The Journal
Royal Architectural Institute of Canada

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CONTENTS

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BRONZE GROUP, CHAMPLAIN MEMORIAL
ORILLIA, ONTARIO

Vernon March, Sculptor.

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Editorial

THE Frontispiece in this issue is of that splendid piece of sculpture designed by Vernon March for the Champlain Memorial at Orillia, Ontario. While we cannot but express the highest admiration for Mr. March's work, we are tempted to believe that the monument as a whole would have benefitted somewhat under the skillful direction of an architect. This brings to our minds the several memorials now under contemplation for which the services of an architect are being dispensed with. In several cases stone contractors are asked to submit designs and prices for a memorial which through the lack of architectural direction will prove disappointing to the communities in which they are located. We believe that every architect located in a community where a memorial is contemplated should suggest to the organization or committee interested in its erection, the appointment of an architect either on the committee or in conjunction with the designer or sculptor engaged to do the work.

* * *

DEGREES AWARDED TO AMERICAN ARCHITECTS AT THE UNIVERSITY OF LIVERPOOL

At the recent exercises held on July 4th by the School of Architecture, University of Liverpool, Messrs. Harvey Wiley Corbett and Thomas Hastings, both of New York, received the new degree of Master of Architecture. The recognition shown these prominent architects from the United States and the recent award of the Gold Medal by the American Institute of Architects to Sir Edwin Lutyens will do more than anything else to create a friendlier feeling between the professional bodies in Great Britain and the United States of America. Occasions such as these lend themselves to expressions of good fellowship as well as to comradeship in work and sympathy of ideals.

* * *

COMPETITIONS

Apropos of Mr. Charles Dolphin's letter on Competitions published in the May-June issue of the JOURNAL we read with a great deal of interest an article written by Mr. Egerton Swartwout, F.A.I.A. on the question of competitions published in a recent issue of the *American Architect*. Mr. Swartwout, in referring to the recent competition in England for the Manchester Art Gallery, the winning design for which was submitted by Ernest B. Webber, A.R.I.B.A., pointed out that the winner was a young man of 28 years employed as a draughtsman in some architect's office. He referred also to the number of other young men who had been successful in open competitions in England, and questioned the advisability of open competitions where so many of the competitors lacked the experience in carrying out their designs. Mr. Swartwout expressed the opinion that most architects in the United States were not favorably disposed towards open competitions. The American Institute of Architects has found it necessary where an open competition is to be held, that it be a two-stage affair. This is done to limit the number of competitors in the final stage and thereby simplify the work of the assessors as well as to provide some supervision in the selection, so as to eliminate the unfit and the very inexperienced. There is much to say in favor of this plan, although admitting this method to be long drawn out and expensive. In the end, however, the results are satisfactory and as a rule those admitted to the final stage were well qualified to do the building.

Mr. Swartwout suggests a method of holding a competition which we cannot resist from quoting here. He suggests that if he were the Professional Advisor on an important competition he would urge the building commission to hold an invited competition limited to not more than ten, selected on a basis of past performances. If the commission should insist on the competition being an open one, he would limit strictly the presentation in the first stage to one plan and one elevation with a plot plan if necessary at a small scale, all in pencil; from the total plans submitted the jury would select one-third more than the number to be admitted to the final stage. The envelopes would then be opened and the jury would reduce the list to the required number being influenced equally by the scheme submitted and by the past performances of the submittor.

We have before us the Code for the conduct of Architectural Competitions as issued by the Ontario Association of Architects, in which they recommend that all competitions should be limited and that only those architects who are qualified to carry out the work should be invited to take part in the competition. We are inclined to agree with the Ontario Association of Architects when they state that it is prejudicial to the interests of the promoters that an architect should be admitted as a competitor who cannot in advance establish his competence to design and execute the work. It is sometimes urged that in an open competition where all who wish to take part are admitted that some unknown but brilliant designer may be found. If the object of the competition was a set of sketches, such reasoning might be valid, but sketches give no evidence that their author has the matured artistic ability to fulfil their promise or that he has the technical knowledge necessary to control the design of the highly complex structure and equipment of a modern building, or that he has executive ability for large affairs, or the force to compel the proper execution of contracts.

(*Continued on page* 190)

The Secretary's Page

ALCIDE CHAUSSÉ
Honorary Secretary, Royal Architectural Institute of Canada

THE Singapore Society of Architects, Singapore, Straits Settlements, are meeting very serious and active opposition to their proposed Architects Registration Ordinance from engineering firms who carry on the business of contractors and from Civil and Mechanical Engineers. The proposed Ordinance is a Government measure, and not a Private Bill, and the Singapore Society of Architects have applied for the assistance of the Royal Architectural Institute of Canada, as the Colonial Government required evidence as to the extent and scope of restrictive legislation in other colonies and in the Dominions. The copy of the "R. A. I. C. Year Book" which has been forwarded to the Singapore Society of Architects has gone to the Select Committee of the Straits Settlements Legislative Council, for reference.

* * *

Word has been received relative to the conditions and programme in connection with the competition for the selection of a plan for the construction of a Conference Hall for the League of Nations at Geneva, Switzerland, that a development affecting the programme had taken place whereby the Committee would be delayed in declaring the Competition open. It is reported that the several matters to be considered will be submitted to the Council of the League of Nations at its meeting in March next, and that immediately after this meeting when the competition is declared open the required number of copies of the conditions and programme will be sent for distribution through the Royal Architectural Institute of Canada.

* * *

The Society for the Protection of Ancient Buildings, London, England, have forwarded a request to the Council of the Royal Architectural Institute of Canada asking them to help the architects of England in urging the London County Council to maintain the Waterloo Bridge, which removal they have recommended. If this is the case it is thought it would be a powerful help were the Royal Architectural Institute of Canada to address a letter to the London County Council stating that we sincerely hope that body will again consider its decision before finally determining to pull the bridge down.

* * *

The results in the preliminary competition for the new million pounds sterling Memorial Masonic Temple in London, England, have been announced. Out of some hundreds submitted ten designs have been selected. The authors of these will compete for the final award and are as follows: H. V. Ashley, F.R.I.B.A., and Winton Newman, F.R.I.B.A., London, England; David R. Brown, M.R.A.I.C., Montreal; James Bertram Francis Cowper, F.R.I.B.A., London, England; T. Lawrence Dale, F.R.I.B.A., and H. Haylock Golding, A.R.I.B.A., London, England; Louis de Soissons, O.B.E., F.R.I.B.A., S.A. D.G., and George Grey Wornum, F.R.I.B.A., London, England; Lancaster, Lucas & Lodge, F.R.I. B.A., London, England; Nicol & Nicol, F.R.I.B.A., Birmingham, England; Frank Worthington Simon, F.R.I.B.A., London, England; Percy Thomas (Jones and Thomas, A. and F.R.I.B.A.), Cardiff, Wales; Willmott & Smith, A.R.I.B.A., Cardiff, Wales. The assessors were Sir Edwin Luytens, R.A., F.R.I.B.A., Mr. Walter Cave, F.R.I.B.A., Mr. Burnett Brown, F.R.I.B.A.

* * *

The Council of the Royal Architectural Institute of Canada will appoint two representatives on the Council of the Royal Institute of British Architects. One under the terms of the new R.I.B.A. By-law No. 29, and according to the supplementary Charter of 1925 of the R.I.B.A. The second representative according to the following amendment to the By-laws of the R.I.B.A. as approved by the Lords of the Privy Council:

"Provided always that in the event of the representative nominated by any such Society being absent from the United Kingdom such Society shall be entitled to nominate a member of the Council of the Royal Institute for the time being who is practising in the United Kingdom to represent it upon the Council during the absence of the representative first so nominated as aforesaid."

* * *

The magnificent building to constitute the headquarters in London, England, of the Dominion of Canada, recently opened by the King, must be reckoned as one of the great architectural features of the new London. No more imposing position could have been selected for Canada's London home than the fine site in Trafalgar Square. The original building, for many years the home of the Union Club, was designed by Sir Robert Smirke. It was added to by Sir J. McVicar Anderson some thirty years ago, and at the beginning of this century Sir Arthur Blomfield made many interior changes. In the reconstruction of the building to house departments of the Canadian Government distributed at present over London at points as far apart as Basinghall Street, in the City, and Oxford and Regent Streets, in the West, the architect, Mr. Septimus Warwick, F.R.I.B.A., found it necessary to construct at back of the building an entirely new wing six stories high, and entirely to remodel the rest of the work. (Mr. Septimus Warwick was a resident in Montreal from 1914 to 1919, where he practised his profession during that time, he was a member of both the Royal Architectural Institute of Canada and of the Province of Quebec Association of Architects.)

* * *

The two representatives of the Royal Architectural Institute of Canada, on the Council of the Royal Institute of British Architects are Percy E. Nobbs, F.R.I.B.A. (Montreal), and Sir John James Burnet, R.A., F.R.I.B.A. (London).

(Secretary's Notes continued on page 189).

GENERAL SCHEME: UNIVERSITY OF ALBERTA
BIRD'S EYE VIEW, LOOKING NORTH

The General Scheme for the University of Alberta

By PERCY E. NOBBS, M.A., F.R.I.B.A., R.C.A., (of Nobbs & Hyde, Montreal.)

A YEAR after the birth of the Province of Alberta in 1907, the legislation for the creation of the University which is the subject of these remarks was passed, and Dr. H. M. Tory was appointed President, in 1909. The initial scheme of construction provided for the three residential buildings, of which two, Assinniboia Hall and Athabasca Hall, were immediately erected. A location was also selected for the Arts Building, foundations for which were laid soon afterwards. These operations were undertaken by the Department of Public Works. In the beginning, parts of these residential buildings served all purposes—offices, classrooms, dining halls, library and dormitories.

In 1912, the late Mr. Frank Darling and the writer were invited to visit the site and make a report as to future developments. The block plan, bird's eye view, and general sketches which accompany these remarks were then prepared.

During the Victorian era the Universities of Canada and the United States had been growing, and growing rapidly, but unsystematically. Generally, a ring of buildings dedicated to different sciences and uses would grow around a central "campus". These buildings would come about in ones or twos, in point of time, each reflecting the general taste of the moment, and throughout the last century, taste in buildings was as fluid and as flimsy as taste in dress to-day, and an affair of moments only.

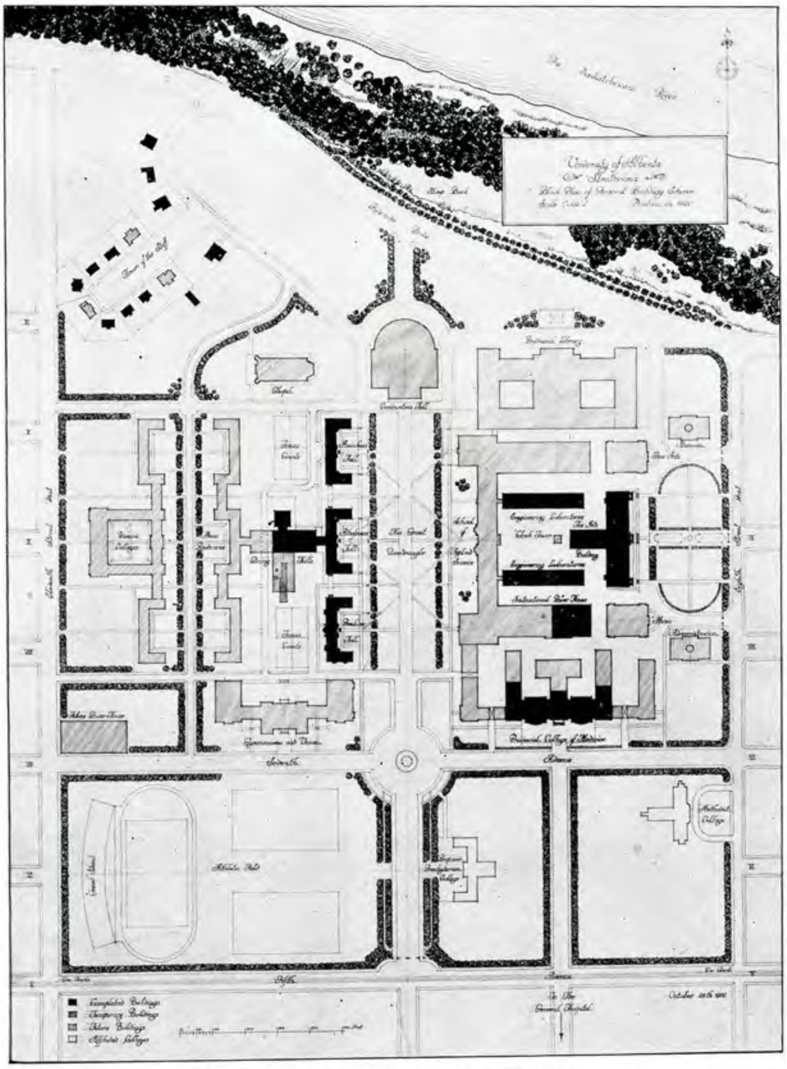
The scheme adopted for the University of Alberta was an attempt to obviate the growth of a museum of detached architectural modernities by providing for large connected elements capable of expansion by units without disturbance of the general scheme.

The site is a level one, with the gorge of the Saskatchewan River to the North. The parcel of land is two thousand feet wide and over a mile in depth. Fifth Avenue was selected to cross the site with car tracks, and Seventh Avenue, two blocks northward, to do so for ordinary traffic. Between these, ground was reserved for Theological Seminaries and athletic purposes. To the south of Fifth Avenue a site was reserved for the Hospital, now in existence, the balance of the land being meantime devoted to the Experimental Farm of the Department of Agriculture.

To the north of Seventh Avenue the University proper was laid out in two main groups for residential and for teaching purposes, divided by the Great Quadrangle, 300 feet wide and 1,200 feet long, which occurs immediately to the east of the Residences above referred to. At the north end of the Great Quadrangle, is the site for the Convocation Hall.

Foundation work for the Arts Building having been already begun, that location was adhered to,

GENERAL SCHEME, EAST ELEVATION, UNIVERSITY OF ALBERTA



BLOCK PLAN, UNIVERSITY OF ALBERTA
Nobbs & Hyde, Architects

GENERAL SCHEME, NORTH ELEVATION, UNIVERSITY OF ALBERTA

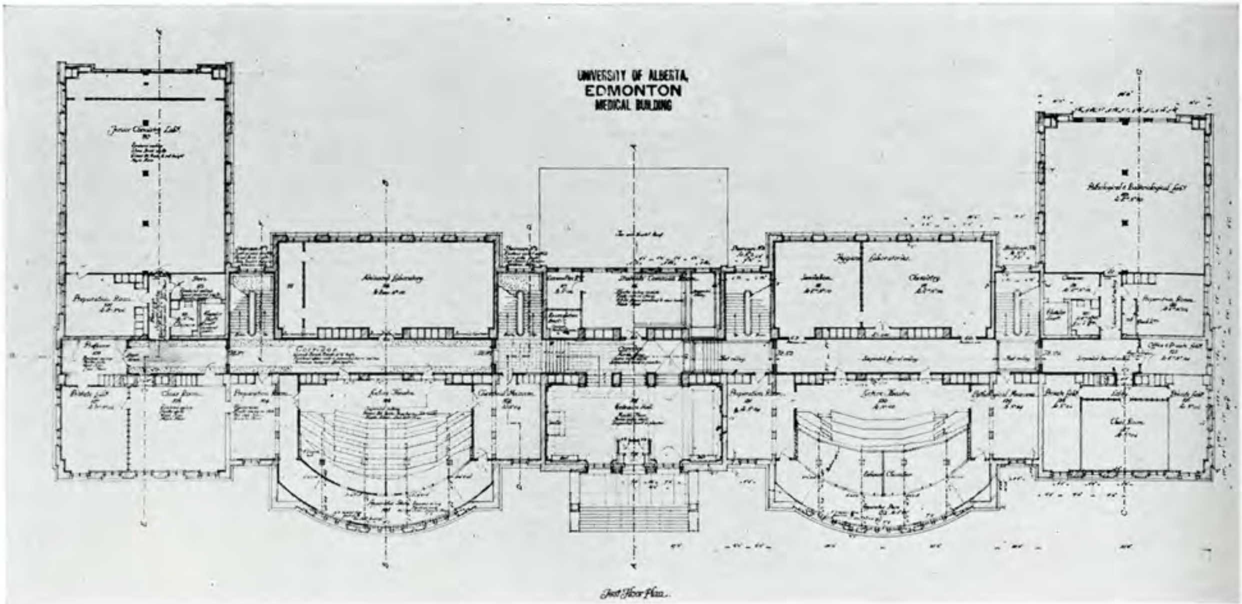
ARTS BUILDING, UNIVERSITY OF ALBERTA
Nobbs & Hyde, Architects

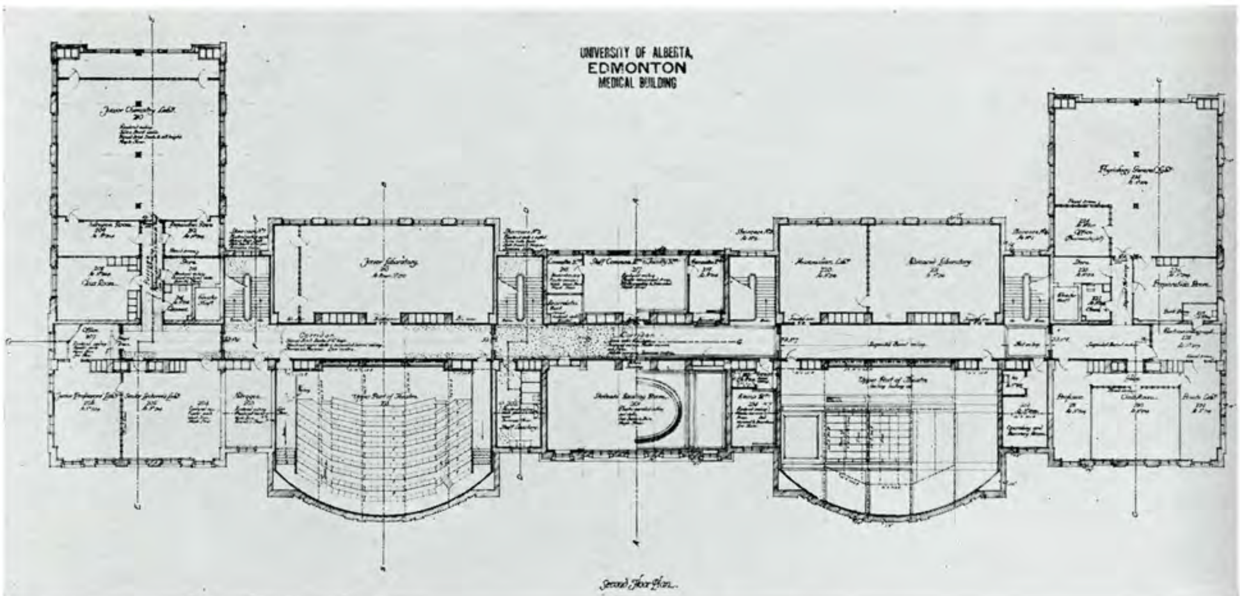
but an enlarged structure was provided for to serve all teaching purposes for some years. This building was under construction when the war broke out, and, with a few initial units of the Engineering Laboratories, served until after the war when the congestion of delayed profession training compelled the construction of the central portions of the Medical School.

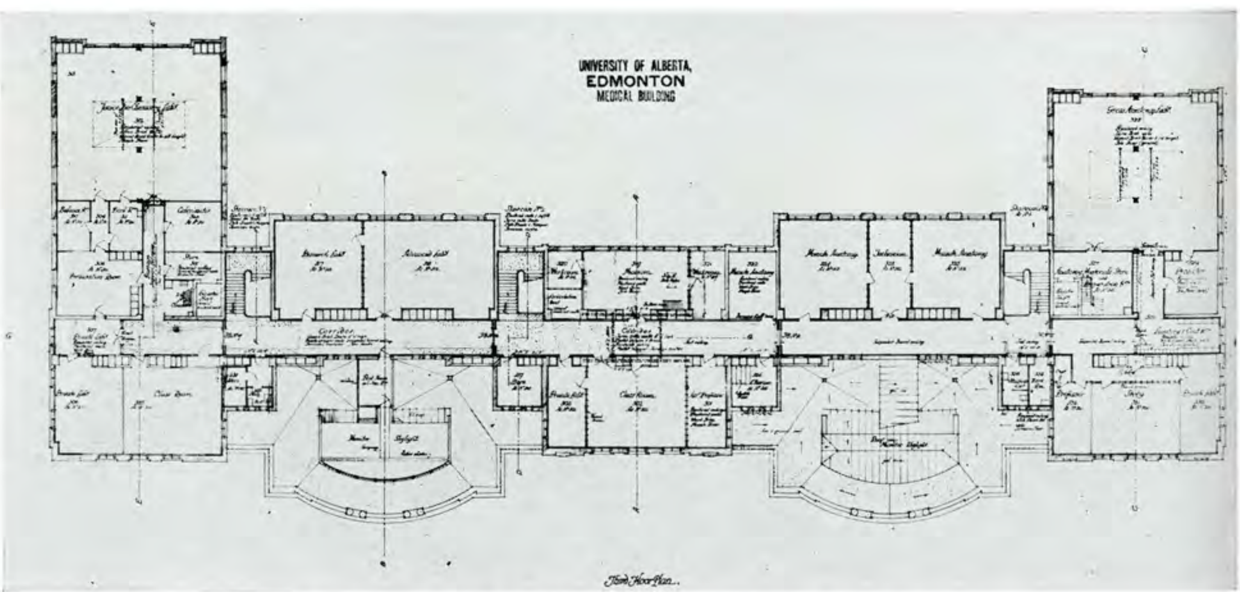
Meantime, the third of the originally projected residential buildings, Pembina Hall, was erected, under the direction of Mr. C. S. Burgess, A.R.I.B.A., the resident architect, together with a Dining Hall Unit in rear of Athabasca Hall. Mr. Burgess has also been associated with the writer's firm in carrying out the Arts Building, Medical Building and Engineering Laboratories to date.

The principles on which the block plans were prepared, and on which construction has been carried out, may now be briefly described. With ample space available, an area approximating the sites devoted to all technical education at Charlottenburg, near Berlin, is allocated to teaching buildings. This area has four frontages, to be occupied by the Arts Building, with its kindred cultural schools of Fine Art and Music, facing east, the Medical School facing south, towards the Hospital, the School of Applied Science facing west on the Great Quadrangle, and the Provincial Library facing north across the river to Edmonton. Development is intended from the centres of each of these exterior facade groups and as required in the great courtyard they enclose. It is thus hoped

ARTS BUILDING, FRONT VIEW, UNIVERSITY OF ALBERTA
Nobbs & Hyde, Architects

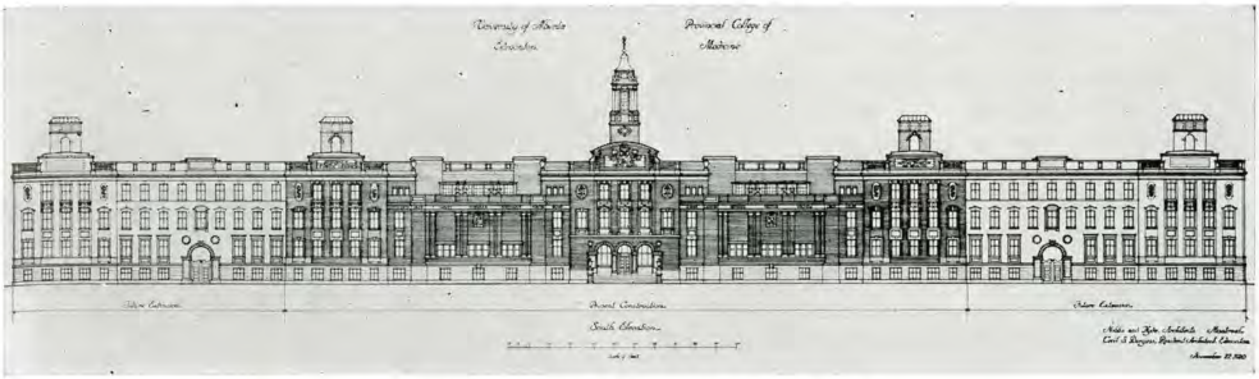






MEDICAL BUILDINGS, FLOOR PLANS, UNIVERSITY OF ALBERTA

Nobbs & Hyde, Architects *C. S. Burgess, Resident Architect*



MEDICAL BUILDING, UNIVERSITY OF ALBERTA
Nobbs & Hyde, Architects *C. S. Burgess, Resident Architect*

that the place may take its permanent form and character early in its history, while by the time space is exhausted the utility of a rival institution elsewhere in the Province will be manifest.

Economically there is advantage in the scheme which enables laboratory departments to grow unsymmetrically, as required in ideal factory accommodation of light construction, while main facades can be developed on a more monumental scale of construction.

In preparing the block plan the utilization, as far as possible, of north top light was kept in mind, and in works executed to date this system of lighting has been exploited to the uttermost. In the Arts Building, the north end is devoted to the laboratories and the roof of the main block is a saw tooth. The same applies to the Medical School. In the case of the Engineering Laboratories, two storeys of north side-lit units correspond with a high north top-lit unit, all running east and west. With suitably disposed dead-air spaces, and a duly arranged system of heating and ventilation, these top lit laboratories appear to provide comfortable

MEDICAL BUILDING, UNIVERSITY OF ALBERTA
Nobbs & Hyde, Architects *C. S. Burgess, Resident Architect*

accommodation, summer and winter, in a climate characterized by wide ranges of temperature.

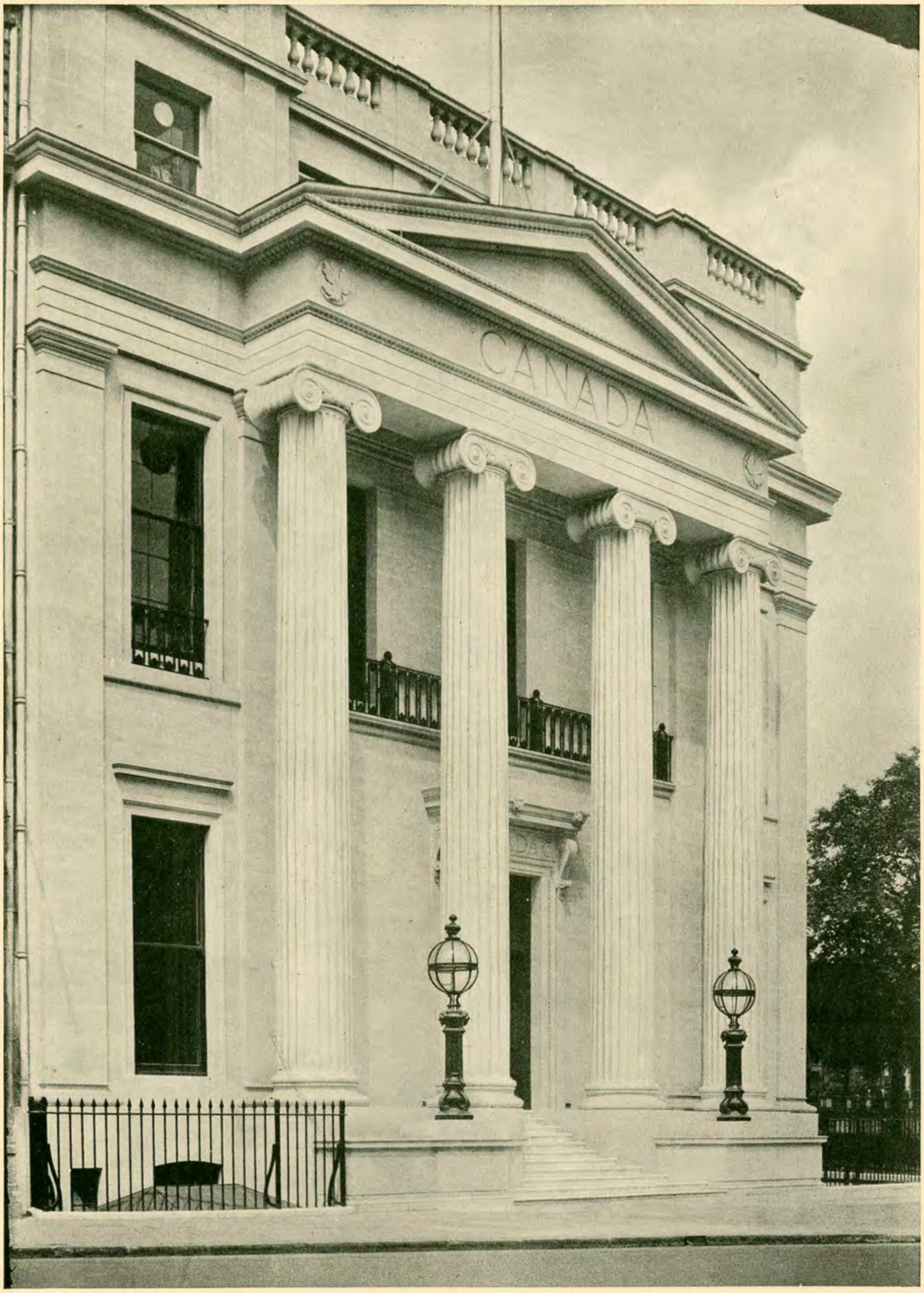
The provision of dining accommodation without multiplication of plant is proposed, by serving separate dining halls of limited size, built as required (possibly one over the other, as well as on a T plan) all in contact with one Kitchen, and serving plant, extensible by parallel units.

Apart from the growth of teaching departments from the nuclei of their administrative subordination and the growth of residential units related to unit dining halls and a central kitchen, the growth of the heating and power plant has presented a problem defined by area rather than use. With so extended a scheme a main central plant can only be justified after a very considerable amount of construction is in being. Originally the Halls had separate plants. The next step was to provide for the three Halls and the dining room a heating plant contiguous to the kitchens. The Arts, Medical and Engineering Laboratory buildings are served from a power house intended to be ultimately relegated to teaching and experimental purposes as a laboratory of the Engineering School, when the first large units of the main plant become justifiable.

Such are some of the more general considerations which found embodiment in the block plan prepared in 1910, and in the buildings so far erected.

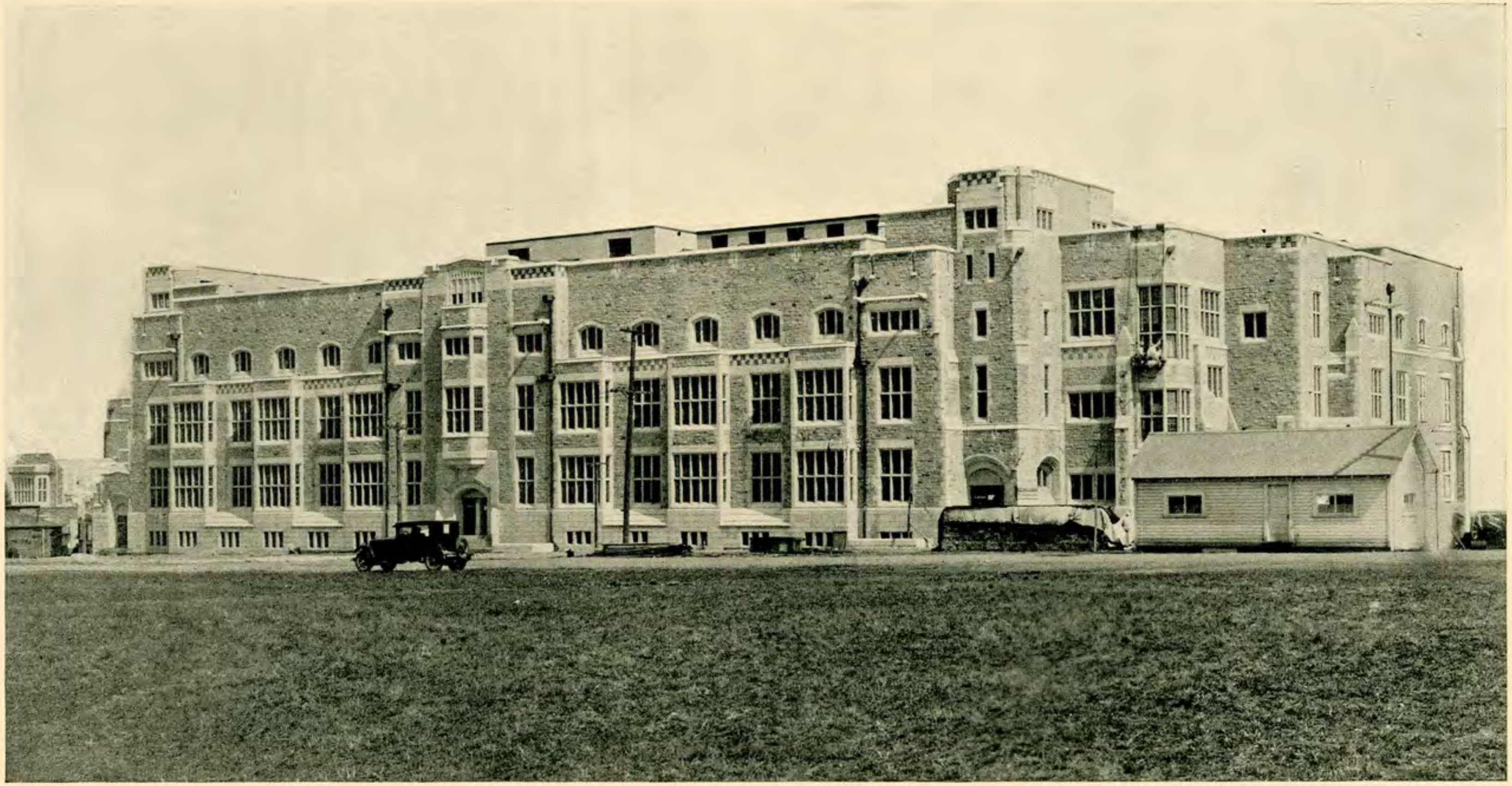
MODEL FOR KEY BLOCK
CENTRAL DOORWAY, MEDICAL BUILDING, UNIVERSITY OF ALBERTA

ARTS BUILDING, UNIVERSITY OF ALBERTA
Nobbs & Hyde Architects

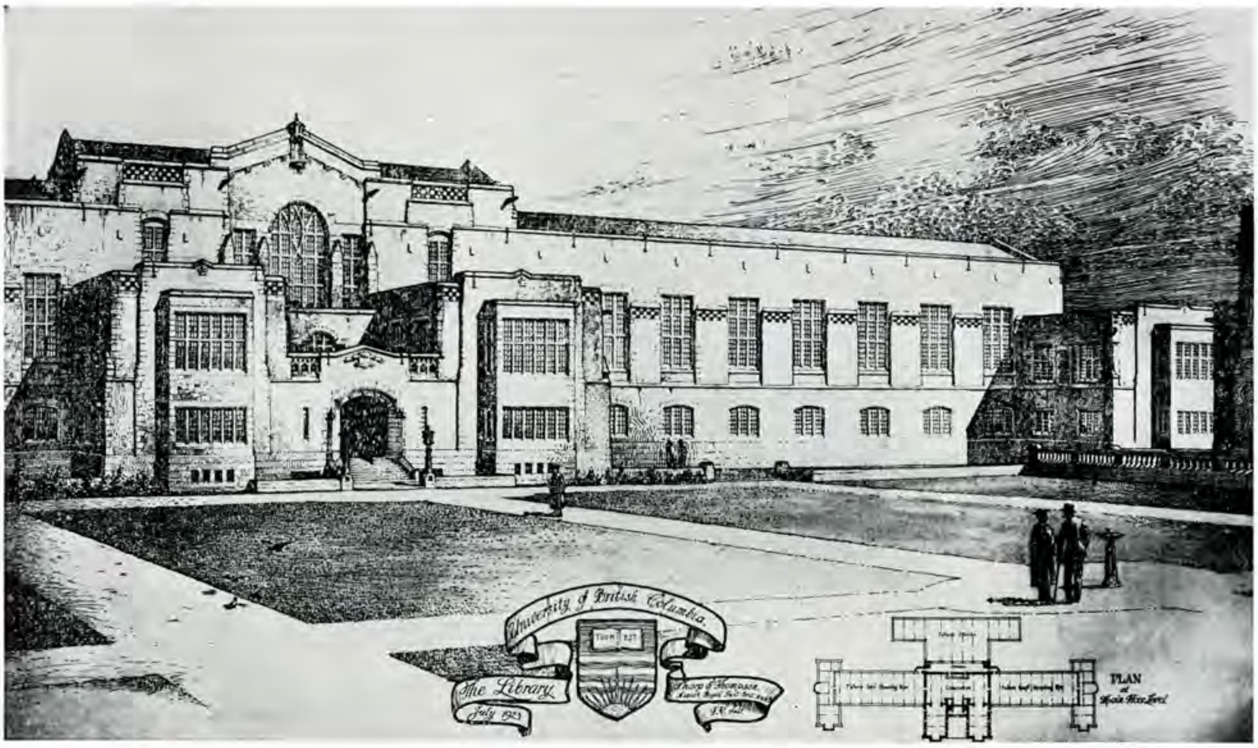


THE NEW PORTICO, CANADA HOUSE, LONDON, ENG.
Septimus Warwick, F.R.I.B.A. Architect

THE CENTRAL MARBLE HALL LOOKING TOWARDS ENTRANCE,
CANADA HOUSE, LONDON, ENG.



SCIENCE BUILDING, UNIVERSITY OF BRITISH COLUMBIA
Sharp & Thompson, Architects



University of British Columbia, Point Grey, Vancouver, B.C.

THE Provincial Government of British Columbia in the Fall of 1912 called for competitive plans to develop the proposed Provincial University, for which purpose a sit of approximately 260 acres had been allocated at Point Grey.

The Competition was open to all Canadian architects, and the following gentlemen were appointed assessors: A. Douglas Caroe, of London, England; A. A. Cox, of Vancouver, and S. Maclure, of Victoria, who unanimously awarded the first premium to Messrs. Sharp & Thompson, of Vancouver.

A subsequent Commission of Experts, consisting of Warren P. Laird, Professor of Architecture Pennsylvania University, Thomas H. Mawson, the well known Town-Planning Expert, and Richard J. Durley, Professor of Engineering McGill University, were appointed to examine and report on those plans. Their report stated that the winning design was conceived on correct principles, and that, with some modifications, it would be worthy of the great opportunity such a scheme afforded. They were, however, of the opinion that the land grant should be increased by at least 200 acres to properly take care of the farm areas in connection with the Faculty of Agriculture.

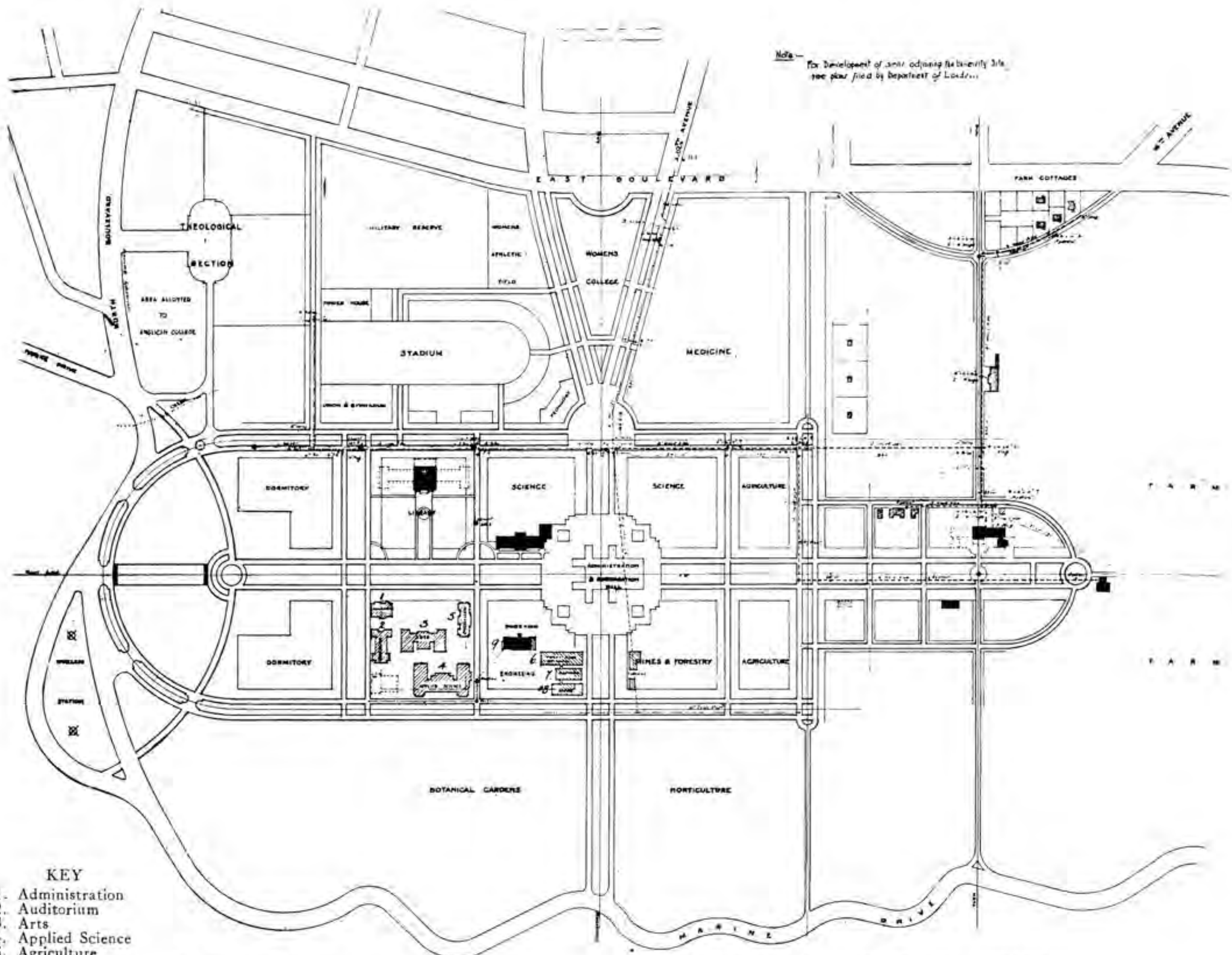
The Government subsequently agreed to this suggestion and have set aside for Farm purposes about 250 acres, making the total grant for the Institution slightly more than 500 acres.

The site is an incomparably beautiful one, situated about seven miles from the centre of the City of Vancouver and to the west thereof. It is directly connected by good roads with electric cars already running within a mile and a half of the site, which lies on a bluff about 300 feet above sea level, with superb views across the Gulf of Georgia to Vancouver Islands on the west and the mountains of Howe Sound on the north. A main arterial roadway connecting the site with the car-line is now being laid by the Provincial Government.

Topographically it may be described as a gently undulating table-land somewhat higher than Marine Drive, which almost encloses the site, with a crowning ridge paralleled by gentle depressions which rise slightly towards the outer margin. This ridge lies nearly north and south, dropping gently and directly towards the view, and was taken as the main axis of the plan.

The organic structure of the plan is based on two axes crossing at right angles on the higher levels of the site. Upon these axes lie broad open spaces or malls bordered by trees and building groups, this portion of the scheme constituting its nucleus. This is fringed on the west by a broad area to be devoted to Horticulture, and on the east by a similar tract, whose proximity to the adjoining residential area and car lines warrants its assignment to buildings and other constructive features of the plan. Adjoining to the south lies the farm, while the limited area at the northerly end provides the chief portal or entrance and space to complete the building groups. At the crossing of the chief axis lies the seat of administration or control, within which may be comprised such features as the Convocation Hall or Museum.

From this point along the greater mall is ensured the panoramic view of mountains and water which is the chief distinction of the site. The lesser mall



KEY
1. Administration
2. Auditorium
3. Arts
4. Applied Science
5. Agriculture
6. Mechanical
7. Electrical
8. Mining
9. Power House

■ Permanent Buildings
▨ Semi-permanent Buildings
□ Future Development

PLOT PLAN, UNIVERSITY OF BRITISH COLUMBIA
Sharp & Thompson, Architects

opens to the west, giving a vista through the trees towards the Strait of Georgia, while towards the east it affords communication with Tenth and other avenues along which the future street-car service must necessarily run.

Grouped about the administration centre, and within practical walking distance, are the several areas to which should be assigned the more closely related educational departments, each giving a juxtaposition with its neighbour according to their interrelations.

The remaining building groups, athletic and military reservations, etc., are also allocated as required by their respective relations.

The architectural style of the buildings is designed in a free rendering of Modern Tudor, depending chiefly on outline and a careful disposition of voids and solids, detail only being lavished on central features. A multi-coloured B.C. granite random range ashlar has been used as wall filling, with granite dressings in quoins of doors, windows, buttresses, etc.

The construction of the first unit of the Science Building was commenced in 1914, but the advent of the Great War stopped any development beyond the concrete frame of this building. In the Spring of 1923, however, the Government decided to proceed with the building programme and let a contract to complete this first unit, as shown by the plans, photographs and description under separate heading.

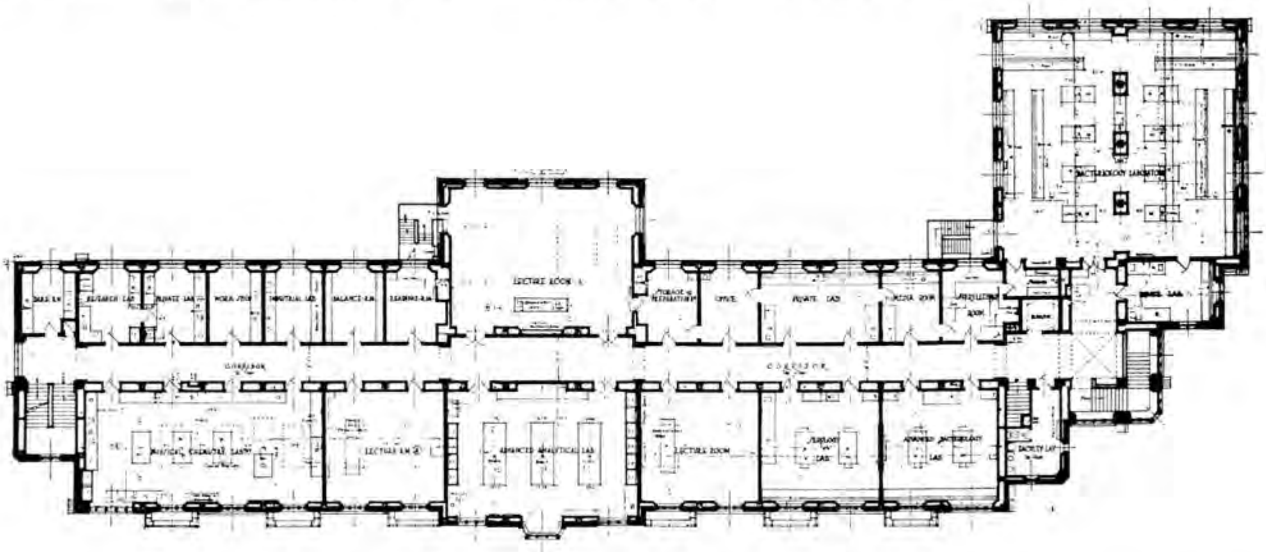
Subsequently the first unit of the Library Building and the Power House was also commenced and when complete will terminate for the time being the development of the permanent buildings at the Institution.

The following is a more detailed description of the permanent buildings:

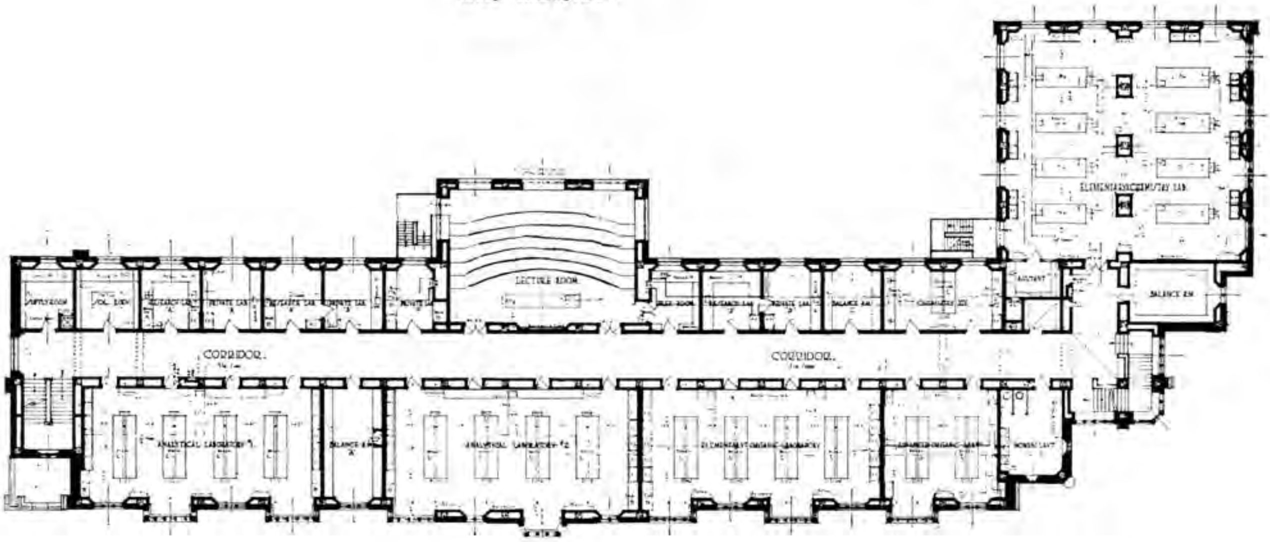
SCIENCE BUILDING:

This building has been primarily designed for the Department of Chemistry, with Domestic Engineering services arranged for all floors for future chemistry accommodation. At present, however, the Department of Physics and Bacteriology have large portion set aside for their uses.

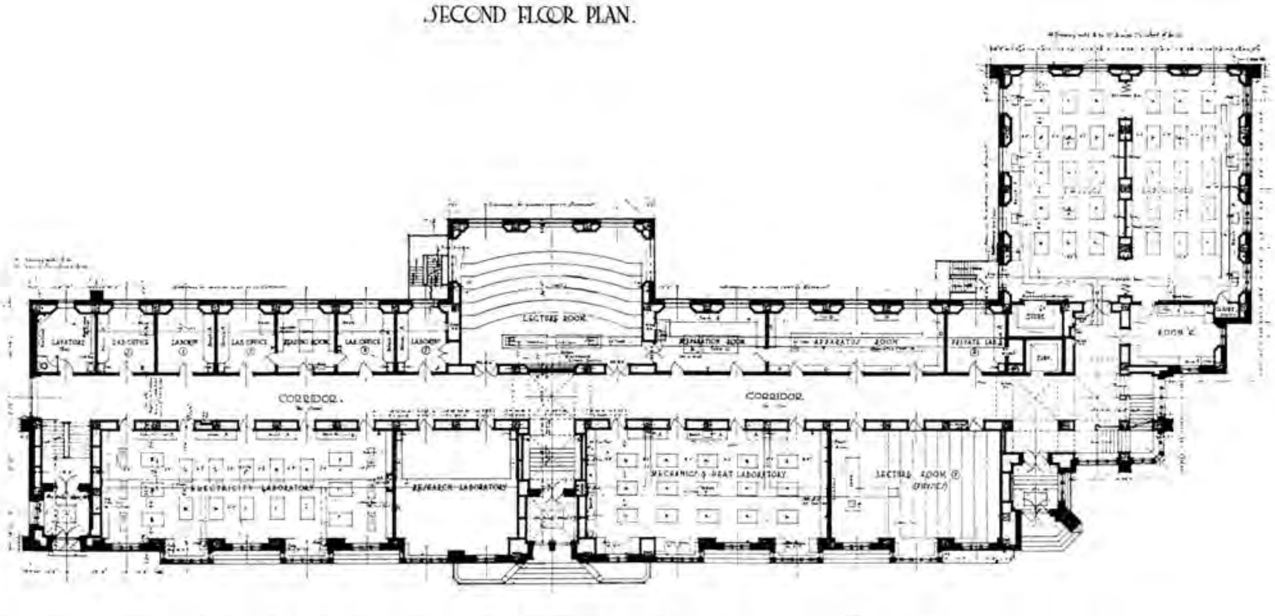
The basement is mostly taken up with Fan Room, Locker Rooms and Lavatories for men and women;



THIRD FLOOR PLAN.

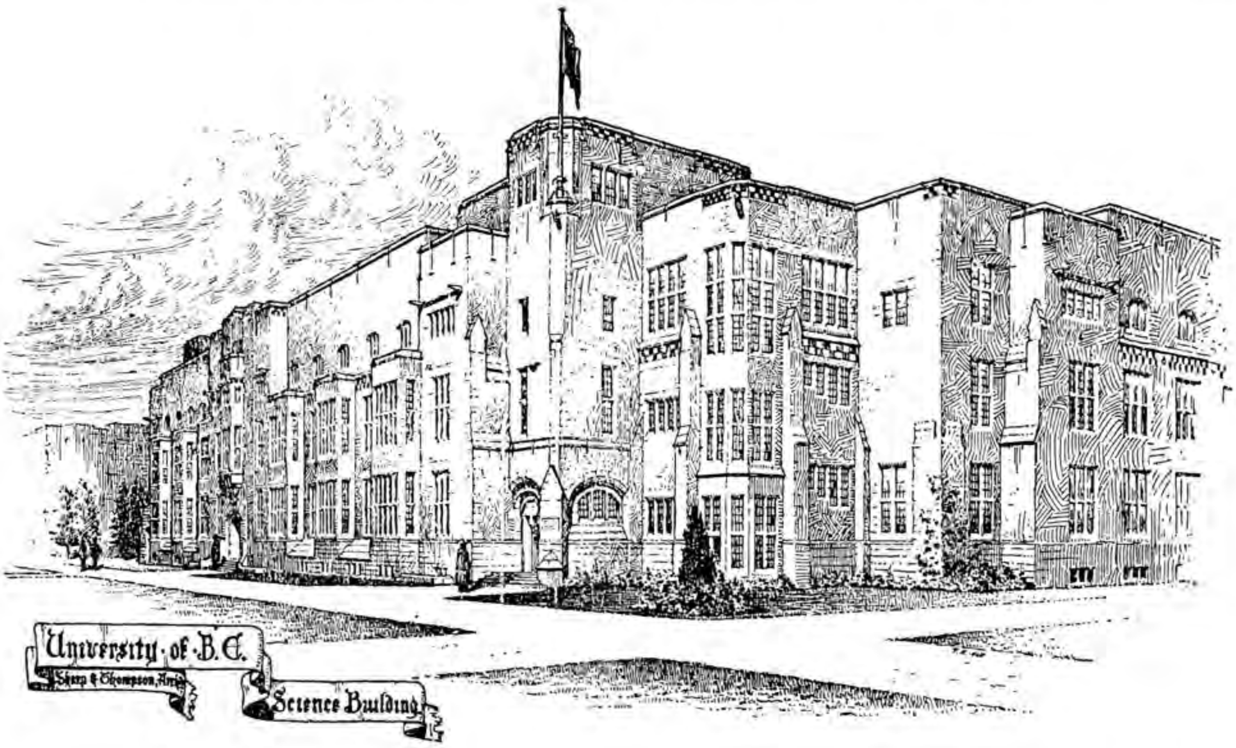


SECOND FLOOR PLAN.



FIRST FLOOR PLAN

SCIENCE BUILDING, UNIVERSITY OF BRITISH COLUMBIA
Sharp & Thompson, Architects



the balance of accommodation is allotted to Chemistry and Physics laboratories and workshops.

First Floor:

Physics Laboratories and Lecture Rooms, with Private and Research Laboratories, etc.

Second Floor:

Chemistry Lecture Room and Laboratories, with Private and Research Laboratories.

Third Floor:

Chemistry Lecture Rooms and Laboratories and Bacteriology Lecture Room and Laboratories.

The general construction of the building is fireproof throughout, with reinforced concrete frame faced externally with random range granite ashlar, with dressed granite quoins to doors, windows and buttresses, etc. Steel casements to windows throughout glazed with clear glass in ¾" lead cames.

Internally all walls are faced with a local impervious brick of a warm brown shade for a height of five fieet; above that sand and lime bricks pointed in cement, which gives a good reflection and has a sanitary appearance. Ceilings are plastered with white putty coat. Floors of corridors are laid with 9" x 9" Welsh quarries, with wide joint in white cement; treads and risers of staircase are in grey Tennessee marble. Entrance porches have marble tiles. Floors of Lavatories are tiled and have white glazed tile wainscot on walls.

All Lecture Rooms and Laboratory floors are finished with mastic composition 3/16" thick, red in colour and thoroughly acid and waterproof.

The finish throughout is plain oak. The fittings to Laboratories are executed in B.C. fir and spruce.

The total cost of the building, with furnishings included, will represent an approximate expenditure of one million dollars and will be ready for occupancy by the University in the Fall of 1925.

LIBRARY BUILDING:

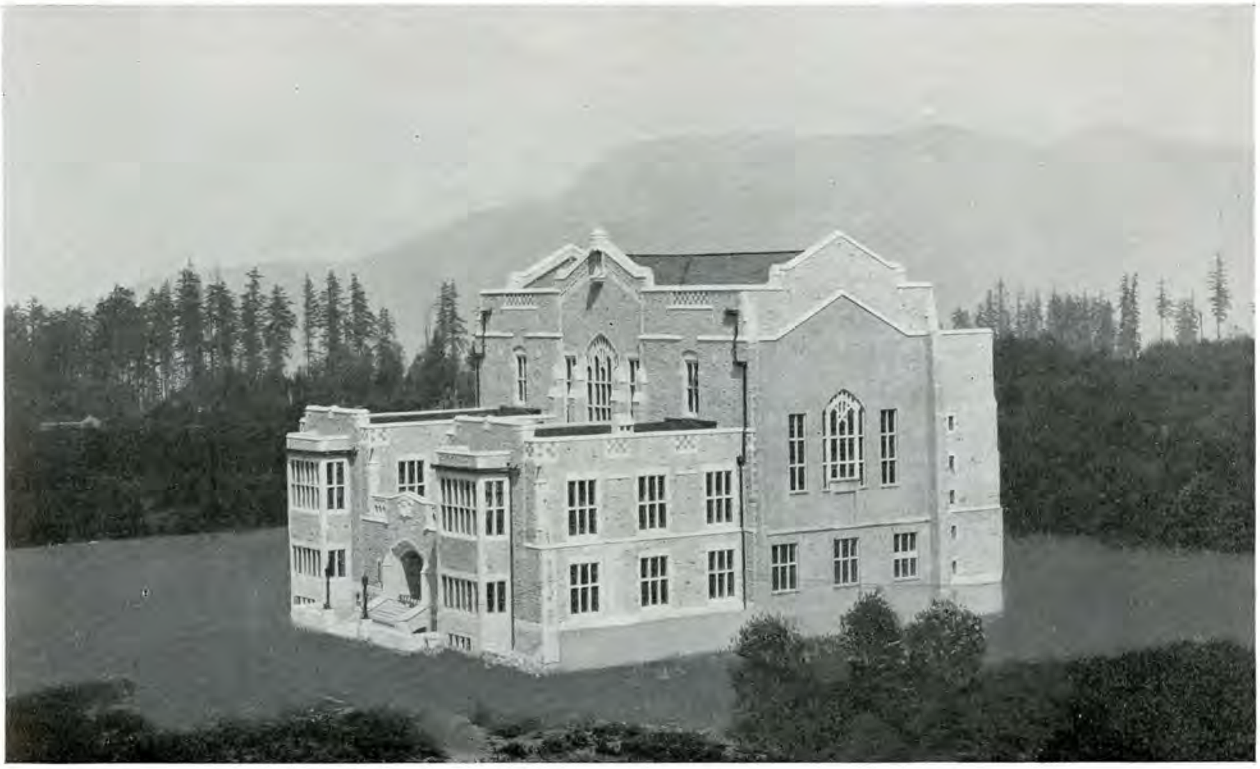
This building, of which the perspective shows the ultimate development, has been designed so that construction can be proceeded with on the unitary method, without interfering with the use of any part, or necessitating structural changes in the future. The central portion of the scheme is now approaching completion.

The site of the Library lies immediately north of the Science Building now under construction. The main facade shown in the perspective faces west, overlooking a quadrangle about 200 feet deep, laid out with grass and shrubs, and open at the end towards the main Mall. Future permanent buildings for the Faculty of Arts will flank this quadrangle on north and south and group harmoniously with the Science Quadrangle adjacent.

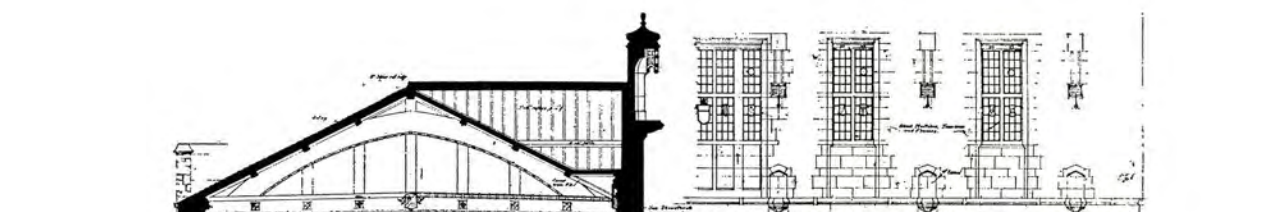
The Main Entrance floor has accommodation for librarian with committee and staff rooms en suite, with unpacking and receiving room directly connected to lowest tier of bookstacks, Faculty Reading Room, Seminar Rooms and Museum to house temporarily the Frank Burnett collection of South Sea curios. Two commodious staircases lead to the main reading rooms above and to the basement below.

The Main Reading Room floor consists of an open concourse measuring about 50' x 100', with two reading rooms leading immediately therefrom, each about 30' x 50', which, together, will give accommodation for about 300 readers. The plan allows these to be automatically divided into two departments, one for General Reading and the other for Required Reading, both having access to the Loan Desk and Catalogue Room. The Loan Desk is directly connected to the Stack Room and lies on the east side of concourse.

Future wings housing the permanent General and Required Reading Rooms will be north and south of the concourse and entered directly therefrom. These wings when built will allow the space now taken up in the central unit by these departments to be given to Periodical and Browsing Rooms, with the cata-



THE LIBRARY, UNIVERSITY OF BRITISH COLUMBIA
Sharp & Thompson, Architects



LIBRARY BUILDING, UNIVERSITY OF BRITISH COLUMBIA
Sharp & Thompson, Architects

logue cases in the concourse directly opposite the Loan Desk.

Lower floors of these two wings will house permanently the Librarian and Staff, Document and Map Rooms, and the Depository Catalogue of the Library of Congress. The space now allotted to the Librarian in the Central Unit will be given to Seminar Rooms and rooms for Special Collections.

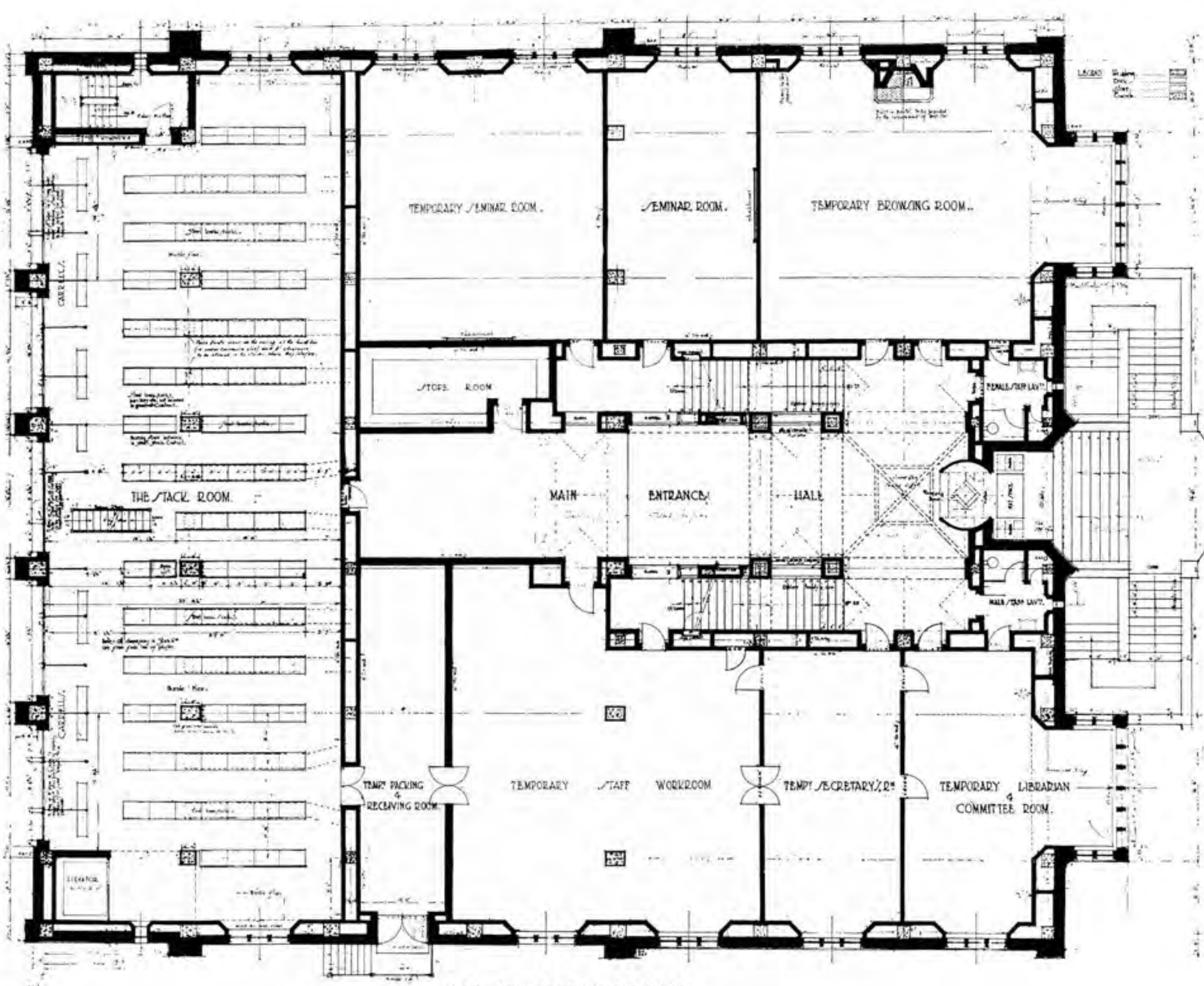
The Basement Floor is taken up with Men's and Women's Cloak and Locker Rooms and Toilets, Fan Room and lower tier of Stackroom.

All floors connect with the Stack Room, which is constructed with steel stacks of the most modern type with accommodation for about 135,000 volumes. Room for further stack expansion by future units has been properly provided.

Each floor of stack room has accommodation for a number of study carrels, where students with special privileges can study without any interruption and about fifty will be provided in the first unit.

Construction of the building has been carried out in incombustible materials, with reinforced concrete frame faced with random range granite, with granite dressings to doors, windows and architectural features. Walls

MAIN ENTRANCE HALL, LIBRARY BUILDING, UNIVERSITY OF BRITISH COLUMBIA
Sharp & Thompson, Architects



MAIN ENTRANCE FLOOR PLAN.

LIBRARY BUILDING, UNIVERSITY OF BRITISH COLUMBIA
Sharp & Thompson, Architects

of tile roughcast are built where they are afterwards masked by future wings. The window sashes are of steel, filled in with leaded glass with wide cames. The main roof is covered with multi-coloured slates. Rain-water heads and conductors are of copper.

Internally the Concourse will have open timber roof finished in B. C. native woods, stained driftwood grey, with heraldic devices picked out in bright colours. The internal finish throughout is in plain oak.

Floor of Main Concourse and Reading Rooms, Main Entrance and Staircase will be covered with rubber marbleised tiling to insure quietness, other floors will be mastic.

Walls of Main Entrance Hall, Staircase and Concourse up to the height shown will be finished in Caen stone paster; remainder of building in plain plaster.

The building is heated by plenum system of heating with auxiliary fans for ventilating and forced

THE CONCOURSE, LIBRARY BUILDING, UNIVERSITY OF BRITISH COLUMBIA
Sharp & Thompson, Architects

circulating hot-water system with radiators in certain positions.

The building, including furnishings, represents an expenditure of approximately half a million dollars, and will be completed for occupancy by the University authorities in the Fall of 1925.

POWER HOUSE:

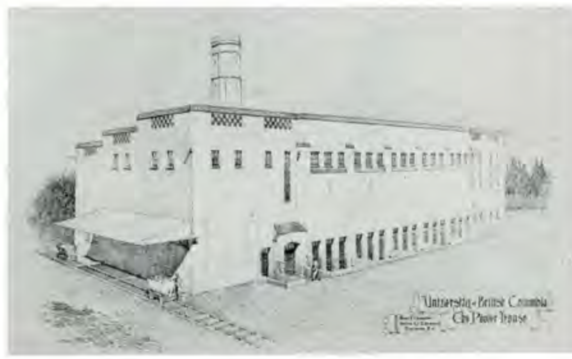
This building is designed on the unitary method, allowing for future expansion without material structural changes.

The initial unit shown provides accommodation for a battery of three boilers, as later described, with space providing for two more without enlarging the Boiler Room.

The last bay, however, will be used for several years as a Generating Room to utilize the waste steam economically and partially take care of the Light and Power Loads.

This leaves one bay for future Boiler, which will probably be used for experimental and test purposes as well as an auxiliary unit in case of need.

Future expansion is provided for by doubling up the whole battery on the west side of the overhead bunkers shown on the section.



PERSPECTIVE DRAWING, POWER HOUSE
Sharp & Thompson, Architects

The construction of the building is by reinforced concrete with terra cotta tile walls and reinforced concrete roof slabs supported on steel columns in centre of building. Large coal storage bin is provided, with mechanical equipment for loading into suspended steel bunker with hopper feeds to the several stokers.

The building is constructed of concrete up to grade with reinforced concrete gallery and coal storage bin. External walls of terra cotta tile, roughcast externally. Windows of steel sash glazed with cast plate and doors of Kalamein iron.

The total cost of the building and equipment is approximately $275,000 (Two Hundred and Seventy-five Thousand Dollars).

POWER HOUSE, UNIVERSITY OF BRITISH COLUMBIA
Sharp & Thompson, Architects

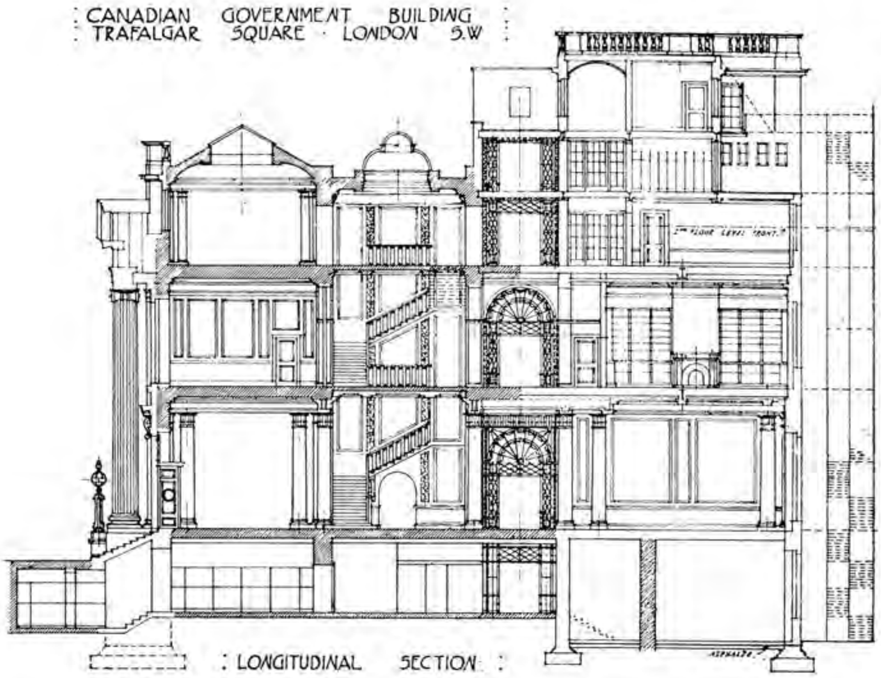
CANADA HOUSE, TRAFALGAR SQUARE, LONDON, ENG.
Septimus Warwick, F.R.I.B.A. Arhitect

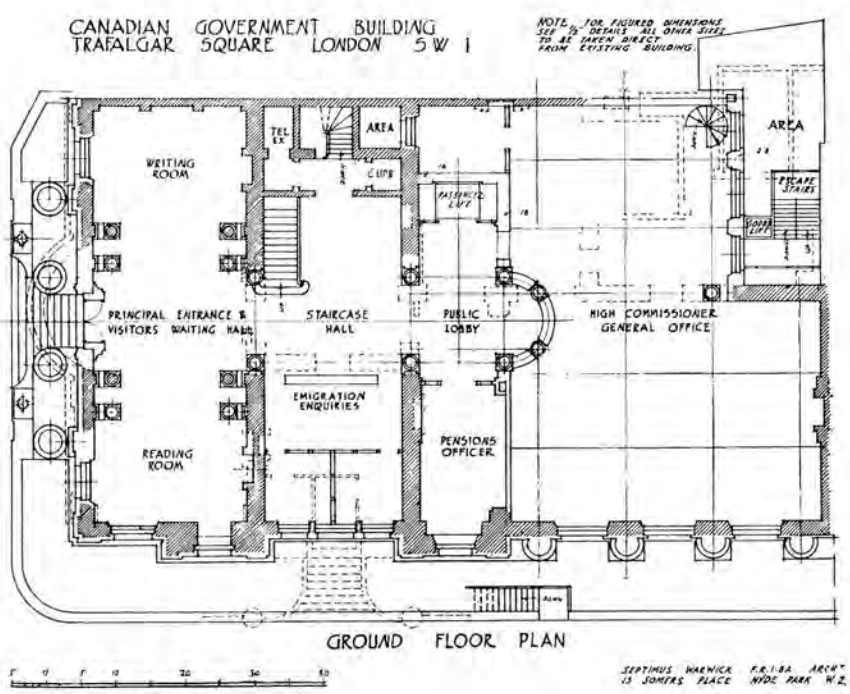
The New Canadian Government Building in London

THE people of Canada for years past have been very dissatisfied with the way in which their Government representatives in London have been housed, but henceforth they will have no need to worry on this score, inasmuch as all the Departments and off-shoots of the Dominion Government in the Metropolis, previously scattered in various districts of the West End and City, are now gathered together in the magnificent new building—known as "The Canadian Building"—in Trafalgar Square, London, S.W.1, which was opened by their Majesties the King and Queen, on June 29th last in the presence of a very brilliant gathering.

The original building, for many years the home of the Union Club, was designed in 1820 by Sir Robert Smirke. It was added to by Sir J. McVicar Anderson, some thirty years ago, and at the beginning of this century Sir Arthur Blomfield made many interior changes. The present reconstruction of the building was done under the supervision of Mr. Septimus Warwick, F.R.I.B.A. Mr. Warwick, although an Englishman, had spent a good many years in Canada and has many fine buildings to his credit in the City of Montreal. The architect, in order to accommodate the many offices, found it necessary to construct at the back of the building an entirely new wing six storeys high, and entirely to re-model the rest of the work. Mr. Warwick has abolished the side entrance and contrived the tetrastyle portico on the south end, where there used to be a bay window, to balance the Royal College's hexastyle portico at the northern. It was impossible to give this new portico its proper projection without encroaching on the existing width of footway, on the maintenance of which the London County Council insisted. The problem was further complicated by the height at this end of the ground floor above the ground level. The flight of steps, of diminishing width, leading up to the very rich but delicate doorway, is an admirable solution of this difficulty. The portico inevitably

CANADA HOUSE SHOWING NEW PORTICO AND REFACED ELEVATION





looks rather tightly packed against the façade, but its reduction from hexastyle to tetrastyle, and the very fact of the high plinth, reduces this unavoidable fault to a minimum. The delicacy of the carving on the door-case, the beautiful lettering on the frieze, and the refined richness of the bronze doors are excellent details.

The south end of the building was originally occupied by the club morning-room. This is retained as an office hall, but from the entrance a long vestibule has been opened out, and a vista contrived through the whole depth of the building. The difficulty here was that the north and south axis of the morning-room came some six feet west of the new door. The four orange scagliola pillars that divided the morning-room into three sections were thus eccentric. Mr. Warwick solved this difficulty by placing four new ones, one east of each of the original pillars, thus shifting the axis to the required extent eastward. The vista from the door now ends in a kind of apse of four volumes, screening the general Inquiry Office beyond. This shape was dictated by the necessity for a structural support almost, but not quite, on the axis line. The structural column was therefore balanced by a dummy, and two more columns were inserted to form the apse, axial with the vista. The space between the apse columns is filled by three removable bronze desks of classic design, which form the counter of the Inquiry Office, each of the three desks being allotted to a different section of the department.

West of the vestibule rise the original main stairs, the walls plaster-panelled in a suitably neo-Grec design. On the first floor the northern end is occupied by the High Commissioner's room—a splendid original apartment retaining Sir Robert Smirke's fittings, though somewhat altered later in the nineteenth century. Mr. Larkin has introduced a splendid Georgian crystal chandelier, two great eighteenth century oil pictures—George III and his sons reviewing troops, by Sir Wm. Beechey, and one of Northcote's Boydell Shakespeare pieces—and several fine pieces of furniture. The central-heating contrivance is ingenious; the coils are concealed in the old shutter recesses either side the windows, the centre of the shutter reveals being removed and the space fitted with wire grills. Other coils are sunk in the floor at the foot of the windows with a surmounting case of burnished steel and verd antic. All the office rooms are characterised by a sympathetic use of the neo-Grec mode. Slight though their mouldings are, each room is architecturally satisfying. All the original chimneypieces, of statuary marble (with the exception of a pair on the ground floor which are of Siena and ormolu), have been re-used, and lighting is provided by some well chosen chandeliers, five notably from Coombe Abbey. The pediment addition of attic floors on the east side is occupied by a counting house, and three smaller offices above it, from the windows of which are enchanting views of the National Gallery and St. Martin's.

Considerable additional accommodation has been provided on what was an open space behind the original buildings, and the basement has been entirely remodelled. Simplicity—the result of hard and painful thought—is the chief expression given by the planning, ten times more difficult in an adapted than in a new building. The same simplicity characterises the details of ornament—for example, the maple leaf, ingeniously contained in a Greek style—that occurs in the metalwork.

CANADA HOUSE—INTERIOR VIEW FROM ENTRANCE

The ground floor is now open throughout, with space allocated as visitors' reading and writing rooms, inquiry offices for the various Departments, and for other purposes. A new passenger elevator has been provided, giving access to both the old and the new portions.

Canadian maple and birch flooring has been used in the upper floors, with British Columbia fir doors; the flagstaff over the main entrance also came from British Columbia. The whole of the office furniture and the carpets have been made in Canada. The valves for the heating apparatus have been supplied from Montreal and Toronto.

In the new building is gathered together, not only the High Commissioner (the Hon. Peter C. Larkin) and his staff, who have to deal with a multiplicity of things concerning Canada in this country, but also the Department of immigration and Colonization, the head of which is Mr. W. R. Little, Director of Emigration for Europe.

The Canadian Trade Commissioner's Department, formerly at 73 Basinghall Street, London, E.C.2, and the Departments of Soldiers' Civil Re-establishment and of Pensions (hitherto at 103 Oxford Street, London, W.1), are now also to be found in the new building in Trafalgar Square.

As will be seen from the photographs reproduced herewith, both the exterior and interior of the latest addition to London's public buildings are most handsome, and, indeed, the structure is in every way a most dignified edifice for the housing of the representatives of the great Dominion. Visitors on entering will at once be struck with the lofty and imposing rooms on the ground floor, whilst those who have to visit the actual High Commissioner's room on the first floor will be much impressed by the beauty of the apartment, which is most handsomely and delightfully furnished. One feature of the whole building, which is very striking, is its lightness and brightness, this effect being heightened by the predominating colours of cream and white.

THE HIGH COMMISSIONER'S ROOM

Structural Service Department

NEW CONSTRUCTION TENDENCIES AND THEIR PROBABLE EFFECT ON CANADIAN ARCHITECTURE

By JAMES GOVAN, R.A.I.C. Consulting Architect, Toronto.

Joint Author of "Fuel Saving Possibilities in House Heating," Report No. 10 of Research Council of Canada, Ottawa. Author of "Insulating and Heating Possibilities in Buildings," Journal of Engineering Institute of Canada.

THE readers of this JOURNAL who have paid any attention to the series of articles on "Wall Insulation" just completed by Prof. Greig of the University of Saskatchewan cannot fail to be impressed with the facts which he has put before the profession so clearly and impartially.

Any Architect who ignores the economic lesson to be learned from such results as were obtained from the experiments conducted for the Saskatchewan Government by the University at Saskatoon has only himself to blame if he finds his clients looking to others for guidance in the solution of their architectural problems.

The public generally, and Architects and Engineers in particular, are greatly indebted to Prof. Greig and his associates for the work they have accomplished, especially because they approached the subject and presented their results in such practical fashion. Hitherto much of the data on insulation values has been hidden in laboratory reports of tests conducted in such a way that the conditions of ordinary structural practice could not even be approximated. Now, however, we are getting beyond the stage of laboratory experiment and the small scale scientific test panel results are being corroborated in such work as has just been described at Saskatoon, in the houses tested under the auspices of the Norwegian Government at The Norwegian Technical University, Trondhjem, and in the practical house building experiments in Northern Minnesota described by Dean Scipio of the Research Laboratory of the American Society of Heating and Ventilating Engineers in the September, 1921, issue of the Journal of the Society. Work of this kind cannot but have the effect of convincing architects, engineers, builders and clients that the construction of to-day and to-morrow must be suited to the severe climatic conditions of this country; and that with the ridiculous waste of heat resulting from our commonly accepted methods of building the question to be settled is not what extra will it cost to build otherwise, but how much more will it cost the public to continue as we have been doing.

If the manufacturers of building materials of insulating and sound deadening value would co-operate in an effort to show the public the needlessness of the present loss of fuel value and the discomfort of the acoustical annoyances of our modern buildings they could make a very effective impression on the mind of even the most conservative of architects. As it is now it would appear as if the salesmen responsible for the presentation of the real facts of the case are not yet convinced themselves of the enormous opportunity confronting them and are frittering away their energies in the most useless kind of competition, viz.: trying to win support for their materials by decrying the merits of their competitors' goods.

That such an attitude is more than harmful can be proved by studying the results that have been obtained by the associated manufacturers of other products. Healthy competition is what the architect and builder want in this as in other fields of material production, but such competition need not involve the use of destructive propaganda or preclude the possibility of constructive co-operation.

The magnitude of the coming change in our ideas of how to build in Canada can perhaps be best illustrated by comparing what has been done in the construction of cold storage plants with the needs of every building in this country that has a heating plant. How many people realize that there is a greater economic need for more insulation in the construction of the walls, roofs, etc., in every heated building, be it small or large residence, skyscraper, factory or public building, than there is in any cold storage warehouse, except in the very small portions of such plants as are used below freezing temperature? A study of the accompanying diagram will prove that even in Toronto, with its mild winters compared with most parts of Canada, the last statement is not a bit exaggerated. That being so, how can we as architects justify the use of 4 to 6 inches and sometimes greater thickness of insulation in the exterior construction of a cold storage building and nothing more than a small furring space on the inside of our buildings to be heated at ever increasing annual cost?

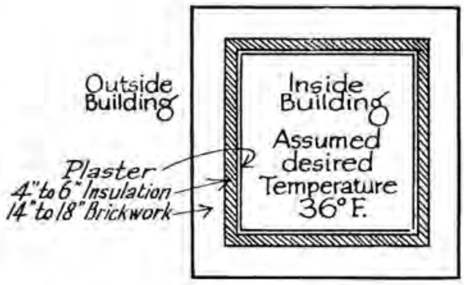
No matter then whether we consider the normal monthly requirements of our heated buildings or the maximum on our coldest days we have either to assume that our ideas of the construction of cold storage buildings are ridiculous or we have a wonderful faith in the efficacy of the so-called dead air space in our furring and roof spaces (if we provide any) that is not justified by the tests to which reference has been made. The only conclusion one can reach when this climatic fact sinks in is that the experience of cold storage plant builders is going to dictate to us as to the amount of insulation we cannot afford to do without in our heated buildings.

Other factors not encountered in the cold storage problem enter into the construction of the heated building that make the demand for proper wall and roof treatment absolutely imperative. I refer to the heat losses that cannot be reduced, viz.—those due to ventilation, glass and door requirements. These we can only modify slightly, so why go on ignoring the possibilities of bringing the solution of our heated building problem at least a little nearer into line with that of the refrigeration engineer?

A step in this direction will have been made when we begin to think of the increase in heat conductivity of our ordinary wall and roof sections when compared with others of greater insulating value that can be built at very little increase in cost. Up

WHY
Does a heated building in Canada need more INSULATION than a cold storage building?

Accepted Practice in Cold Storage Warehouse Construction



Normal temperature at Toronto for 153 days, May to Sept. 61·5° F.

DIFFERENCE between inside and outside for 153 days = 25·5° F.

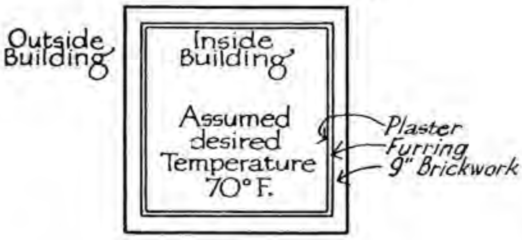
Highest temp. ever recorded at Toronto was on July 3rd, 1911 = 121° F.

This was atmospheric temperature with black bulb in sun. (Not in vacuum)

Maximum difference = 121° - 36° = 85° F.

Common Practice in Average Heated Residence Construction

For Office Buildings, Apartments Public Buildings, Larger Residences etc. the only change is generally to increase thickness of brickwork 4".



Normal Temperature at Toronto for 212 days, Oct. to April = 32° F.

DIFFERENCE between inside and outside for 212 days = 38° F.

Lowest temp. ever recorded at Toronto was on Jan. 13th, 1914 = -22° F.

Maximum difference = -22 to 70° = 92° F.

From the above data it is readily seen that as regards the results to be obtained throughout the heating season as compared with the cooling season and also the maximum performance on the coldest day as compared with the hottest day, the problem of the heated building demands more careful study of insulation requirements than the cold storage problem

How many heated buildings are insulated better than cold storage buildings?

Note · For any other parts of Canada where the temperatures are lower in Winter and no higher in Summer than those given for Toronto the need for insulation in the heated building would be correspondingly greater than for the cold storage building.

DIAGRAM BY

JAMES GOVAN M.R.A.I.C., CONSULTING ARCHITECT, TORONTO

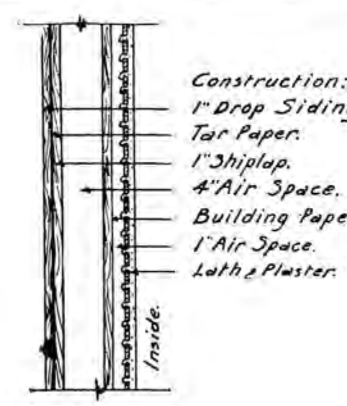
to the present the data on this subject has generally been presented in the form of decreases in heat loss due to the application of insulation to accepted construction practice.

The difference between these two methods of putting the case can be illustrated in pointed fashion from the results of the Saskatchewan tests as described by Prof. Greig.

HOUSE NO. 6.

Construction: 6.1.

Drop siding, tar paper, 7/8" shiplap, 2" x 4" studs at 16 inch centres, 7/8" shiplap, building paper, 1" x 2" wooden strapping at 16" centres, wooden lath and lime plaster. Total thickness 8 inches.



Average value of K=B.T.U. loss per square foot per hour for one degree F of difference between inside and outside temperatures = 0.194.

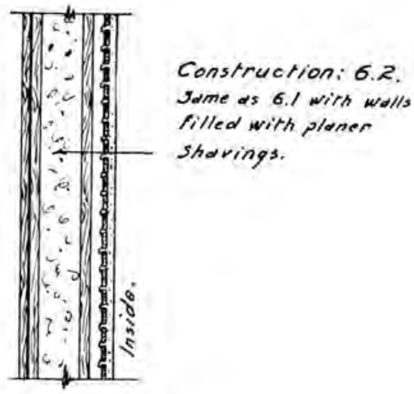
Construction: 6.2.

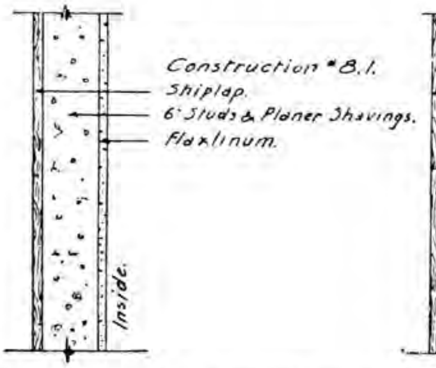
Same as for 6.1 but with spaces between studs filled with planer shavings.

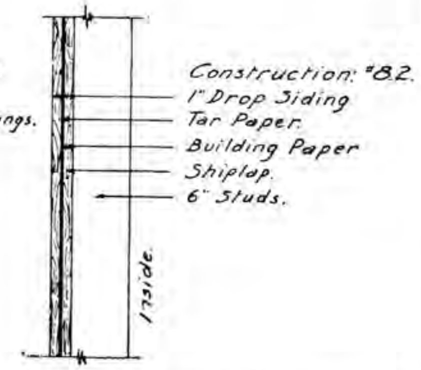
Average value of K=0.1106. Thus the increase in conductivity due to the lack of provision to stop convection currents as compared with wall 6.2 is 0.194—0.1106=0.0834=75.4%.

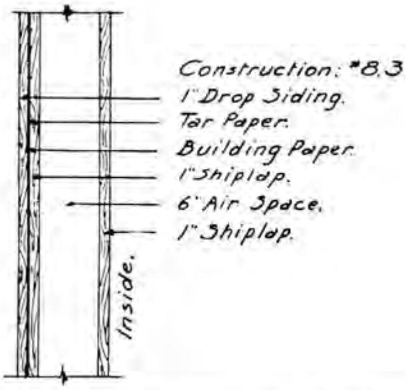
Whereas the saving from .194 to .1106 = 43% as it is put by Prof. Greig in his analysis of the tests.

There is no doubt as to which method of showing the difference would be the most effective with our clients.









Other striking comparisons are as follows, viz.:

Test 8.3. Wall—2" x 6" studs at 16" centres, 1" shiplap, 1 ply building paper, 1 ply tarpaper and drop siding outside 1" shiplap inside, with nothing between studs. K = 0.268.

Test 8.4. Wall—Same as test 8.3 but with shavings in spaces between studs. K = 0.149.

Test 8.5. Same as test 8.4 with the addition of one ply Seal-O-Felt on the inside. K = 0.132.

Test 8.6. Same as test 8.4 with the addition of one ply plaster board on the inside wall directly on the shiplap. K = 0.097.

Therefore if we wish to advise our client to leave the space between the studs empty and omit an inside covering like the plaster board our guidance is directly responsible for the increase of 176.3% in his annual fuel bills to take care of the losses due to such wall construction. Does that make us think more than if someone told us that the saving in heat loss effected by one construction over the other was 63.8%?

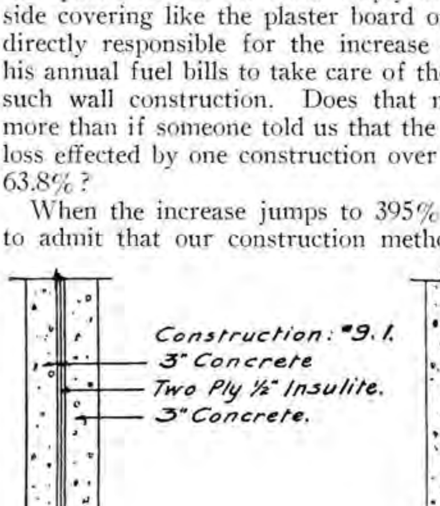
When the increase jumps to 395% are we ready to admit that our construction methods have been like our ways of dealing with many of our natural resources, wasteful to say the least? Yet that result is exactly what Test No. 9 showed.

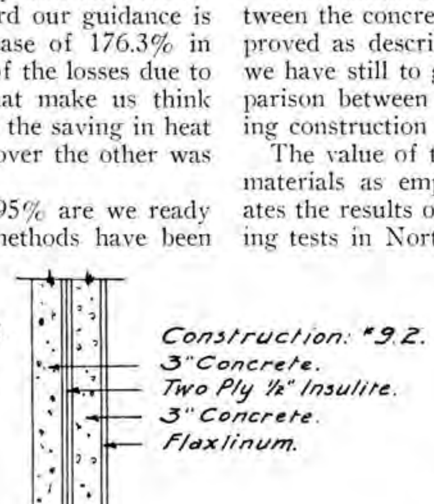
According to Prof. Greig the figure assumed for a 7" concrete wall is approximately 0.782 (see page 74, JOURNAL, March-April). By applying 1 inch Insulite to centre of this wall the value of K was 0.344. The increase of loss from 0.344 to 0.782 = 127%.

By placing another insulating layer on the inside of the wall, viz.: Flaxlinum, the value of K was reduced to 0.158 and the difference between 0.158 and 0.782 = 395% increase in heat loss.

Notwithstanding this astounding difference between the concrete wall alone and the same wall improved as described, please note how much further we have still to go with insulation to meet the comparison between the cold storage and heated building construction as already noted in this paper.

The value of these simple changes in construction materials as emphasized by Prof. Greig corroborates the results obtained in the practical house building tests in Northern Minnesota described by Dean





House No. 1 of the five he tested was built of a framework of 2" x 4" wood studding, sheathed on both sides by ¼" plain gypsum plaster board and one thickness of building paper; stuccoed with cement plaster on wire lath over the paper on the outside and faced with wood fibre plaster upon the plaster board on the inside, the thickness of paper on the inside being next the studs. Pieces of boards 4 inches wide were placed horizontally between the studding at a height of 3½ feet above the floor level in order to shorten the free air columns contained therein.

House No. 2 had a double wall of pressed concrete blocks with an uninterrupted vertical air space from floor to ceiling.

House No. 3 had a double monolith concrete wall, each part 4 inches thick with a 4 inch air space between the parts. The outside of the wall was finished with a ¾" gun stucco coating. This construction is described as the "Van Guilder System."

House No. 4 had a double wall of hollowed out (trough shape) concrete blocks, having a minimum space of about ¾" between the opposing rims arranged to partly retard convection at every course. Convection was completely interrupted at a point one half way of the height of the wall by a layer of tar paper across the joint. The inside face was coated with one and a half inch slag concrete and 3/16 inch coat of wood fibre plaster.

House No. 5 was of the same construction as No. 3, except that the air space was filled with wood shavings.

The results were as follows:

Electric units required to maintain temperature at 70° F.	House No.	1	2	3	4	5
	January, 31 days	1363	1580	1470	1696	1005
	February, 28 days	1098	1297	1226	1152	864

Observe that House No. 4 = 1696 Heat Units.
" No. 5 = 1005 " "

Increase = 691 " "
= 68%

House No. 2 = 1297 Heat Units
" No. 5 = 864 " "

Increase = 433 " "
= 50%

This again emphasizes the value of 4 inches of insulation, which in House No. 5 produced such results that House No. 2 took 50% more heat input in January and House No. 4, 68% more in February.

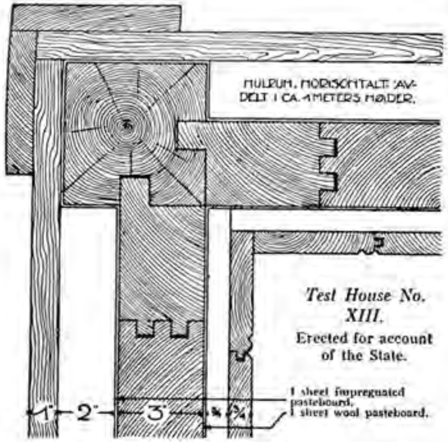
Next in order of fuel economy and "cheapest of all to construct" (quoting Dean Scipio) was House No. 1 which had to depend on the paper-covered plaster boards for its results. If that house had had the spaces between the studs filled with any material that would have totally eliminated convection the results would have been so much better that the comparisons would have been somewhat as we have noted in Prof. Greig's Tests, viz.—8.3 and 8.6.

Many architects still hold to the belief that the ultimate solution of this problem is to be found in arrangements of brickwork laid this way and that way, hollow masonry walls with spaces up and down and spaces across, solid concrete of varied mixtures and concrete blocks with holes of every shape and size, or that the foregoing can be combined with thin furring air spaces or with thin layers of different materials having real insulating value: To any of my readers having such faith and hope I would strongly recommend a close study of the splendid article which appeared in the September, 1924, issue of The American Architect and Architectural Review—"Results of Tests conducted by the Norwegian Government at Trondhjem, Norway, of Heat Transmission Through Dwelling House Walls." There they will find recorded actual outdoor performances of a greater variety of wall sections than have ever been tested anywhere under such practical conditions.

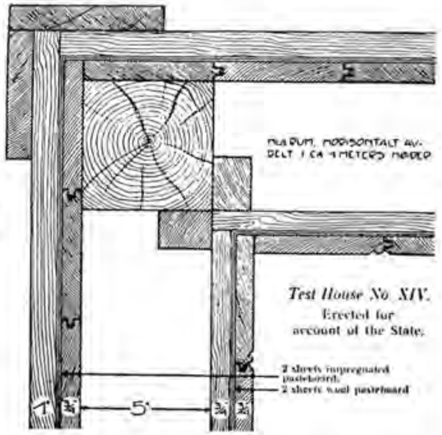
In order to allow readers of Prof. Greig's results to make comparisons of the Norwegian records with his conclusions I take the liberty of copying the table of Test Data from the American Architect as follows:

House Number	Construction	Relative Heat Consumption			Temperature After Cutting off Heat at 20° C.		
		As Shown	With Added Wood Panel	With Added Coat Plaster	5 Hours	10 Hours	15 Hours
I	Brick	188.5		185.5			
II	"	175	124	172	9.2	7.1	5.5
III	"	179			9.2	7.1	5.5
IV	"	159			10.2	8.4	6.9
V	"	164			10.0	7.8	6.1
VI	"	157			9.8	7.5	5.9
VII	"	178			9.6	7.1	5.3
VIII	Cement Block	200	140	194.5	8.0	5.2	3.4
IX	" "	181.5	129	176.2	8.8	6.2	4.5
X	Reinforced Concrete	221			4.6	2.6	1.6
XI	Brick	156			8.2	5.9	4.6
XII	Wood	109			6.5	3.6	2.3
XIII	"	**100**			**8.8**	**6.1**	**4.4**
XIV	"	116.5			7.2	4.4	3.0
XV	"	111			7.2	4.4	3.0
XVI	"	108.5			6.5	3.6	2.3
XVII	"	128			5.5	2.8	1.7
XVIII	"	129			6.3	3.1	1.7
XIX	"	115			5.5	2.8	1.7
XX	"	145			5.5	2.7	1.7
XXI	"	96.5			8.5	5.5	3.9
XXII	"	105			9.2	7.1	5.5
XXIII	"	119.5			7.8	5.6	4.1
XXIV	Hy-Rib	176			8.6	5.2	3.7
XXV	Cement Block	198					
XXVI	Wood	121					
XXVII	"	109					

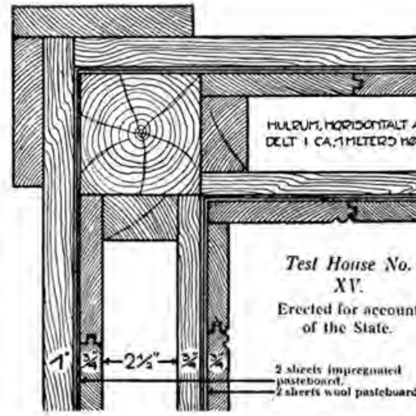
NOTE: The hollow space in the walls of all wood houses with framework, including the Hi-Rib house, is divided horizontally by a stop similar to a fire stop, at each 70-100 cm in height.



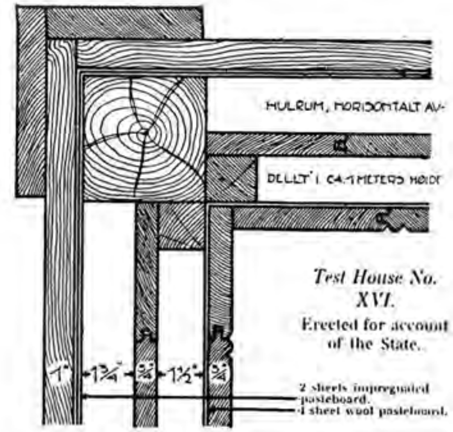
XIII. Walls built in accordance with the Trondhjem regulations for wooden houses with 5" x 5" frame, and standing 3" tongued and grooved planks covered on the outside with impregnated pasteboard and inside with wool pasteboard. Wood panelling on outside and inside with 2 air spaces



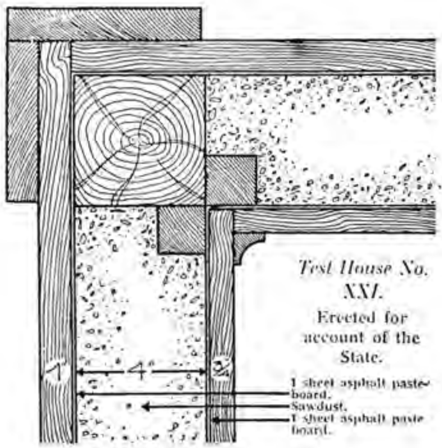
XIV. Wall consists of 5" x 5" frame with 2-ply wood panels, inside and outside; outside wood panel has two sheets of impregnated pasteboard in the center and the inside wood panel also has two sheets of wool pasteboard



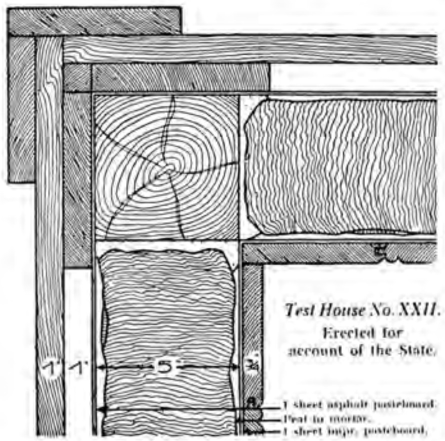
XV. Wall construction the same as house XIV except that the wall consists of 4" x 4" frame with the inner thickness of the wood panels butting against the post, which reduces the air space to 2½" instead of 5"



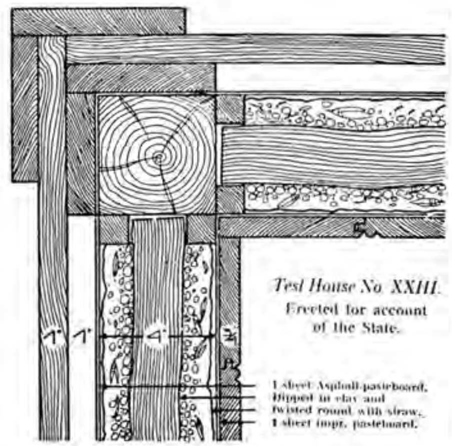
XVI. Wall consists of 4" x 4" frame with three single-ply wood panels —the outer one having two thicknesses of impregnated pasteboard on the inside and the inner panel having one thickness of wool pasteboard on its outer face. This construction gives two air spaces of 1¾" and 1½" in width



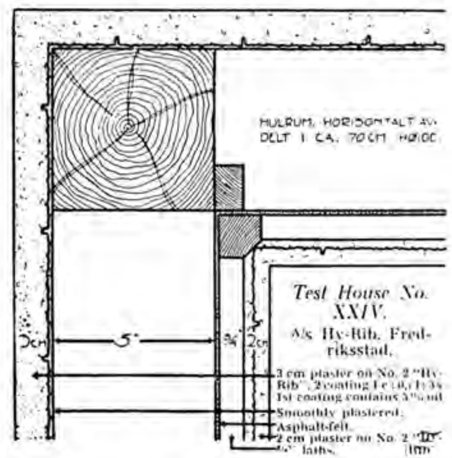
XXI. Walls built of 4" x 4" framework with two single-ply wood panels, each of which is covered with one sheet of asphalt pasteboard. The 4" air space was filled with well packed dry sawdust. This space has been so constructed that it can be re-filled after the settling of the sawdust



XXII. This wall is constructed of 5" x 5" framework with two single-ply exterior and interior wood panels, lined with one sheet of asphalt and one sheet of impregnated pasteboard, respectively. The 5" air space is filled with peat which was walled up from the inside against the exterior panel, after which the inside panel was erected. Cold weather made it necessary to lay the peat in mortar instead of clay, as intended



XXIII. The wall is built of frame, wood panels and pasteboard as shown. The air space is filled with wood strips wrapped with ropes of straw dipped in a preparation of clay, the inside surface being finely plastered with clay, after which the inside wood panel is erected. The filling is divided into one meter high sections



XXIV. Wall consists of 5" x 5" framework with "Hy-Rib" placed in position on outside and inside. The outside plastering contains 5% of mineral oil for waterproofing. On the inside of the frame is placed a sheet of asphalt pasteboard which makes two air spaces between the plastered surfaces. An advantage is in fire resistance and prevention of vermin common to wood panelling in some localities

The construction of House No. 13 used as the standard and several others is so unlike anything in common use in Canada that it is desirable to give a description of each and to reproduce cuts of a few of the more unusual types in order that the values in the table may be properly appraised.

I. Solid 1½ brick wall with outer course of hard-burned brick and inner courses of medium-burned brick. Tested both with thin and thick plaster inside. The inner wall is built of medium-burned brick in order to counteract the greater heat transmitting property of hard-burned brick.

II. Bergens hollow 1½ brick wall erected partly with open joints between the channels or air cells, tested both with thin plaster, panel or wood lining and with fine plaster inside. In Norway all brick houses are lined with wood panelling after they are thinly plastered.

III. Constructed the same as II., except that all joints are filled with mortar, preventing any air connection between the channels. The mortar dropping at the bottom of the channels is removed.

IV. Trondhjems 1¾ brick hollow wall, half brick placed outside and all joints filled with mortar. The walls have thin plaster on the inside.

V. Trondhjems 1¾ brick hollow wall made of English brick with the half brick laid inside. Nos. IV and V are otherwise uniformly built.

VI and VII. English 1½ brick and 1 brick hollow walls, respectively. The outer part of the walls is erected of hard-burned and the inner part of the medium-burned brick. The outer walls are laid up 5 to 6 courses and then plastered and brushed on the inner side to close the pores. The inner walls are laid up to the same height and the walls anchored together with galvanized iron ties. The hollow space in walls was filled with dry-screened coke, hazel nut size and designed No. VIIa. This creates the cell system with still standing air, increasing the insulation of the wall.

VIII. Hollow cement "Leansten" bricks with 3 cells. The outside rough plastered on tarred and sanded surface. This house was first tested with inside thinly plastered wall, thereafter with wood panelling, and finally with fine plaster.

IX. "Rexsten" cement blocks with 3 cells, treated with plaster and wood panelling the same as No. VIII. Considerable difficulty was experienced in attaching the wood panelling to the inside of the cement hollow block walls.

X. Outside wall 10cm thick of reinforced concrete brushed with goudron or tar on the inside. 1½cm thick cement joint against which is laid a course of "molersten", inside finely plastered and outside rough plastered. "Molersten" is a very porous brick made of Diatome pebble mixed with common clay and manufactured in Denmark.

XI. Wall built of hard-burned brick, rough plastered outside and brushed with goudron or tar inside, against which is laid an inside wall of "molersten" brick finely plastered on the inside.

XII. Walls are built of 3 wood panels separated by two 1⅝ hollow spaces. The outer and inner wood panels are covered with impregnated and cellulose pasteboard respectively. The panels were assembled in the factory.

(*For descriptions of Nos. XIII to XVI see page* 187).

XVII. Wall consists of 3" x 3" frame with two wood panels—the outside one being 2-ply with two sheets of impregnated pasteboard in the center, and the inside being single-ply with one sheet of wool pasteboard on its outer face. This construction has a 3" air space.

XVIII. This wall is constructed of 3" framework and 5" corner posts with two 2-ply wood panels. Outside panel has one sheet of impregnated and one sheet of cellulose pasteboard in its center and the inside panel has two sheets of cellulose pasteboard. The air space is 3" wide.

XIX. This wall is constructed of 3" framework with three single-ply wood panels. The outside panel is covered with one sheet of impregnated pasteboard, and the center and inside panels are each covered with one sheet of cellulose pasteboard.

XX. This wall is constructed of 3" framework with 5" x 5" corner post and two single-ply wood panels. The exterior and interior panels are covered with one sheet of impregnated and one sheet of cellulose pasteboard respectively. The exterior is plastered on the outside on "Bacula," (a wooden lathing consisting of thin strips not quite 1cm square which are fastened together with wire.)

(*For descriptions of Nos. XXI to XXIV see page* 187).

XXV. The outer portion of wall is constructed of solid concrete blocks made 1c:4s; the inner wall of 1c:2s:4, cleanly riddled, crushed coke, hazel nut size. Each portion of this wall is 12cm thick.

XXVI. Walls built of so-called "Noah" beams which are made of wood strips limed together with Hetzer's lime. The walls are built similar to log walls with a special connection at the corner as shown. The separate beams were carefully pressed together during construction, resulting in close joints when the house was completed.

XXVII. Wall constructed of two single-ply and one two-ply wood panels which are limed together with Hetzer's lime. Interior and exterior panels covered with wool and impregnated pasteboard, respectively, as shown.

From the Norwegian results the conclusions to be drawn are practically the same as from the experiments carried on by Professors Angus and Arkley at Toronto University from 1912 to 1917. (See Report No. 10, "Fuel Saving Possibilities in House Heating," Published by the Honorary Advisory Council for Scientific and Industrial Research, Ottawa, 1922.)

Worth while economic results can only be got by building with materials of high insulating value or by combining such materials in sufficient thickness with our ordinary forms of construction.

As in all the other tests previously noted the greatest resistance to the flow of heat is obtained by stopping convection currents with insulation of a thickness approximating the practice in our ordinary cold storage work.

Assuming House No. 21 as the standard its nearest competitor in brick—House No. 11 takes 61.6% more fuel in spite of the very special character of the "porous" brick composing one third of its thickness and also the fact that the brick wall is about 13 inches thick as compared with the 6 inches thickness of House No. 21.

This increase in fuel consumption rises to 64.8% in House No. 4 which is of brick 16.7 inches thick; to 95.3% in House No. 1 with its 13" brick and to 129% in House No. 10 with its 6.89 inches of concrete and inside lining of "molerstone" that would increase its resistance beyond ordinary concrete.

On the other hand an examination of the different forms of wood construction shows that we must not expect the impossible from air spaces, layers of impregnated pasteboard, wool board, cellulose pasteboard and other materials of similar thickness. For instance Houses No. 14 and 15 are built with exactly the same materials, viz.: four thicknesses of wood sheeting and four sheets of impregnated and wool pasteboard. No. 14 has an air space 5 inches wide, but the air space width in No. 15 is reduced to 2½ inches. The heat required in No. 14 is 4.96% greater than in No. 15 simply because the air space is narrower in No. 15 and thus does not allow the same movement of air. In either house the fuel consumption is greater than for House No. 21 where this air movement is practically stopped with the insulation filling the whole space.

Objection may be made to the use of shavings to get the very advantageous results shown by the filled air spaces. Properly used, shavings have their place in many cheaper forms of construction, but their disadvantages such as fire-risk, attraction for vermin, difficulty of keeping in place, etc., do not apply to several other insulating materials now available at moderate cost.

It is also noteworthy that such materials generally have greater insulating value than shavings, so that even better comparisons than those shown in the tests quoted in this article are quite possible of attainment.

What excuse, therefore, can an architect give to his client for these extras of 64.8%, 129% or 395% in his annual heating costs for wall construction? difference (which our experience has confirmed) when walls of better insulating value than House No. 21 are compared with the commonly used types!

Can we offer a return of $840.00 yearly from an investment of $1350.00 in many forms of building? Yet these are the exact figures certified by a client for some work done last winter.

Summing up these comparisons and having in mind the demands for insulation for the heated building as already noted in the diagram at the beginning of ,this article, it must be evident that the future trend of construction must be towards walls and roofs which will really meet the needs of our Canadian conditions. Just as we would not attempt to foist on a cold storage plant owner methods which his experience have shown him to be economically unsound, so we are beginning to realize that his experience must guide us in our other work. That being demonstrated without any question what are we going to do? Will we continue to use solid walls of stone, brick and concrete that have practically no insulating value, assisted on the inside with a thin layer of something or the misnamed dead air space; or will we boldly build our walls, roofs, etc., as structural supports and weatherproof outercoverings only and embody enough thickness of insulation to give our clients real protection and assurance that the heat units from the fuel they burn will stay with them long enough to render some service before passing to the outer air?

Construction in this country was not always so unsuited to weather conditions. Early pioneers may not have had the benefit of laboratory experiments with the elusive B.T.U., but anyone who has experienced the warmth of an old log hut with its chinks properly filled in can only blush with shame when he compares it with the so-called "Architecture" of to-day. Of what avail are academic styles and refinements in exterior and interior design if our buildings can only be made comfortable enough to work and live in at an expense for maintenance mounting so rapidly as to be a real deterrent to building progress? In other words can the Canadian architect only learn from the Greek, Italian or Gothic past and nothing from his own forefathers and even from the Esquimaux of to-day?

Builders and owners all over this country are looking for relief from high building costs and ever increasing maintenance charges and in no field should the prospect of improvement more closely affect the architect. The reason for that statement is because it is to the architect that the public look for guidance in such matters but there is a danger that in studying this subject the architect is lagging behind his professional associate the "Engineer" who is thereby winning public approval which the architect in Canada can ill afford to lose.

(To be continued)

Editor's note:—
In Mr. Govan's next article he will deal with the possible effect of new construction methods on Architectural Design in Canada and the alluring prospect of greatly increased use of gas for heating buildings.

The Secretary's Page

(Continued from page 158)

An architectural competition open to architects resident in Australia and to Australian-born architects who may be resident in other countries has been organized by the Federal Capital Commission of the Commonwealth of Australia for designs for the Australian War Memorial at Canberra. Designs must be delivered not later than noon on Wednesday, the 31st March, 1926, and addressed as follows: The Official Secretary to the Commonwealth of Australia, in the United States of America, No. 44 Whitehall Street, New York, U.S.A. Premiums to be awarded will be ten in number and payable as follows: £500, £500, £350, £250, £150 and for the five designs considered to be the next best—£100 each. The Australian Board of Adjudicators will be: Sir Charles Rosenthal, K.C.B., F.R.I.B.A., President of the Federated Council of the Australian Institute of Architects and of the New South Wales Institute of Architects, Professor Leslie Wilkinson, F.R.I.B.A., University of Sydney and J. S. Murdoch, Esq., F.R.V.I.A., Chief Architect of the Commonwealth Government. Copies of the Conditions can be obtained at above address.

The Nineteenth General Meeting of the Royal Architectural Institute of Canada will be held at Montreal, during the third week of February, 1926. The Committee of Arrangements for that meeting is composed of Messrs. John S. Archibald, A. Beaugrand-Champagne, P. E. Nobbs, Eugène Payette, J. Cecil McDougall and Alcide Chaussé.

* * *

The Royal Architectural Institute of Canada would like to have as members the architects of the provinces of New Brunswick, Nova Scotia and Prince Edward Island, and efforts will be made by the Executive Committee to facilitate the formation of an association of architects of the Maritime Provinces, and join this new body with the R.A.I.C. under the terms of article 4 of the R.A.I.C. Charter.

* * *

The Royal Architectural Institute of Canada have asked the Canadian Manufacturers' Association to start a movement for the adoption by the manufacturers of a uniform size for catalogues, circulars, etc. The matter will be considered by the C.M.A., who are interested; the United Typothetae of America is also working on this problem.

Reports on Activities of Provincial Associations

EDITOR'S NOTE

Secretaries of Provincial Associations and Ontario Chapters will pleased be advised that all reports of their activities to be inserted in the next issue of the R.A.I.C. Journal must be mailed to the office of publication, 160 Richmond St. West, Toronto, not later than November 20th, 1925.

Ontario Association of Architects

Secretary

R. B. Wolsey, 96 King Street W., Toronto

AT the Council meeting on Wednesday, September 9th, the following were recommended for Membership in the Association: Raymond H. Collinge, Toronto; W. C. Keighley, Pembroke; A. L. Brockway, Syracuse, N.Y.; Bernal A. Jones, Kitchener; M. D. Klein, Toronto; for Associates, James Burn Helme, Smith's Falls; J. L. Beattie, with Messrs. Stevens & Lee, 62 Charles Street East, Toronto.

Resignations were accepted from W. A. Mahoney, Guelph, as he is retiring from the practice of Architecture; and F. S. Baker, Toronto on account of engaging in other business.

A communication from the National Council Architectural Registration Boards, Chicago, Ill., relative to formulating a method of reciprocal transfer between Canada and the United States was favorably received and co-operation promised.

The Secretary was instructed to write to the R. C. Separate School Board at Windsor the appreciation of the Council in revising its regulations for the competition for the Banwell Avenue School. Gordon Hutton, Hamilton, has been appointed Assessor.

Reports for the year to 31 July last were submitted by the Registrar and Honorary Treasurer. The Annual Meeting for the election of officers will not be held until January so as to synchronize with the meetings of the other Provincial Associations.

The Chief Factory Inspector of Ontario wishes to draw the attention of practising architects to sections 14 and 14a of the Ontario Factory, Shop and Office Building Act, which provide that plans of *all* factory buildings, including alterations to existing buildings, must be submitted, in duplicate, to the Factory Inspector for approval and that the erection of such buildings must not be proceeded with until approval is obtained. This applies also to plans for new buildings (or for alterations to existing buildings) to be used for shops or office buildings, when such buildings are over two storeys in height.

With reference to shops and office buildings less than three storeys in height, it is pointed out that, as these buildings, when occupied, come under the jurisdiction of the Factory Inspection Branch, who may then order any alterations necessary to comply with the provisions of the Act, it is advisable, in the interests of the owner, to secure approval of the plans before erection is commenced.

Copies of the Factory, Shop and Office Building Act can be obtained on application to the Chief Factory Inspector and plans in the preliminary stage can be submitted informally for criticism and advice before the finished drawings are commenced. This course has already been adopted by many architects and its advantages are obvious.

Editorial

(*Continued from page* 157)

As the promoters of a competition should feel bound, not only legally but in point of honor, to retain as their architect the competitor to whom the award is made, it is essential that they should select the competitors with the greatest care and in consultation with their Professional Advisor, including among them only those in whose ability and integrity they have absolute confidence and to any one of whom they are willing to entrust their work.

* * *

FIRE PREVENTION WEEK

The Dominion Government has designated the week commencing October 4th as "Fire Prevention Week" at which time they expect to receive the co-operation of Canadian citizens in doing everything possible to remove all conditions likely to cause or promote the spread of fire. To properly safeguard against loss of life and property by fire is not only a patriotic duty but it is absolutely necessary in order to conserve our resources. We do not care to believe that Canadians are the most careless people in the world, but yet our fire losses each year reach the stupendous sum of fifty million dollars. Statistics prove that eight out of every ten fires that occur in Canada are preventable. Architects can do a great deal towards the prevention of fire loss by making their buildings as near fire-resistive as possible.

Notes

Mr. A. Stuart Allaster of Brockville has opened up an office at 1249 Ouelette Avenue, Windsor, Ont.

A proposal has been made to erect a skyscraper in New York to house all the Consulates of the British Empire.

James Foulis who has been practising at Sault Ste. Marie has removed his office to Bampfield Block, Niagara Falls, Ont.

Messrs. Chapman & Oxley, Architects, have moved their offices to the Northern Ontario Building, Bay and Adelaide Streets, Toronto.

Mr. Grattan D. Thompson, Architect, formerly of 304 University Street, Montreal, announces the removal of his office to 65 McGill College Avenue.

Mr. W. A. Mahoney, Architect, Guelph, Ontario, announces his retirement from architectural practice. Mr. A. Austin will continue to carry on his practice.

Ronald W. Catto, B.A.Sc. and Douglas E. Catto, B.Arch. announce the formation of a partnership to carry on the practice of architecture under the firm name of Catto & Catto, at 200 Bay Street, Toronto.

Mr. W. L. Somerville and Miss Frances Loring, collaborating in the design for the National War Memorial to be erected at Ottawa were one of the successful competitors entered in the final stage of the competition.

Mr. F. S. Baker has resigned from the office of Honorary Secretary of the R.I.B.A. for Canada, which position he has held since 1905. Mr. Baker has also resigned his membership in the Ontario Association of Architects.

The Right Hon. W. L. Mackenzie King and the members of the Cabinet, with J. A. Pearson and Hermann MacNeill, Sculptor, as technical advisors, inspected the portrait statue model of Sir Wilfrid Laurier which is to be erected in front of the East Block on Parliament Hill. The model, which is the work of L. Brunet of Montreal, was approved of.

The Association of Canadian Building and Construction Industries is erecting a building at the Canadian National Exhibition, Toronto, to be known as the Mother's Rest Room. The materials for this building are being donated by members of the Association in the various trades and the labor is being done by apprentices furnished by members of the Association.

The Government of the Commonwealth of Australia announces a competition open to architects resident in Australia and to architects of Australian birth who may be located in other countries for a War Memorial to be erected at Canberra. Conditions regulating the submission of designs for this competition can be secured from Mr. D. M. Dow, Official Secretary, Office of the Commissioner for Australia, 44 Whitehall Street, New York.

At the exercises at the School of Architecture, University of Liverpool, 4 July, 1925, Professor C. H. Reilly announced the foundation of a new degree of Master of Architecture. The award of the degree to the first three recipients was forthwith made by Professor Reilly. Two American architects—Harvey Wiley Corbett and Thomas Hastings, R.I.B.A. Gold Medallist—received the degree coincidentally with Professor Stanley Davenport Adstead of London.

Manufacturers' Publications Received

COPIES of the following Manufacturers' Publications have been received at this office and a brief review is printed herewith. The Journal will continue to print in each issue a review of the more important business literature of manufacturers of building material and equipment received at this office.

FAIRFACTS CO. INC., 234 West 14th St., New York City.

Fairfacts Fixtures Catalogue F, 1925, Architects Edition.

This catalogue is arranged as a unit of the American Institute of Architects filing system. It gives details of installation and illustrates the possibilities of these fixtures for service and artistic effect. Size 8½ x 11.

INDIANA LIMESTONE QUARRYMEN'S ASSN., Bedford, Indiana.

Indiana Limestone. Details and Data Sheets.

This is a series of Details and Data Sheets showing the details of Indiana Limestone Cornices, Columns, etc. These sheets also contain illustrations of different types of buildings on which Indiana Limestone has been used. Size 8½ x 11.

ONTARIO GYPSUM CO. LIMITED, Paris, Ontario.

Insulex.—Architects Book.

This book gives a very interesting description of "Insulex", the new insulating product. It contains details drawn to scale showing application of this Insulating material. Size 8½ x 11.

"Gypsum Plaster Affords Fire Protection"

Six page folder, size 8½ x 11.

This folder gives the results of fire tests made with Gypsum Plaster.

The article has been written by Virgil G. Marani, C.E. and deals exhaustively with the advantages of using Gypsum Plasters.

SARNIA BRIDGE CO. LIMITED, Sarnia.

Massillon Bar Joists. Loading Tests.

This book gives the results of tests of the Massillon Joists made by the Pittsburg Testing Laboratory, University of California, Ohio State University, Department of Public Works, Philadelphia, Toronto University and others. In addition to the Graphic Charts the book contains illustrations of the way the tests were made. Size 8½ x 11.

TOCH BROS. INC., 110 East 42nd Street, New York.

"Shall Anything Be Added to Portland Cement"

8 page folder, size 8½ x 11.

This folder gives the results of experiments made to determine the correct coloring pigments which can be added to Portland Cement without interfering with the setting or with its tensile strength.

"R.I.W. Colored Integral Hardener for Concrete Floors"

4 page folder, size 8½ x 11.

This folder in addition to giving a description of this product also includes a specification covering the application of R.I.W. Colored Integral Hardener. The hardener is made in six different shades and is shown in the folder.

Books Reviewed

BERTRAM GROSVENOR GOODHUE

Architect, and Master of Many Arts, Press of the American Institute of Architects—$30.00

This is a volume of some 263 plates illustrating Mr. Goodhue's great versatility and genius as an architect and draughtsman. Owing to the wide range covered it is quite impossible to write a review in the small space at our disposal. The volume ranges from the small Parish Church at Cohasset, Mass. to the complete Cathedral of Maryland at Baltimore, Md.; from his own house in California to the Castle crowning the rocky knolls of Brewster, N.Y.; from the stately classic mansion at Montecito, Calif. to the monumental State Capitol Building of Nebraska; from the details of Cathedral and Capitol to the two designs for books and book-plates.

The letter press preceding the plates has a biographical sketch by Charles Harris Whitaker, the Editor of the Volume, also an appreciation by Ralph Adams Cram which speaks a deep friendship and generous appreciation of Mr. Goodhue which in itself is very gratifying to read after the many rumors of discord which were frequently heard at the time Dr. Cram and Mr. Goodhue dissolved partnership. Mr. Lee Laurie, the Sculptor who worked most closely with Mr. Goodhue, gives an intimate glimpse of Mr. Goodhue's mastery of detail and his generous spirit in collaboration with artists of the allied arts. C. Howard Walker also contributes a chapter of appreciation, while Hartley Burr Alexander reviews Mr. Goodhue's designs for the Nebraska State Capital, and George Ellery Hale describes the building for the National Academy of Sciences and National Research at Washington, D.C.

SAFEGUARDING LIFE AN D PROPERTY FROM FIRE.

Ontario Fire Prevention League

This volume includes many helpful suggestions for the prevention of fires. It is issued in conjunction with the Ontario Government prior to "Fire Prevention Week" October 4th to October 10th, the dates for which have been set aside by the Canadian Government. The volume gives one an idea of the tremendous fire waste in Ontario caused by 9,973 fires in 1924 with a total loss of $16,312,435.00.

Out of Print

The Journal R. A. I. C. First Quarterly Issue, Jan. to Mch. 1924, featuring The New Parliament Buildings, Ottawa.

The Journal R. A. I. C. University of Toronto Number, Jan.—Feb. 1925.

These issues are "out of print" and as many inquiries for the same have been received the Publishers will be glad to know of any available copies.

The Secretary of Publication
R. A. I. C. Journal
160 Richmond St. W., Toronto.