bear in mind also that well finished concrete makes a very presentable surface, saving the cost of expensive suspended plaster ceilings or plastered walls. Removable tin pan construction gives a very interesting beamed appearance to the ceiling, provided the pans used are clean and of uniform size. Reinforced brickwork has certain definite economic advantages in some cases.

Wood construction has many economic advantages especially in the form known as "Mill Construction." It is much cheaper than other methods and is easily constructed by local labour. It can be done in winter weather. The material is readily available in Canada. Its disadvantages, of course, are mainly in maintenance rather than construction as it gets shabby quickly and requires upkeep. However, the architect is too prone to discard the suggestion of the use of wood even in cases where wood is a perfectly logical method of construction. Everyone is familiar with wood framed buildings that have been standing for years and given satisfactory service. It is ridiculous to see other materials being hauled for miles into timber country just because the local material is not appreciated.

In many cases the solution of the structural problem is immediately apparent. For certain types of construction such as light one storey factory work or long cantilever construction for theatres, steel is of unquestioned supremacy. Again for example with heavy loads and moderate spans, reinforced concrete is unique while for other conditions wood construction may be indicated. On the other hand in very many cases no such clear line of demarcation is found and a great many factors, including structural considerations, architectural value, initial cost, ultimate cost due to maintenance, insurance rates, etc., must each receive consideration in arriving at a justifiable decision based on an analysis of all the factors after assigning to each factor its relative importance. Naturally, in the final analysis, this balancing of factors is largely a matter of careful judgment.

A great deal of study should be given to the various materials to be used for furring of walls, for insulation and partitions. We should remember that in this country good insulation is a necessity and is not entirely an additional expense. It may also become a plaster base for walls and ceilings and it cuts down the amount of radiation necessary. The various types of insulation are too diversified to describe in this article but in analyzing the costs of materials it is essential to include in the comparison the savings to be made in other ways. It may be found that the cheapest material is not always the most economical.

In considering the exterior finish of a building, it is possible by study and investigation to use materials in such a way that the client gets a maximum of good appearance for a minimum of cost.

The most expensive material in common use for the exterior walls of a building in this country is stone. By careful analysis the architect can select the stone best suited for his purpose and can probably make a considerable saving over the unstudied use of another type. The great part of the expense of stone work is the labour of cutting. Therefore, if the stone has come a considerable distance entailing heavy freight rates, it is obviously better to have it cut near the quarries, especially if the stone is likely to have considerable wastage. It is important to consider whether there is much moulded or carved work because the cost of this is increased tremendously if the work is executed in harder stones such as granite or certain types of limestone. Cut stone work must be studied in its jointing to give the greatest face value for the least cubical content without impairing the strength of the construction. Stone cornices can often be used with very little projection when a heavy projecting cornice would be prohibitive in cost, also certain types of limestone cannot be laid in anything but stainless cement mortar which increases the cost a great deal. Rubble stonework varies greatly in its cost according to the amount of hammering and tooling to be done on the bench and yet satisfactory results can be achieved for certain buildings with very little of this expense. A contractor in Toronto was recently able to effect a considerable saving for an architect by using material from a sandstone quarry where the stone was split on its natural bed and useable with practically no squaring of any edge but the face. Very rough limestone and sandstone can be laid up with heavy buttered joints to give an attractive appearance, mainly for domestic work. It has been found to compete with brick in price in some cases, if backing up of another material is used.

Brick exteriors are particularly suitable for this country as a warm coloured brick gives a splendid contrast to the snow in winter. Brick is much less expensive than stone and yet when carefully laid in a special bond gives an appearance that compares favourably with stone. Here again the cost can be reduced by study. If the building is to be of an informal picturesque character, a saving can be made by using a rough flush joint and not pointing the work. There is nothing to be gained by specifying the best grade of brick selected for uniform size and colour when a cheaper grade with variety in colour and variation in size will do just as well. Fine pressed or rug bricks are necessary for monumental or important buildings but good stock brick carefully laid will give splendid results especially if the brick is used in several shades of the same colours, to make quoins, arches and belt courses stand out. Brick cornices can be used to advantage when there is not sufficient money for stone but they must be well flashed.

Again, the architect should not overlook the economic advantages of wood for exterior finish. It will last for years even when unpainted. It has a very high insulating value and it is very cheap to build. True, it does require painting but in these days of the spray this is not a very great factor. So many interesting things architecturally can be done in wood for such reasonable amounts. A client can often get a building of the size desired if built of wood when the cost would be too great in other materials. Of course, it is only useable where there are no fire limitations but it is a pity that one of our greatest natural products is treated with such disdain by our architects.

For interior finish there is a range of materials that is almost unlimited. The list includes stone, marble, plaster, wood, brick, terra cotta, tile, glass, steel and even linoleum. Each one has its economic advantages and disadvantages. Some require very little finishing or maintenance but have a high initial cost. It is surprising sometimes how reasonable in cost are expensive materials like marble when used in a simple way or when there is a large quantity required. For fine flooring, wainscotting or lavatory partitions, marble has few equals. Glazed terra cotta is a material which has the advantage of giving a finished furring or partition material. In schools and institutions where it is expedient to use interior load bearing brick walls, the brickwork can be exposed in corridors and a saving made. No finish is required and the upkeep is practically nothing. Steel trim combined with door and window frames is an economy worth study. Steel partitions are becoming very reasonable in cost and they are very satisfactory. For ceilings there is practically nothing but plaster. All suspended ceiling work is expensive and, therefore, any means of eliminating or reducing the amount used is worthy of investigation.

Floor finishes go the gamut of materials. To name a few there are marble, stone, terrazzo, wood strip, wood block, mastic, tile, concrete, cork, metal, linoleum, and they all have economic considerations; most of them require expert labour and this must be investigated if the work is distant from the centres of population. Some require a very expensive structural base which adds to the cost. Terrazzo has become increasingly popular since the introduction of the sand bed under paper to prevent the bonding of the floor to the slab but this adds additional floor load which is a factor in cost. Terrazzo is cheaper when Canadian or American marbles are used for aggregates. Mastic can be laid over wood construction thereby making it much less expensive than terrazzo but still very satisfactory in schools for science laboratories and corridors. Mastic tile is now on the market but requires an absolutely level concrete base. Concrete is a reasonably inexpensive finish but it is difficult to get any lasting colour without considerable cost.

The chief point to be borne in mind is, that in comparing any costs of materials, everything affecting its use must be taken into consideration. Only in this way can a useful decision be reached. By careful study and planning, money can be spent where it will give the greatest advantage and saved where no great expenditure is necessary.

After considering the structure and the finish of a building, there remains its mechanical equipment. Here is a very important economic factor which is sometimes given scant consideration. Cheap mechanical equipment is no economy for the architect. It only means the piling up of endless grief for himself in the future. On the other hand there is no need for the reckless and abandoned installation of extravagant mechanical devices which is still quite evident on buildings of to-day. The architect has perhaps racked his brains to keep the cost down only to be saddled with a lot of unnecessary plumbing, heating and electrical equipment.

CIRCUMSPICE

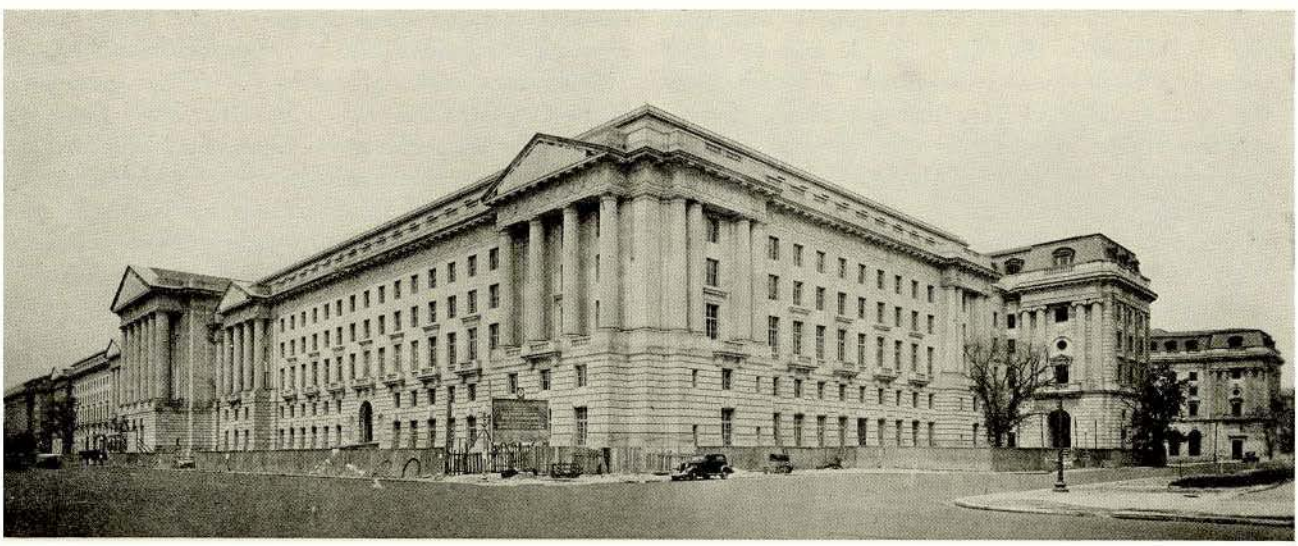
The architectural profession is often described as the Cinderella of the professions for reasons which, we think, are fairly obvious. The medical profession was organized, we suppose, at least as early as Sir Christopher Wren, whose experiments on the circulation of the blood were demonstrated before the Royal Society; and Perrault, that ingenious lad who designed a wing of the Louvre, wrote Little Red Riding Hood and died while dissecting a camel. But we do not grudge the medical profession its position in society, though we hold the opinion with Mr. George Bernard Shaw that in matters of taste, doctors, and worse still dentists, are as a class notoriously deficient. It is true there are outstanding examples of doctors who have made collections of the work of old or modern masters and presented them to national institutions, but we are always a little doubtful whether these gentlemen do not share their passion for collecting with the stamp collector and the squirrel. We would not say that all doctors are educated in any liberal sense, but we know that they have had a thorough and sound medical training in recognized medical schools. That and the fact that they hold the powers of life and death gives them some claim to the respect of the community.

In the so-called Cinderella profession we cannot boast of a good general education, let alone a university one, but we do enjoy a protection which is far greater than that afforded the medical profession by Royal Charter and the most protective legislation. It is a protection we owe to ignorance. None of us is so stupid as not to appreciate the significance of a tragic and long series of deaths or lost law suits in a doctor's or a lawyer's practice, but buildings are erected equivalent to criminal negligence or embezzlement in other professions and no one says a word—unless of praise. We have no informed press and no critical laity with disastrous results to the profession and to architecture.

We take as an example the building below because it would not become us to show a Canadian one in THE JOURNAL of the Institute, though we are just a little sorry for those of our colleagues who have always referred to the work of American architects with the same awe that a beetle might contemplate the works of the Almighty. We have tried to collect press cuttings of the unveiling of this monument, but such is the awful regularity with which THE JOURNAL is rushed into print that they have not as yet arrived.

However, it is a building which in England would be opened by H. M. the King, in France by the President of the Republic and in the United States by President Roosevelt. One can imagine the ceremony, the bands, the gold key, the architect and his family flushed with pride, the plaudits of the crowd and the eulogies of the newspapers. That is the picture on the one hand, but on the other you have a little group of intelligent citizens including some architects, a few hundred among many millions; and they pass the same building and say, "Now isn't that the most unadulterated tripe." Such a divergence of view is found only in architecture. In the other arts of painting and music the gulf between the critics and the masses is bridged by an ever growing body of informed public opinion. Perhaps more restricting legislation with greater honour to ourselves would bring down on us new and intelligent critics and a real responsibility for our babies on the public streets. When that day arrives there will be a lopping off of heads such as our Mr. Hepburn never dreamt of.

We again apologize for dragging into this the anonymous architect (though he deserves it) and hasten to assure him that we have in mind similar juvenile efforts in Toronto, Montreal and Ottawa.



SUMMER RESIDENCE OF W. R. JOHNSTON ESQ., ORILLIA, ONT.

John M. Lyle, F.R.A.I.C., Architect

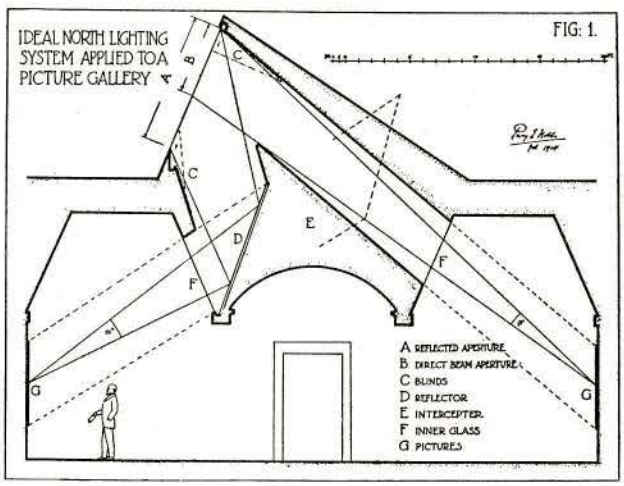
DEPARTMENT OF ART, SCIENCE AND RESEARCH

CONDUCTED BY B. EVAN PARRY, F.R.A.I.C.

A NEW NORTH LIGHTING SYSTEM FOR PICTURE GALLERIES, MUSEUMS, ETC.

The science of natural lighting of picture galleries, museums, studios, workshops and laboratories is of importance to architects and has been attacked in several ways—by increasing the ratio of window area to floor area, by improvements in the character of the glass, by the use of interior wall and ceiling finishes of high reflection power, and by the use of sawtooth construction where practicable.

It has been left to one of our prominent members of the architectural profession, Percy E. Nobbs, M.A., PP.R.A.I.C., F.R.I.B.A., R.C.A., to subscribe to this research work, and both architects and the public at large are to be congratulated upon the results achieved. *Inter alia* it is of interest to learn that this system was the subject of a paper read at the International Museum Conference held in Madrid this month.



The National Research Council, Ottawa, in a press report covering Mr. Nobbs' erudite findings published July, 1934, states that:

"The necessity of adequate and suitable illumination for all work requiring co-ordination of hand and eye, as well as for the best appreciation of works of art, is universally recognized. Yet, while vast improvements in all types of artificial lighting have been developed in recent years, very little has been done to make the best use of our largest and cheapest source of illumination, natural daylight. Because of the fact that the human eye has remarkable powers of accommodation we are very often quite satisfied to work for long periods under lighting conditions which, while they may not cause us any grave discomfort, are yet unknowingly imposing considerable strain upon our eyes. This is a particularly serious condition in our schools where maximum eye comfort for growing children is of prime importance. Similar conditions prevail in our offices, workshops, draughting rooms, studios, etc.—places where we spend the largest portion of our daylight hours—while in our art galleries and museums we are still far from a realization of a system of lighting which will enable us to appreciate the full beauty of our works of art."

The salient features are described by the author as follows:

(1) For seeing paintings in a gallery, white light at 12-15 foot candles, and at an angle of incidence of not over 40° to the horizontal is the main requirement;

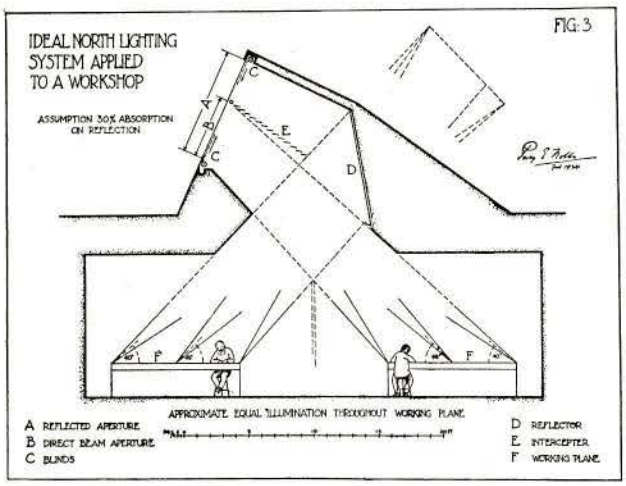
(2) For studying engravings the light need not be quite white, and may be of 15-20 foot candles, and should fall at an angle as before;

(3) For draughting (black and white work) the light need not be quite white; a diffused light of about 6 foot candles, falling on nearby objects in all directions, plus a flux of 20 foot candle light falling on the drawing board at 45° gives the best results;

(4) For mixing and matching colours, particularly pale tints, the light must be white and its strength strictly limited to 12 foot candles, and it may well fall vertically;

(5) For painting, fine needlework, and skilled work involving colour generally, the whiteness of the light is of the utmost importance, diffusion as for draughting is required, with a 12 foot candle illumination on the object at about 60°;

(6) In a machine shop the light falling on fine work may well be as high as 40 foot candles, but this will cause fatigue if general diffused illumination is not provided at a strength of say 12-15 foot candles.



Describing the light from the sky, Mr. Nobbs states in a most informative manner that:

"The source from which white daylight is obtainable is the more or less diffused light of the sky; not the direct light of the sun—that is to say, it can be got through windows or skylights with a Northerly exposure.

"By designing apertures to provide good working light for working hours towards the end of the winter day and then furnishing closing devices, valuable white light can be maintained close to the required working strength throughout the day and the year.

"It is obvious that only limited working planes, whether vertical or horizontal, can be directly illuminated with north light. But the area of these working planes can be doubled by the use of modern reflecting media suitably disposed."

Figure 1 illustrates the system applied to a picture gallery in connection with which the author states that:

"There are cases of the picture gallery problem where other systems already in common use must be resorted to. This system demands that the gallery runs about east and west, so that one side faces approximately north, and that the sky to the north be unobstructed.

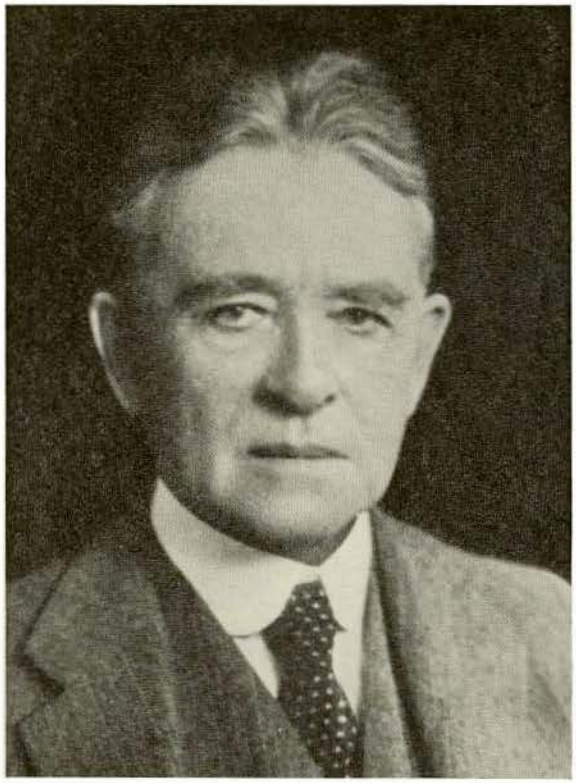
"The first step is to provide a skylight aperture at a rake to exclude sunlight during working hours, and of such size that, with a given sky illumination (such as that at 4 p.m. on December 22nd at 45° of latitude), the solid angle of light reaching the wall below the skylight after reflection will give the required illumination already defined. By contriving a suitable path for a direct beam of light from part of the sky-

(*Continued on page 152*)

HENRY SPROATT

1867-1934

Amidst perhaps the wildest excitement that the city of Halifax has ever known, in June, 1813, the British ship *Shannon* towed into the harbour what was left of the American *Chesapeake*. The American captain and his crew had fought as noble a fight as any in the history of the United States, and Captain Lawrence lay dead, wrapped in the colours of his ship. A brother of the gallant captain also entered Canada, but quietly and peacefully, as did a representative of an ancient Cumberland family. From them was descended Henry Sproatt, Doctor of Laws, ex-president of the Royal Canadian Academy of Arts, Fellow of the Royal Institute of British Architects and Fellow of the Royal Architectural Institute of Canada.



HENRY SPROATT, LL.D., F.R.A.I.C., F.R.I.B.A., R.C.A.

Mr. Sproatt's grandfather, his father and he himself were born in Toronto, so amongst them they saw the complete development of this wonderful province, where three generations have cut down the forests, opened the roads, built every house, church and school, and produced all the institutions that belong to the present highly complex social structure. When Mr. Sproatt started his life, Ontario was poor. The rough spade work had been done. The forests were down. The stumps were out of the soil. The grinding, though romantic, period of the frontiersman was over. The farmer had settled down to his daily work of farming. The villager and townsman each had settled into his routine task. But Ontario still lacked all those things to make possible for its citizens the charm, the fuller, wider life that those in similar positions in the Old World enjoyed.

The young lad always had dreams of building and in '82 he was articled to Arthur R. Denison. Four years later he went to New York, and after two years there, he went to Europe. Travelling mainly on foot, he worked through the great buildings of southern France and northern Italy, everywhere drawing and measuring, but above all things dreaming, dreaming of a Canada of beauty, of a time when the jerry-built, barely weatherproof structure would give way, and be replaced by a thing of beauty, more practical than the other and lasting, ennobling, great.

Upon his return to Toronto, Mr. Sproatt connected himself with Messrs. Darling, Curry and Pearson, and went through the dragging hard times that followed the silly boom and jerry-building of the late '80's. They were hard and discouraging times for the builder. I can remember seeing street after street with every house empty. All Toronto's floating building population vanished, and perhaps no people suffered more than the architects. The beggar was in the land, and day after day Mr. Sproatt handed out the twenty-five cents that he had put in his pocket for his lunch and went without.

During this time Mr. Sproatt studied hard. Photographs, which had become common, and books illustrated with photo-engravings, gave him a chance to study details, so that he later, in partnership with Mr. Ernest Rolph, had equipment for realizing some of his dreams as business revived.

If there was one thing woven right into Mr. Sproatt's nature, it was a desire for perfection. "Throw it away, it isn't perfect," he said of a slightly damaged piece of porcelain; and he who never posed in his life tried as consistently as any man I have ever known, to live up to that attitude of mind. It was interesting to see his reaction to nature, say in gardens, nature being perfect only once in a while. A poor growth of a plant set him searching for every means to make it perfect. In his dealing with men, the idea of giving and doing the best that was in him, was paramount. I, who knew him so well, have never met anyone who tried more successfully to carry the ideals of a perfect Christian gentleman through every phase of his life.

I think Mr. Sproatt was born with a wonderful sense of proportion in form, because it seemed to be so natural to him. His desire for proportion also caused him to take the most elaborate pains with the relation of all parts in every building he did. He loved Gothic architecture because he saw in it a type of work easily adapted to growth. One could go on adding, as in Canada one must. It was not possible to know when growth was finished. The college built for years to come was too small in a very short time. The classical style produced a building of completion, balance, finality. He also loved the intimate warmth of Gothic as opposed to the formal. In his talks he always said, "Each style has its place, but Gothic collegiate architecture is the one architecture developed for scholastic work. It has proved a success and a joy. Why throw it away?" He felt that a building not intended as a school might definitely call for another traditional style, or for purely modern treatment, but that the artist of all kinds must be free. To him, building was the expression of his devotion to the country. Nothing could have worried him more than to have had to build ephemeral structures. He built that Canada might be more beautiful, greater, better.

—C. T. Currelly.

light aperture to the wall opposite, such that the solid angle of light from this part of the skylight aperture also gives the required illumination on this wall, equal illumination on both walls is obtained. The length of the skylight being the same for both walls, the vertical components of the solid angles are measures of the light. By design and adjustment the difference in these angles must be made such that it represents the ratio of absorption due to the reflecting medium and other minor causes of asymmetry.

"The position of the reflecting surface and its substructure provides for a shaded area over the floor of the gallery. The reflections of persons or objects in glass or varnished surfaces are thus of low illumination as compared with the light on the pictures and so become unnoticeable. Moreover, the picture surfaces receive no glares from sources of illumination that could be reflected to the eyes of a visitor.

"Furthermore, the beams of light fall on the walls at angles between 30° and 40° to the horizontal. In consequence the pictures do not suffer from sharp illumination of their textures. Steep top light spoils colour in pictures by speckling it with points of light and shade, the result of which is the same as that of putting a grey veil over the picture.

"The degree of illumination obtained top to bottom over the part of the walls on which pictures are displayed is reasonably uniform, a very important matter."

Workshops are the subject of an intensive study and in describing figure 3 we find the following:

"The illustration shows a shop suitable for embroidery, silverwork, or any fine trade. It would make a good draughting room and an excellent laboratory for scientific purposes. The aim in this case is to get the beam at about 45°. The source is the north sky, and the blinds control any surplus above what is required to give desired illumination on the working plane (tables in this case).

"It will be observed that here the part of the skylight giving direct illumination is at the bottom and an intercepter is required of a different kind from that used in the case of the picture gallery, where the working planes were the walls and the reflector itself could be so placed as to intercept a part of the light from the aperture not required for the direct beam."

NOTES

F. Hilton Wilkes, M.R.A.I.C., announces that he has taken into partnership Mr. Richard A. Fisher, and that the new firm will continue to practise in the present offices at 96 Bloor Street West, Toronto, under the name of Wilkes and Fisher, Architects.

* * * *

His Majesty The King has graciously consented to open the new R.I.B.A. Building on Thursday, November 8th, 1934.

* * * *

Examinations for the admission to the study of architecture or registration in the Province of Quebec will be held on November 19th and following days, in the rooms of the association. Applications, together with testimonies of studies, should be sent to the secretary of the association not later than October 19th.

* * * *

The Architectural Institute of British Columbia was successful in winning the trophy at the recent annual golf tournament of the Construction Industries of Vancouver, which is composed of the Architectural Institute of British Columbia, the Building and Construction Industries Exchange, the Association of Professional Engineers, and the Vancouver General Contractors' Association.

* * * *

A competition is to be held during the coming winter among the graduate architects of McGill University for the design of a proposed gymnasium and other athletic buildings for McGill University. This competition is to be held under the auspices of the McGill University Graduates' Society, and those architects who are eligible for the competition have been advised that the conditions of the competition will be ready for distribution by October 15th. The closing date for receiving competitive designs has been set for April 15th, 1935, and will be judged by a board of assessors with Dr. John A. Pearson of Toronto as chairman. Professor Philip J. Turner of Montreal is the professional advisor.

* * * *

Contracts awarded for the Dominion of Canada during the month of September, as compiled by MacLean Building Reports, amounted to $12,494,000, as compared with $8,386,900 for September, 1933, an increase of 49 percent. The total for the nine months ending September 30th, 1934, amounts to $98,145,100, against a total of $63,430,700 for the same period last year, an increase of 54.4 percent.

To mark the centenary of the Royal Institute of British Architects and the opening of the new Institute building in London, the council of the R.I.B.A. has decided to publish a history of its growth and work during the past century. The history will be edited by Mr. J. A. Gotch, past president of the Institute, and the contents will include a foreword by Sir Giles Gilbert Scott, and an article entitled "The Architecture of a Hundred Years," by Professor H. S. Goodhart-Rendel. The price of the R.I.B.A. Centenary History is five shillings, and copies may be obtained from the secretary of the R.I.B.A., 9 Conduit St., London, England.

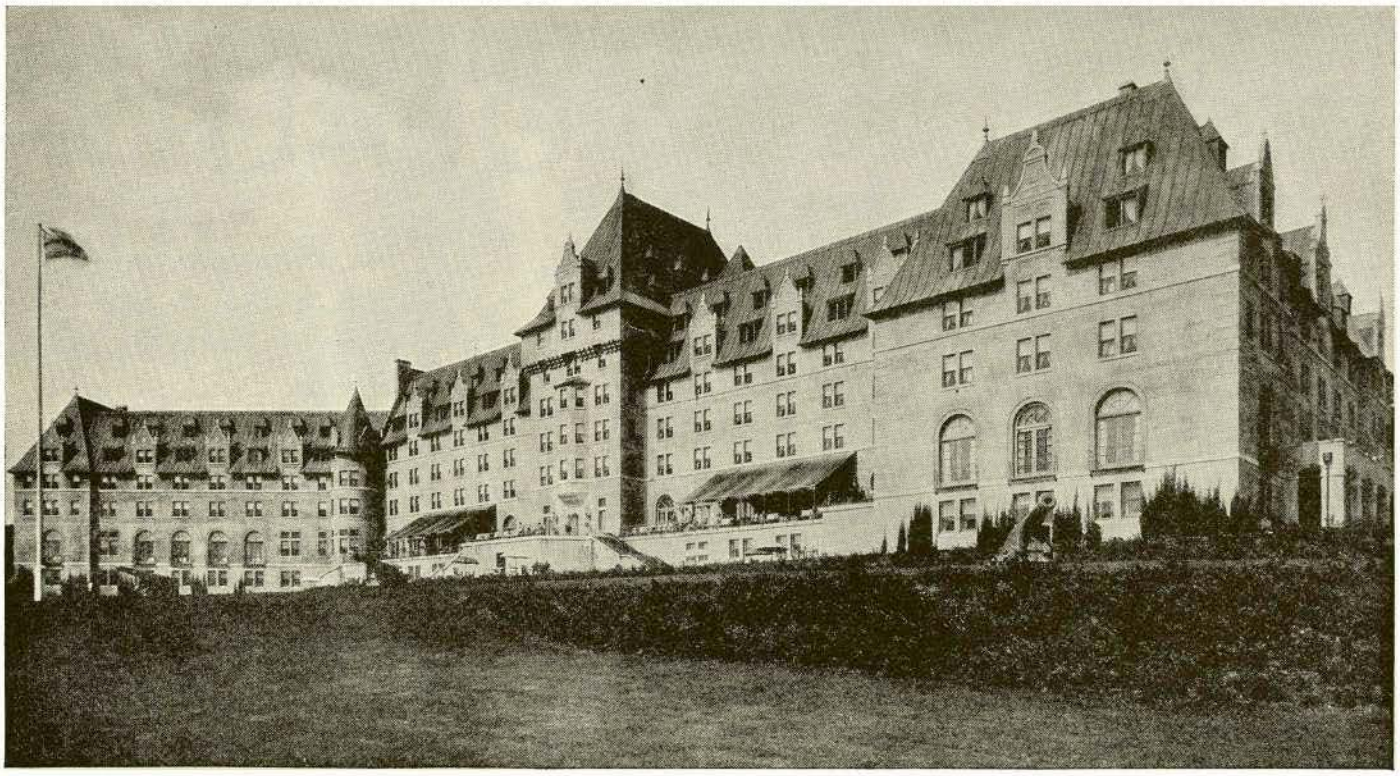
OBITUARY

C. L. GIBBS, M.R.A.I.C.

The death of Mr. C. L. Gibbs, architect of Edmonton, occurred at Sault Ste. Marie on September 5th while en route to visit his son in Toronto.

Charles Lionel Gibbs was born at Newport, England, on November 11th, 1877, and after receiving his preparatory school education at Sutton, in Surrey, attended St. John's College, Oxford. In 1897 he entered the technical college at Newport where he commenced the study of architecture. He came to Canada in 1907 and settled in Edmonton where he immediately became associated with Percy Barnes and practiced architecture under the firm name of Barnes and Gibbs.

Mr. Gibbs was one of the oldest members of the Alberta Association of Architects, having joined the association in 1907, one year after its formation. He served on the staff of the University of Alberta as assistant instructor in architecture and building construction during 1915, and in the following year he enlisted as a private for overseas service with the 196th Battalion, at which time the firm of Barnes and Gibbs was dissolved. Upon the return of Mr. Gibbs to Edmonton he became identified with the labour movement and in 1924 was elected to the city council. He was re-elected as alderman in 1926, 1928, 1930 and 1932. He was also a member of the provincial legislature representing the city of Edmonton to which he was first elected in 1926.



Manoir Richelieu Hotel, Murray Bay, Quebec. Walls, floors and structural frame of monolithic concrete. Architect, John S. Archibald, Montreal. Contractor, Wilde & Brydon, Toronto

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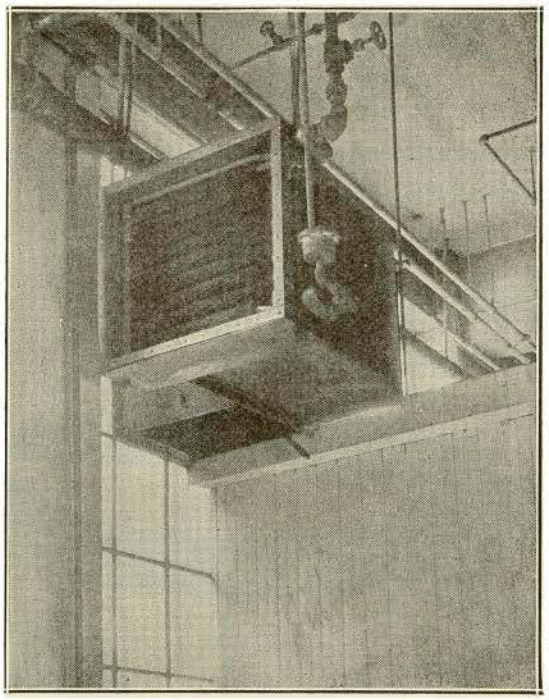

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