

The Journal

Royal Architectural Institute of Canada

Serial No. 25

TORONTO, SEPTEMBER, 1927

Vol. IV, No. 9

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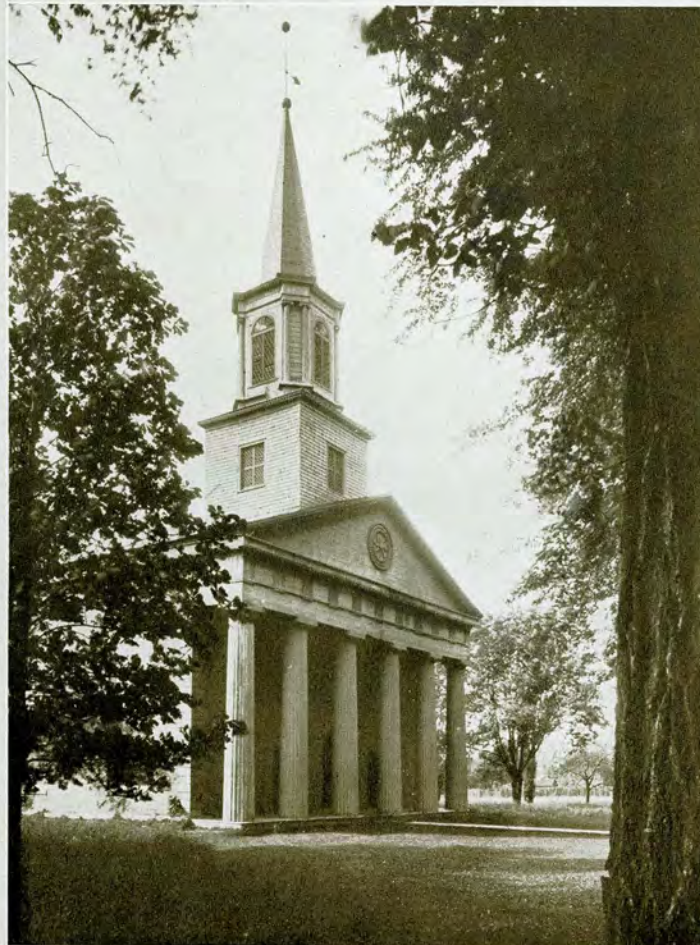
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ST. ANDREW'S PRESBYTERIAN CHURCH
NIAGARA-ON-THE-LAKE
ONTARIO

Photo by K. B. JACKSON

See "The Early Architecture of the Province of Ontario," page 313

The Journal

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EDITORIAL

The Editorial Board and staff of the Journal do not take the responsibility for any opinions expressed in signed articles.

THE Frontispiece in this issue is a reproduction from a photograph of St. Andrew's Presbyterian Church at Niagara-on-the-Lake. It is published in conjunction with Professor E. R. Arthur's series of articles on the Early Architecture of the Province of Ontario. This church, although nearly one hundred years old, is in a wonderful state of preservation, and the measured drawings of it made by the Department of Architecture at the University of Toronto, which are published in this issue, will be of special interest to those architects who have had an opportunity of seeing this fine old church.

TYPICAL SCHOOLS OF THE PROVINCE OF QUEBEC.

Mr. E. B. Palmer's contribution to the series of articles which we are publishing on the Typical Schools in Canada, illustrates the manner in which the school problem is dealt with in the Province of Quebec. A rather interesting situation exists in connection with public education in that Province which necessitates two entirely different types of schools. The plan followed by the Protestant School Commission is not very different from that in Ontario. The Catholic School Board, however, has certain specific requirements which confines the French Canadian architect to an entirely different plan from those of their English confreres. We expect to follow this article with one on the Western Canadian Schools by J. N. Semmens of Winnipeg, and our readers will be able to make an interesting comparison between the types of schools erected in different parts of the Dominion.

PLATE ILLUSTRATIONS

We are pleased to present to our readers the first two of a series of photographic studies made by Mr. F. Bruce Brown, M. Arch., while in Europe three years ago. Mr. Brown is a graduate of the Department of Architecture, University of Toronto, and received the Ontario Government Scholarship in 1923-24 enabling him to continue his studies in Europe. He spent fifteen months in Italy, France and England, and attended the summer session at Fontenbleau. It is our intention to present a series of these photographs in each issue of the Journal. We feel sure that they will be of great interest to our readers.

The other two plates in this issue illustrate two of the finest memorial buildings erected in Great Britain during recent years, one of which is the Scottish National War Memorial, Edinburgh, by Sir Robert Lorimer, and the other is the Charterhouse School War Memorial by Sir Giles Gilbert Scott.

BUILDING COSTS IN ENGLAND AND THE UNITED STATES

Mr. Harvey Wiley Corbett in a paper read before the Royal Institute of British Architects last February, made some very striking comparisons between the construction methods employed in the United States and England. He made one rather interesting statement that might arouse the curiosity of our readers. He pointed out that although labor in New York is paid at least four to five times as much per hour as in London, yet the actual cost per foot cube of finished building was actually no more in New York than in London. Mr. Corbett in making the statement referred to commercial buildings. He showed by analysis where the differences of cost came in. The four factors of actual cost, Mr. Corbett said, were:

1. Architects' and engineers' services.
2. Contractor's organization costs.
3. Material.
4. Labour to put the material in place.

The Architects' and Engineers' services were to all intents and purposes the same in both New York and London, namely 6% of the cost of the building. The second item, Contractors' Organization Costs were quite similar, he stated, although in the United States there were large contracting organizations with greater overhead expenses. Under the third item, Materials, Mr. Corbett proved that the unit of price cost is greater in New York than in London. The troublesome factor, however, was the fourth item, namely Labour. "One of two things must happen," he said; "either you put in a great deal more material to produce a given foot cube, or our labour puts in a great deal more material per working hour; either you build more substantially than necessary, or we erect buildings that are flimsy and insecure; either your organization does not provide the facilities for your labour to work efficiently, or our organization gives the workman every chance to work at maximum speed." Mr. Corbett admitted that the practice in London was to build more substantially which in itself would explain part of the discrepancy. Another thing he pointed out was that in London spread footings were required in the foundation on account of the subsoil being earth and clay, whereas in New York it was mostly rock. Another important factor was the limited number of stories built in London on foundations that are strong enough for many more, this would possibly account for the greatest discrepancy, as the big saving in building costs in the United States has resulted from the great size of the building operations. Probably

Editorial—Continued

the most outstanding difference in construction costs is due to organization. It is well recognized that the Contractors in Canada and the United States are much better equipped and organized than the British contractor, and although building labour in the United States is in some cases as much as five times what it is in England, yet they are able to erect their buildings in New York at approximately the same cost per cubic foot as in London.

WHAT IS ARCHITECTURE?

An interesting sidelight in connection with the British Architects' Registration Bill now being considered by the Select Committee, is the definition of the words "Architect" and "Architecture." Many prominent Engineers, Surveyors and even Architects in giving evidence before the Committee have expressed diversified opinions as to its proper meaning. For example: Sir Charles Allon, formerly a practicing architect and now a decorative designer, gave the following statement: "Architecture is the science and art of building. The æsthetic side is an extremely rare gift of nature and cannot be insured by study or examination. Its scope is to erect stable, comfortable, convenient and healthy buildings and to design them with such beauty that they may be of lasting pleasure to generations who see and use them." Professor Beresford Pite,

F.R.I.B.A., in the course of his evidence, stated, "that all the vital styles of architecture originated in the building crafts and their traditions. Architecture as a learned profession only dated from the renaissance of classical studies, and from that time onward the building crafts lost their artistic vitality." Mr. A. F. Sockett of the Faculty of Architects and Surveyors gave a rather obscure definition of an architect. He described him as a builder who desires to be universal in his work. Mr. W. Forbes Campbell, President of the Association of Architects and Surveyors defined an architect as a man responsible for the design and construction of a building. Mr. Tasker, a member of the Select Committee, in leading a witness suggested that an architect was a skilled professor in the art of building, whose business is to prepare plans which simplify the erection of a building. Webster's Dictionary defines an architect as one versed in the art of building and the various styles of architecture, one who plans and designs buildings and superintends their construction. It would be interesting to ask a number of laymen for a correct definition of the word "Architect." The variety of the replies would be astounding. For our own part we prefer to define an architect as one who can design a building combining the three essentials, stability, utility and beauty.

The Secretary's Page

ALCIDE CHAUSSE

Honorary Secretary, Royal Architectural Institute of Canada

IN connection with the proposed Conference with the architects in the Maritime Provinces, to be held in Moncton the latter part of September, the following letter has been sent to the practising architects in New Brunswick, Nova Scotia and Prince Edward Island:

18th August, 1927.

TO THE ARCHITECTS OF THE MARITIME PROVINCES

At a meeting of the Executive Committee of the Council of the Royal Architectural Institute of Canada, held at Toronto, Ont., on the 16th July, 1927, the following resolution was unanimously adopted:

"The Honorary Secretary reported that he had communicated with the architects now practising in the provinces of New Brunswick, Nova Scotia and Prince Edward Island, with a view to the formation of an association of architects in these provinces. He advised the Executive Committee that he had received replies from the majority of these architects favouring the project, and being in favour of holding a conference at some central point in the Maritime Provinces. It was unanimously resolved:

"That the President, the Honorary Secretary and an Honorary Committee of the Royal Architectural Institute of Canada be authorized to take the necessary steps to ensure the success of such organization; that the conference be held in

Moncton, New Brunswick, some time during the month of September 1927; that they be authorized to be present at such conference; and that the Honorary Secretary communicate with all the practising architects in the Maritime Provinces informing them of this decision."

This conference will probably be held in Moncton on the 26th and 27th September, 1927. A local committee of arrangements will see that those present will have an agreeable time while in Moncton. Several officers of the R. A. I. C. will be present, and it is expected that the conference will be most successful. Arrangements are being made to secure reduced rates for railway transportation.

A notice giving all the details will be sent to all architects in the Maritime Provinces, about two weeks before the date of the conference.

ALCIDE CHAUSSE,

Honorary Secretary.

* * *

It is expected that in addition to some of the Officers of the Institute being present on this occasion, that there will also be a number of Members of the R. A. I. C. The Honorary Secretary will be glad to learn of those who may find it possible to avail themselves of the opportunity of being present at this Conference, so that arrangements can be made for transportation.

The Early Architecture of the Province of Ontario

By Professor F. R. ARTHUR, M.A., A.R.I.B.A., Department of Architecture, University of Toronto.

II.—ST. ANDREW'S PRESBYTERIAN CHURCH, NIAGARA-ON-THE-LAKE.

(See Frontispiece page 310)

AMONG the many buildings destroyed in 1813 by the Americans was the first Presbyterian Church, which was built in 1794. Our debt to the Americans for the burning of the town is inestim-

able. But for the Great Fire of London we should not have had St. Paul's Cathedral and hundreds of other noble buildings, and but for the burning of Niagara-on-the-Lake we should not have had the second Presbyterian Church and a score of the finest houses in the Province. We lost at that time much that was crude and primitive, but we gained a number of houses of the greatest architectural interest.

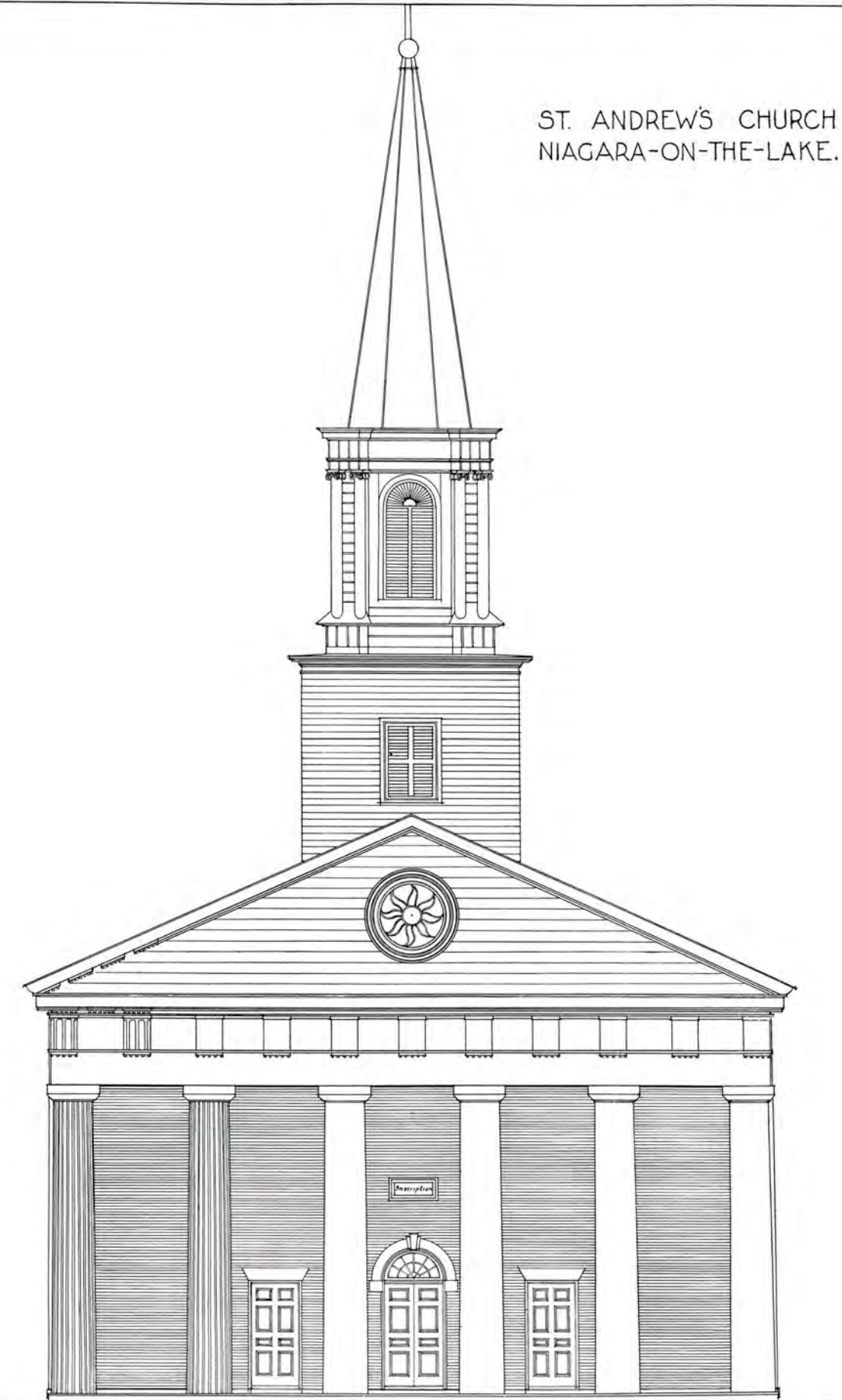
The second Presbyterian Church was not built till

1831, about which time there appears to have been a period of considerable building activity. The foundation stone was laid in that year by Sir John Colborne. The church is one of the architectural gems of Niagara, and would warrant in itself the sacrifice of a dozen churches. One can see many of its good points from the drawings and photographs, but its colour can be appreciated only by a visit to the church itself. The bricks are small and of a warm salmon and bright red which harmonizes admirably with the buff stone quoins and the weathered grey of the timber. The columns and entablature are in an excellent state of preservation and are of wood.



INTERIOR OF ST. ANDREW'S PRESBYTERIAN CHURCH, NIAGARA-ON-THE-LAKE
SHOWING THE PULPIT.

ST. ANDREW'S CHURCH
NIAGARA-ON-THE-LAKE.



Front Elevation.

Scale
0 5 10 20 Feet.



NORTH ELEVATION, ST. ANDREW'S PRESBYTERIAN CHURCH, NIAGARA-ON-THE-LAKE

It is to the credit of the Presbyterians of Niagara that they have allowed their church to pass through all the architectural absurdities of the last hundred years without a blemish.

The plan of the church is simple and effective. It comes as a surprise to one to find that the two smaller doors in the portico provide for the congregation while the great central door opens into the

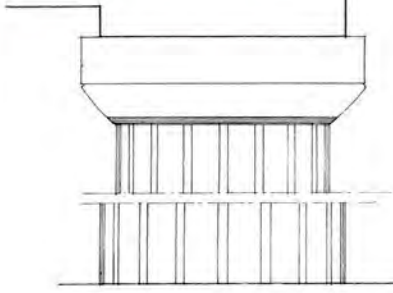
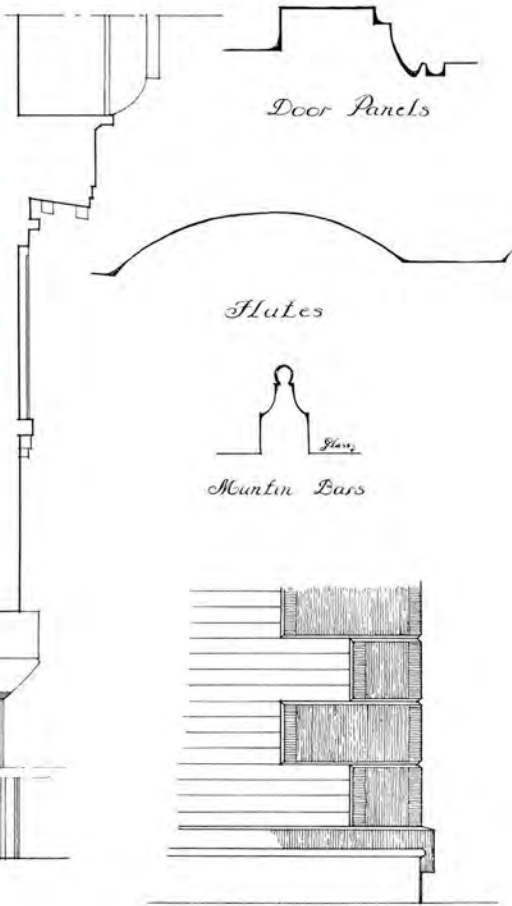


PORTICO, ST. ANDREW'S PRESBYTERIAN CHURCH, NIAGARA-ON-THE-LAKE

Scale for Doorway Quoins and Portico:-



Scale for Other Details:-



Portico

Quoins

Elevation

Main Doorway

Section

ST ANDREW'S CHURCH
NIAGARA-ON-THE-LAKE
Details

WINDS FURNISH FROM 81 WEST 1924

small vestry of the minister. From this vestry a steep stair leads through a door to the floor of the pulpit. At this height one looks from the gallery to the quaint box pews of different sizes, ranging from the Governor's pew to that of the humblest family, and it is strikingly brought home to one how very simple are the elements which produce great architecture. It is something of an achievement to clothe a small country church with the dignity of a cathedral, but it has been done in Niagara by the builders of St. Andrew's.

The Manse, a one-storey little house across the street from the church, is similar in general charac-

ter, but its good bricks and stone quoins have been covered by whitewash, and a modern porch has been placed in the front of the old elliptical doorway. The interior is much as it was originally, and it has two fine mantels, while the treatment of archway and windows is well worthy of study.

The photographs and drawings require no explanation, but in the view of the pulpit it should be noted that the organ is a comparatively recent addition, completely concealing the fine base of the pulpit which is of a bell shape. The church measures 56 feet by 80 feet 6 inches, the latter dimension including the portico.

The Reign of the Masonry Dome

By ELBERT PEETS.

IF you wish to measure the revolution that steel, the elevator, and desk-worship have caused among architectural values, nothing will help you so much as to know what the full meaning of the dome was to Michelangelo and his time. For the dome reigned over architecture during the generations that built St. Peter's—became, indeed, the centre of a school of architectural effort striving to realize an ideal that was more clearly seen, one must think, than any other that has given energy to art. That ideal was the perfect dome-centred building.

We now can quite easily reproduce the shapes of domes by bending a few steel beams or by cementing together a few layers of hard thin tiles. But we have lost the desire to know the dome as a perilous heroic adventure in building. Engineering has so far outdistanced daily experience that it has become a sort of magic that will protect us and serve us, though we cannot understand it. We enter the Woolworth building without any sense of fear. But in the living days of stone-arch building, a kind of fear was part of the beauty of architecture. Burke was right, joining awe and sublimity. The people of Rome who walked under the dome of St. Peter's in 1590 did not lightly accept the ceiling above them as a pretty surface held up there by some clever mechanical trick. They and their fathers and great-grandfathers had seen the ox-teams pulling creaking carloads of great stones up through the Borgo, and they repeated stories of the oak forests cut for scaffolding. The oriental proverb that arch and dome never sleep was more to them than a pretty saying. The cultivated among them, at least, felt that enormous mass of stone as a membered whole alive with symmetrical thrusts, frictions, compressions, and coherences.

And it was this sublime monster, the masonry dome, that Bramante, Leonardo, Michelangelo, and Vignola dreamed of raising to a kingship over architecture more absolute than it had ever had in Rome or in Byzantium. Their ideal was a building whereof every stone should serve the dome that crowned it. They wanted to embody in a building—in a whole city if you would let them—the complete unfolding of the mechanical and formal significance of the dome principle. They saw in the old long-naved basilicas and Gothic churches merely a practical housing for congregations; each bay of them was a unit, but there was no inevitable structural law that fixed the number of bays. Identical bays, too, performed different functions, and identical functions were performed by dissimilar members—these being the very errors most hated by architectural logic. Brunelleschi's fine dome at Florence has for supports three compact apses and an arch of the wide high nave. Clearly, the mass of the dome bears down equally on all four sides; would it not then, if freed from arbitrary human interference, create for itself exactly equal supports, identical in form because equal in strength? The supporting members, to be sure, might be grouped and modeled so that they could do their work better or in order to honor the dome, both inside and out, with a series of contrapuntal echoes interpreting or completing its form. But every section taken through the vertical axis of the dome must be symmetrical.

Gothic architecture is constantly spoken of as spiritual and the taste of the Renaissance is called sensual. That is in part because the barbaric splendor of the Gothic has worn or been torn away and in further part because modern eyes see the color

of Renaissance interiors but not their structural and formal unity. The Gothic is rich in the vertical lines which by a crude symbolism we call spiritual. But the popes and architects of the Renaissance, masters of geometry and formal logic, made for their spirituality a symbol in harmony with their intelligence, planning churches that would draw the whole earth up to a single point, huge complexes mastered by a single law. They must have smiled at the Gothic builders who laid their churches upon a line drawn from the cross in the market square to the Holy Sepulchre in Jerusalem and, it is said, sometimes bent their main axis to symbolize the bent body of the crucified Christ. Bramante and Michelangelo built St. Peter's on a line running from the centre of the earth to the zenith of the heavens. They sought to symbolize, by incarnating it, the absolute truth of the syllogism that was the core of their art: "If the functions are the same, then the forms are the same."

The unity that I am ascribing to the dome-centred building was not a requirement of clerical mysticism—its great enemy and final victor, in fact, was the Latin cross and the traditional processions of the Cult. The architects of the sixteenth century strove for the perfect solution of the dome composition because that was the great professional problem that history and the thought of the time assigned to them, just as the most vital work of our architects is being put into the solution of the tower office-building. It was the good fortune of the sixteenth century that artist and engineer were still one man and that, further, the technical and aesthetic command over the sole material, stone, was so complete that only ultimate problems remained for solution. Such a problem was St. Peter's—the attainment of structural-formal perfection in a domed building so large that human beings, even in great crowds, could not sense the actual size of a larger one.

Michelangelo was the most skilful worker in stone of his time. So he built St. Peter's. He built it as a demonstration of absolute logic and unfettered skill in stone building. When he walked, in imagina-

tion, through his design, as an architect loves to, he felt the separate existence of every member, felt the relation of each member to all the rest, the economy and sufficiency of its form, its part in the work, what forces bore upon it, how they were met. He read the whole building, solid and surface and void, as we read a lyric, with, instead of the approximate likeness of rhyme and meter, the abounding floods of symmetry in his church, and instead of the poem's charming play of ideas, some thousands of tons of stone, hanging, in an intricate equilibrium, over his head. But how can you set down precisely the meaning to the human mind and body of participation in the phenomenon of an ideally organized mass supported equally by four ideally suitable and ideally placed supports? That might be the formula for a saw-horse—to Michelangelo it meant a universe in which accident had no part, a tangible rendering of man's greatest aesthetic creation, the concept *law*. For law in the abstract he substituted the laws his hand and eye could know: gravitation, the coherence of stone, geometry. Set in play, these laws produced a vast masonry dome crowning a building devoted wholly to the dome's physical support and formal amplification. And so was fulfilled the desire of the Renaissance for absolute law in the disposition of space-inclosing stone—for absolute dignity, mastery, amplitude, elegance, and reason in the shaping of stone-surfaced space.

These skyscrapers we see springing up around us are sometimes lovely and in groups they often have a rugged alpine picturesqueness. But they know as little of Michelangelo as a vaudeville theatre knows of Sophocles. His titanic logic is forgotten, the materials and forms he struggled with have become ridiculous toys. Well, our task is to form ideals for steel and to realize them. Perhaps it is in self-defense that we prefer not to think of other labors. But whoever wishes to know the heights of the human mind must try to know Michelangelo's vision, a huge dome-centred building, as simple and as clearly formed by law as a sunflower or a snow-flake.—*Reprinted from "The Nation."*

Death of Famous British Artist

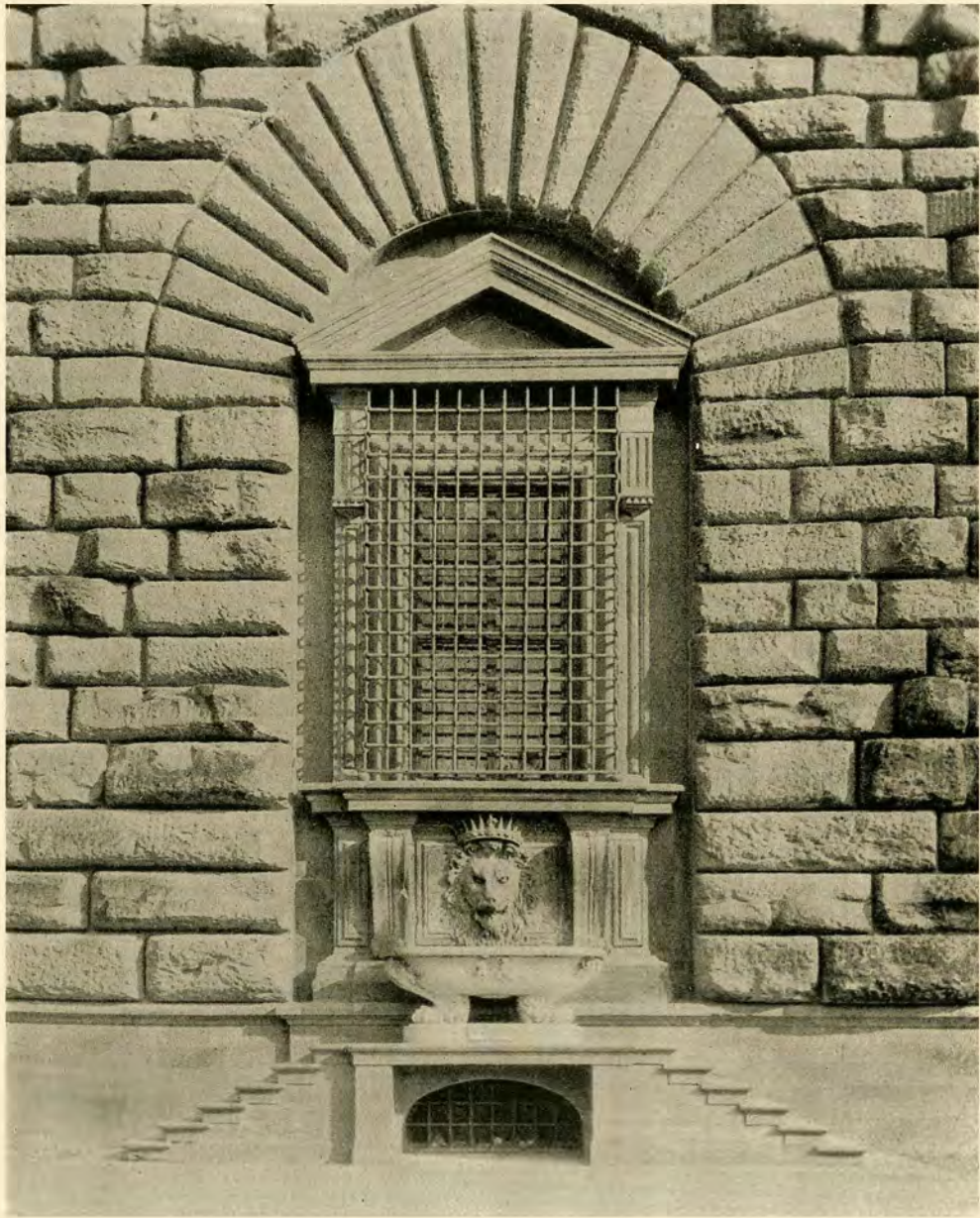
Solomon J. Solomon, Member of the Royal Academy, and former President of the Royal Society of British Artists, has just passed away in London, England, at the age of sixty-six. Mr. Solomon initiated the use of camouflage in the British Army during the War, during which he served as Lieutenant-Colonel in the Royal Engineers.

Among the most noted of his paintings are "Cassandra," "Samson," "Niobe," "The Judgment of Paris" and the Decorations of the Royal Exchange

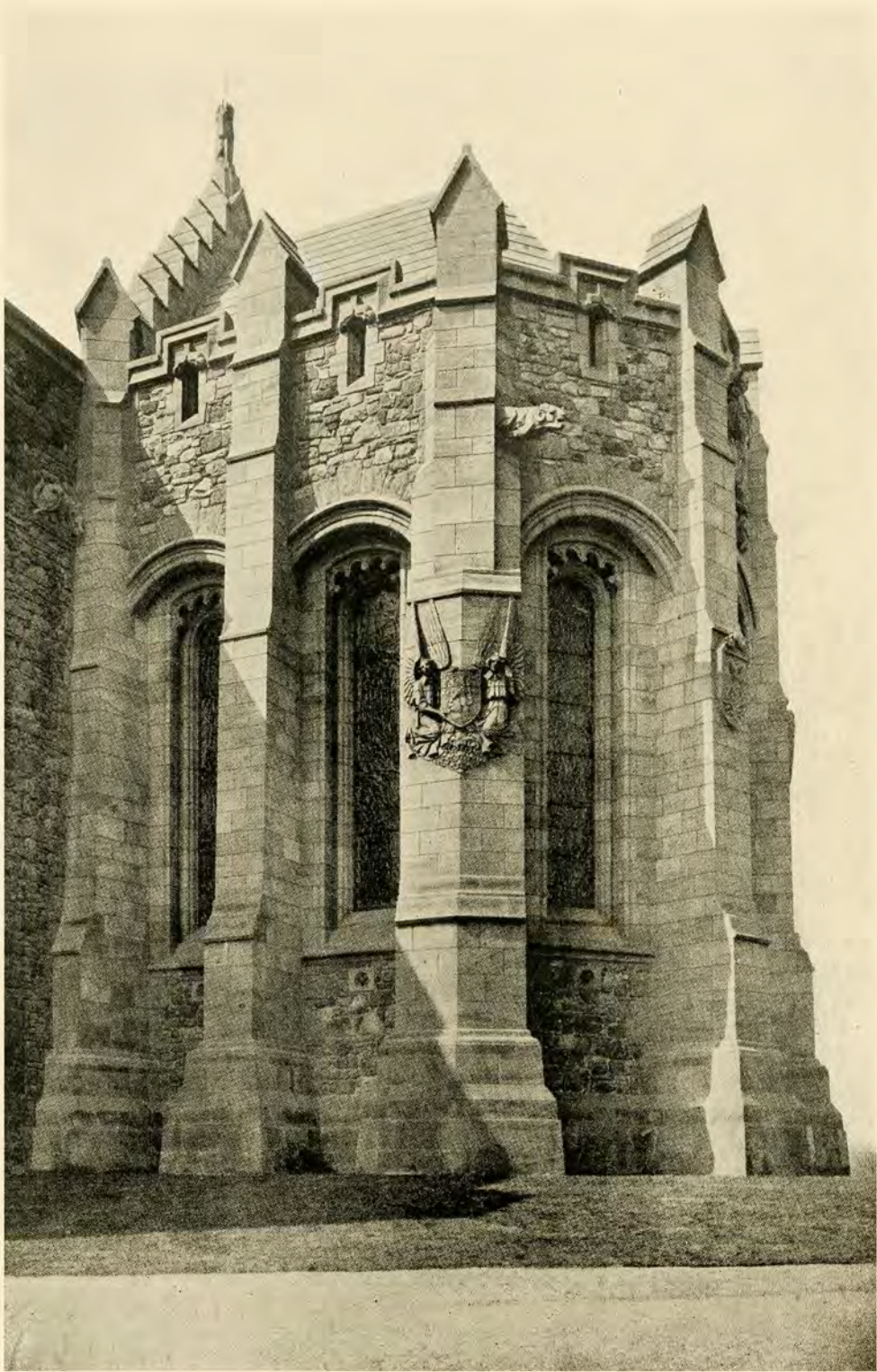
and House of Parliament. He spent eleven years painting the Coronation Luncheon at the Guildhall. Mr. Solomon undertook this work after the death of John Bacon who had originally been commissioned to do it. Bacon had not yet had sittings for the immense canvas, and had merely lined in the figures. The outbreak of the War made it especially difficult to find time for the sittings of the important persons portrayed in the work, and it was this that took so much time. Solomon estimated that the actual time spent on the Canvas was 18 months.



PORTICO OF ROTUNDA BY PALADIO, *now known as the VILLA ZANINI, NEAR VICENZA*
From a Photograph by F. Bruce Brown, M.Arch.



WINDOW AND FOUNTAIN (DETAIL) BRUNELLESCHI, PALAZZO PITTI, FIRENZE
From a Photograph by F. Bruce Brown, M.Arch.



THE SHRINE, SCOTTISH NATIONAL WAR MEMORIAL, EDINBURGH
Sir Robert Lorimer, Architect



CHARTERHOUSE SCHOOL WAR MEMORIAL, SURREY, ENGLAND
Sir Giles Gilbert Scott, Architect



ROSEMOUNT SCHOOL, MONTREAL, P.Q.
Nobbs & Hyde, Architects for Central Portion *David R. Brown, Architect for Wings*

H. Ross Wiggs, del.

Typical Schools of the Province of Quebec

By E. B. PALMER

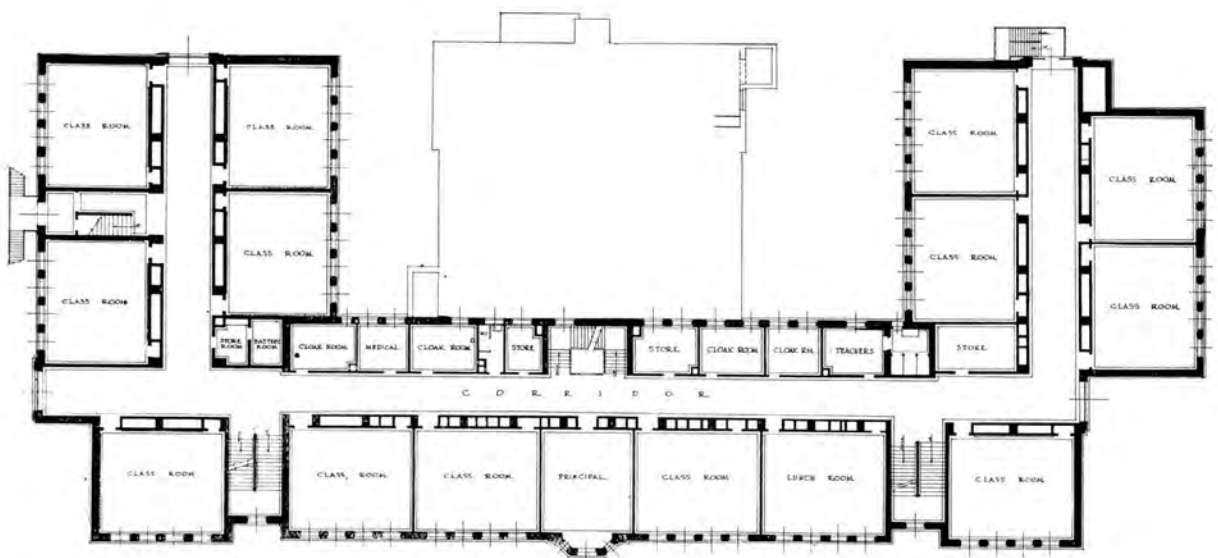
Late Inspector of Buildings for the Protestant Board of School Commissioners of the City of Montreal.

THE development of School Buildings in the Province of Quebec has been very rapid in the last fifteen years along lines of fire resistance, greater economy of operation, improved sanitation, reduced cost of construction, etc.

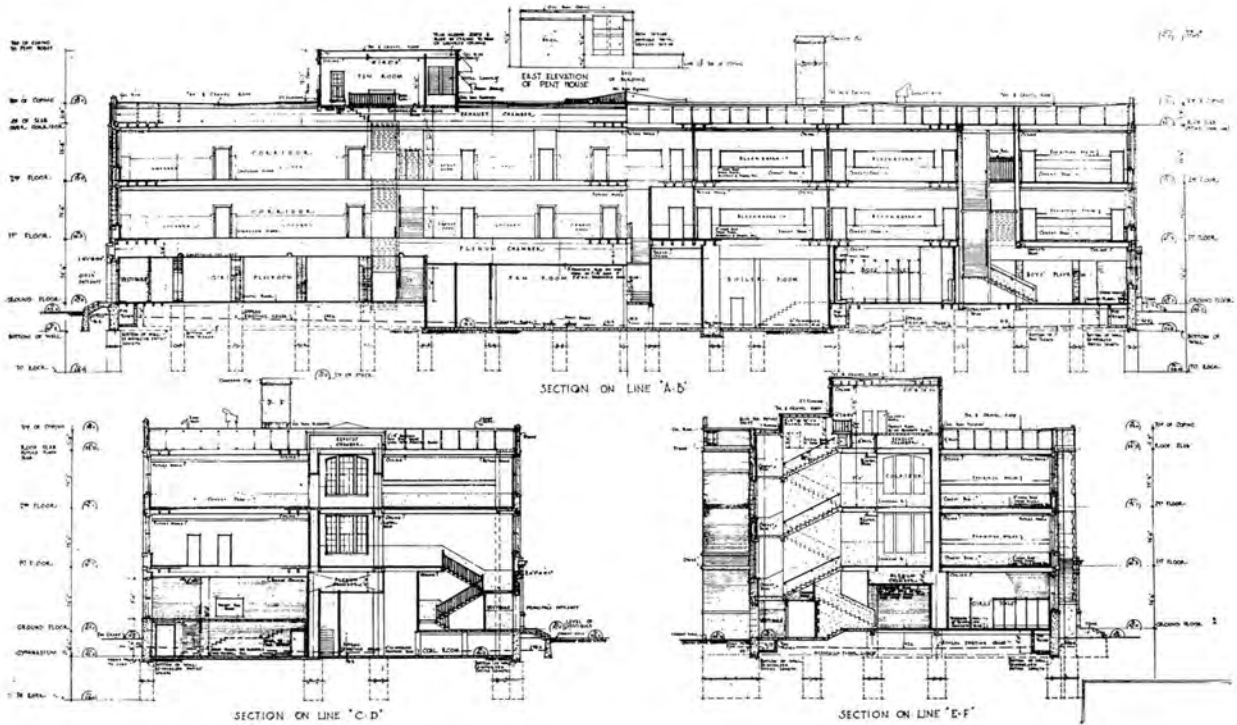
One of the most important reasons for this progress has been the insistent demand for fireproof buildings, brought vividly to the eyes of the public and school officials by the burning of the Hochelaga School in 1907 with great loss of life.

Previous to the year 1911, the Schools erected were not constructed in a fireproof manner. The use of wood joist for floors, wooden staircases, wood lath and plaster on stud partitions and wood trim around doors and windows, all combined to increase the fire hazard.

The method of heating and ventilating in these earlier schools was of such a nature that the greater part of basements were occupied by furnaces and coal bins, no mechanical ventilation having been pro-



FIRST FLOOR PLAN—ROSEMOUNT SCHOOL, MONTREAL, P.Q.



CONNAUGHT SCHOOL, MONTREAL, P.Q.
John S. Archibald, Architect

late A. F. Dunlop, Architect, and contained a combined Playroom and Gymnasium in the Basement, 16 to 28 Classrooms on each side of central Corridors with Sloyd and Cookery Rooms in the William Dawson School only.

Ventilating fans of large diameter and driven by a steam engine, which could only be operated when

the boilers were in use during the winter, were provided. These have now been changed to electric motors and smaller fans.

Construction was of a fireproof nature, with terra cotta partitions, slate treads on iron staircases, encased steel beams carried on walls and piers, with concrete floor slab, wood floors, trim, etc.



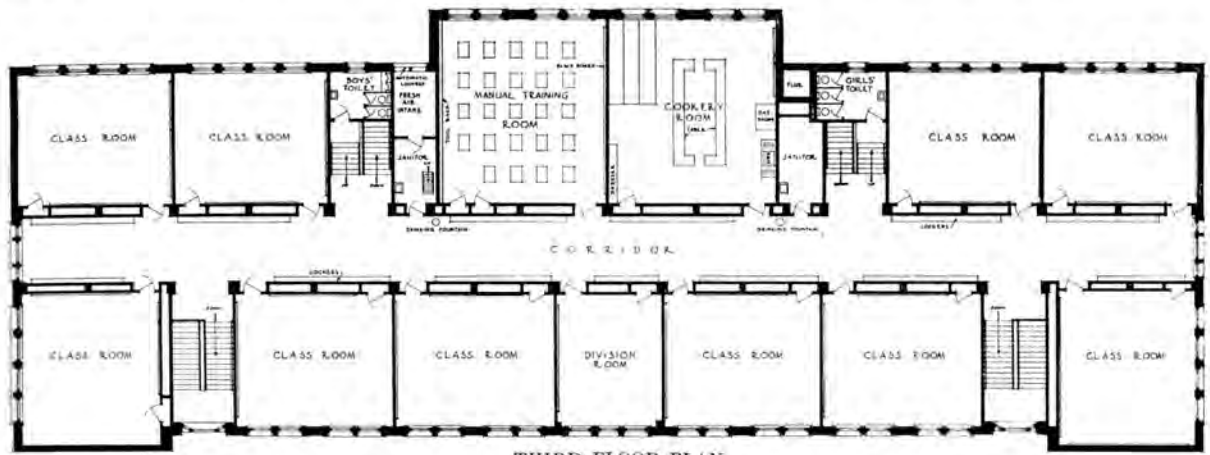
CONNAUGHT SCHOOL, MONTREAL, P.Q.
John S. Archibald, Architect



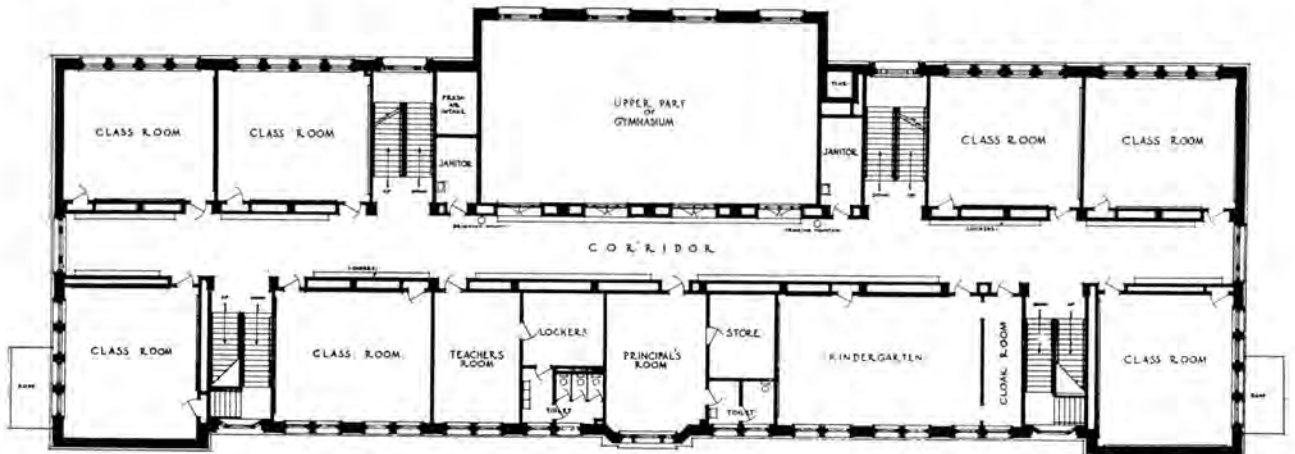
SOUART SCHOOL, PAPINEAU AVENUE, MONTREAL, P.Q.
J. O. Marchand, Architect



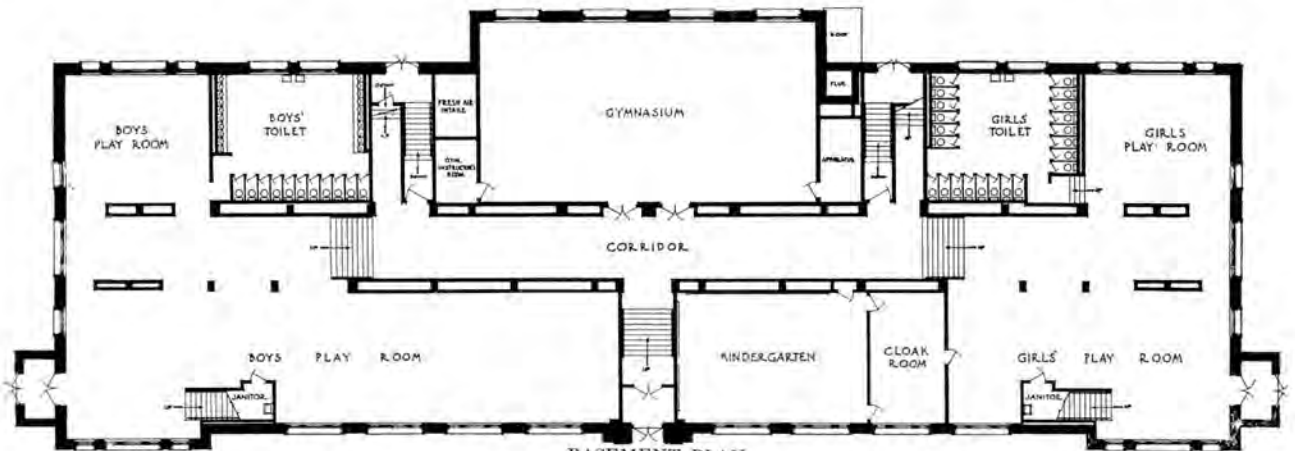
ST. AMBROISE SCHOOL, DE NORMANDVILLE STREET, MONTREAL, P.Q.
J. O. Marchand, Architect



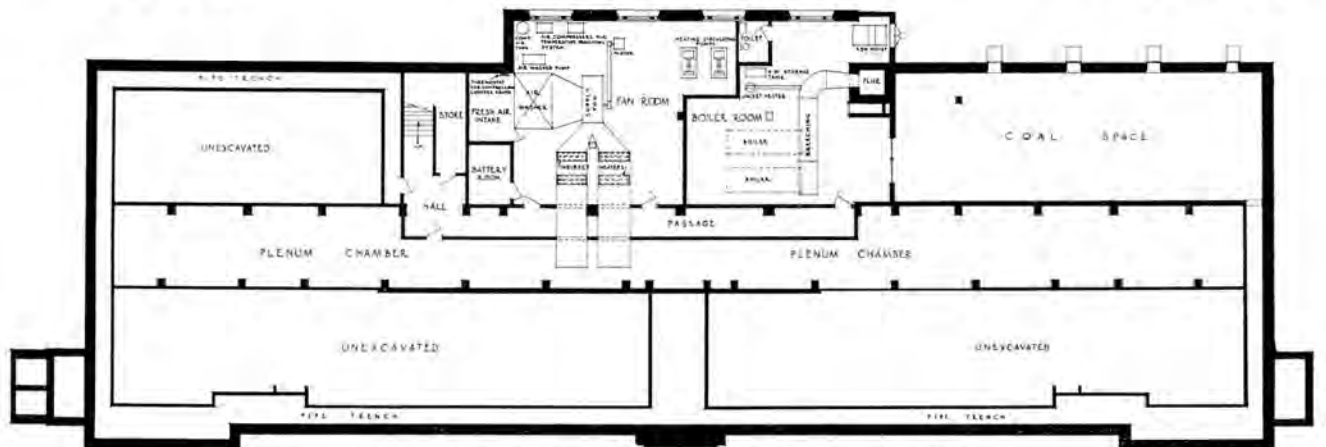
THIRD FLOOR PLAN



FIRST FLOOR PLAN



BASEMENT PLAN

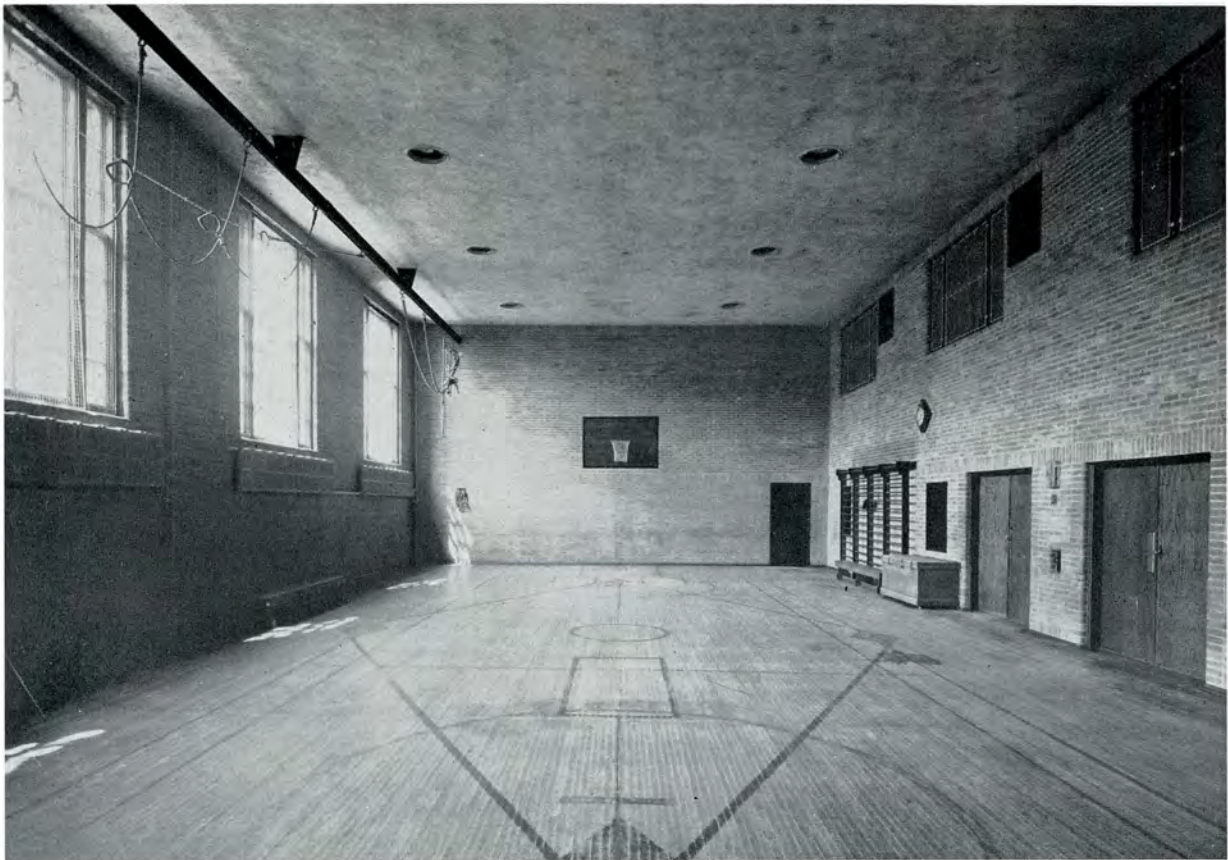


SUB-BASEMENT PLAN—MAISONNEUVE SCHOOL, MONTREAL

Ross & MacDonald, Architects



MAISONNEUVE SCHOOL, MONTREAL, P.Q.
Ross & MacDonald, Architects



GYMNASIUM—MAISONNEUVE SCHOOL, MONTREAL, P.Q.
Ross & MacDonald, Architects

Following this advance in school design and construction, an addition was made to the Fairmount School in 1911 of 12 Classrooms, to the design of Messrs. Nobbs & Hyde. This was the first building in which the basement was placed above the grade level, which idea has been adopted in every succeeding school.

In 1912, the Edward VII. School was designed by Messrs. Nobbs & Hyde, consisting of 27 Classrooms and Gymnasium; in 1914 another storey was added, making a total of 33 Classrooms and Cloakrooms, two Kindergarten, Sloyd and Cookery centres with Gymnasium. This building was constructed in a very efficient fireproof manner, with concrete floor slabs, stairs with slate treads and solid centre wall, terra cotta partitions, and Hospital type doors (these being used for the first time), Linoleum in corridors, much improved lavatory accommodation, large playrooms, central boiler plant and improved mechanical ventilation, temperature control, etc.

In 1913 Strathearn School was designed and erected by the same Architects, along similar lines to the Edward VII., and contained twenty-seven Classrooms, Kindergarten and Gymnasium. Accommodation for pupils' clothes is provided by sliding door steel lockers, key type, placed along the side walls of each corridor. Outside iron fire escapes are installed at rear, emptying on to roof of Boiler and Fan Rooms, thence to ground.

In 1914, the Peace Centennial School, which is illustrated herewith, was designed and erected by

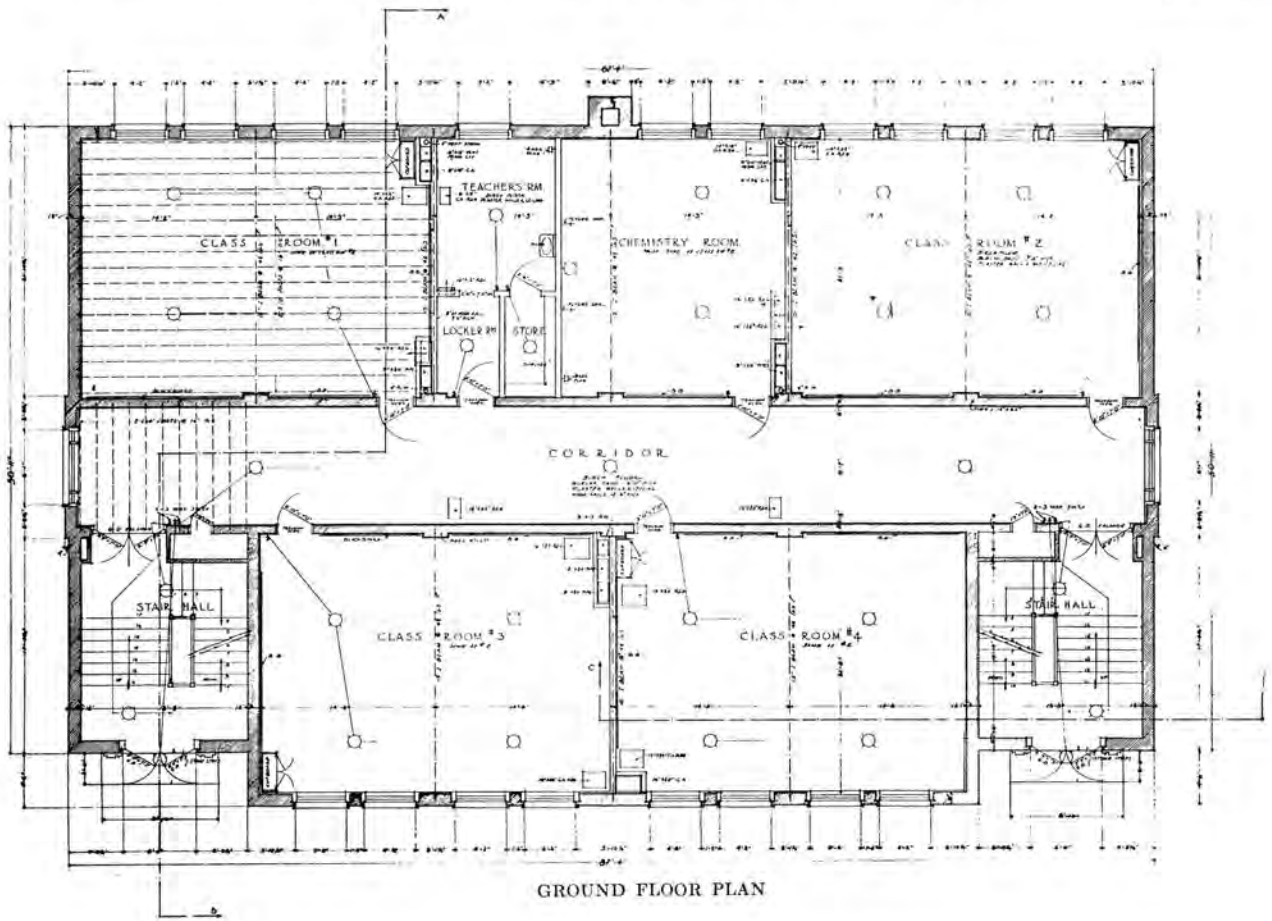
Messrs. Nobbs & Hyde, and contains thirty-two Classrooms, Kindergarten, Sloyd, Cookery and Gymnasium. This differs very materially in its design to our more recent Schools, the Gymnasium being situated in the centre and enclosed on all sides by Classrooms, etc., with Cloakrooms for each Classroom placed on opposite side of corridors. The Gymnasium is top lighted by skylights, which become covered with snow in winter, owing to the small space on all sides for disposal of same, compelling almost constant use of artificial illumination.

In 1915 the central part of Rosemount School, comprising ten Classrooms and Cloakrooms, Sloyd and Cookery Centres and Gymnasium was designed by Messrs. Nobbs & Hyde. This section shows a similarity in design to the Peace Centennial. In 1923, and again in 1926, two wings were designed by David R. Brown, Architect, each containing fifteen rooms. These follow the same trend in design of our later schools, with corridor lockers, etc. The original ventilating scheme for the centre part was indirect but was converted when the wings were built to partial recirculation with complete success.

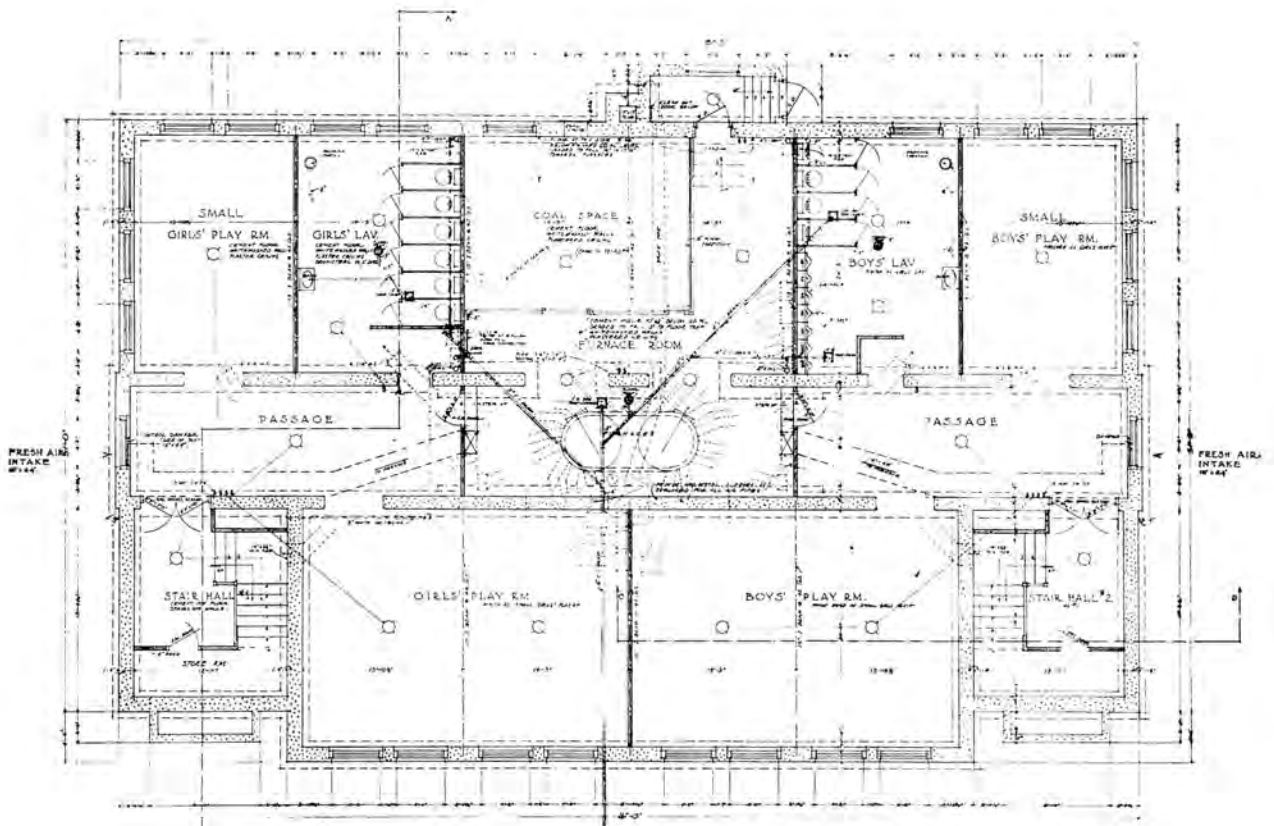
The year 1915 saw the Bancroft School also erected from the design of Messrs. Nobbs & Hyde. It will be observed from the plans, that there are large Playrooms with asphalt floors and well lighted lavatories, all raised above grade level. The Heating System is steam with indirect mechanical ventilation. Reinforced concrete construction, terra cotta partitions and vent ducts form part of same. The Gymnasium faces the Main Entrance and is easy



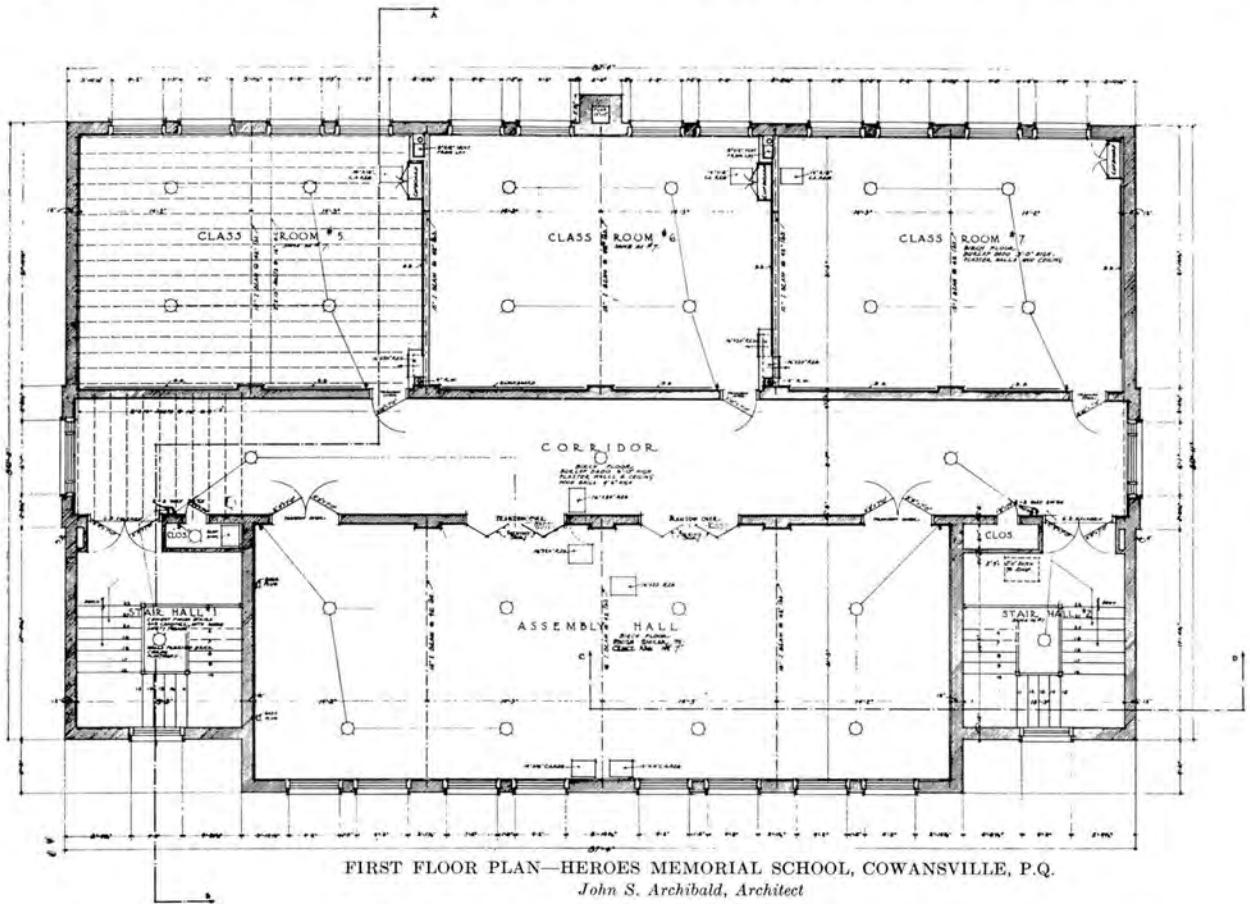
SLOYD ROOM—MAISONNEUVE SCHOOL, MONTREAL, P.Q.
Ross & MacDonald, Architects



GROUND FLOOR PLAN



BASEMENT FLOOR PLAN—HEROES MEMORIAL SCHOOL, COWANSVILLE, P.Q.
John S. Archibald, Architect

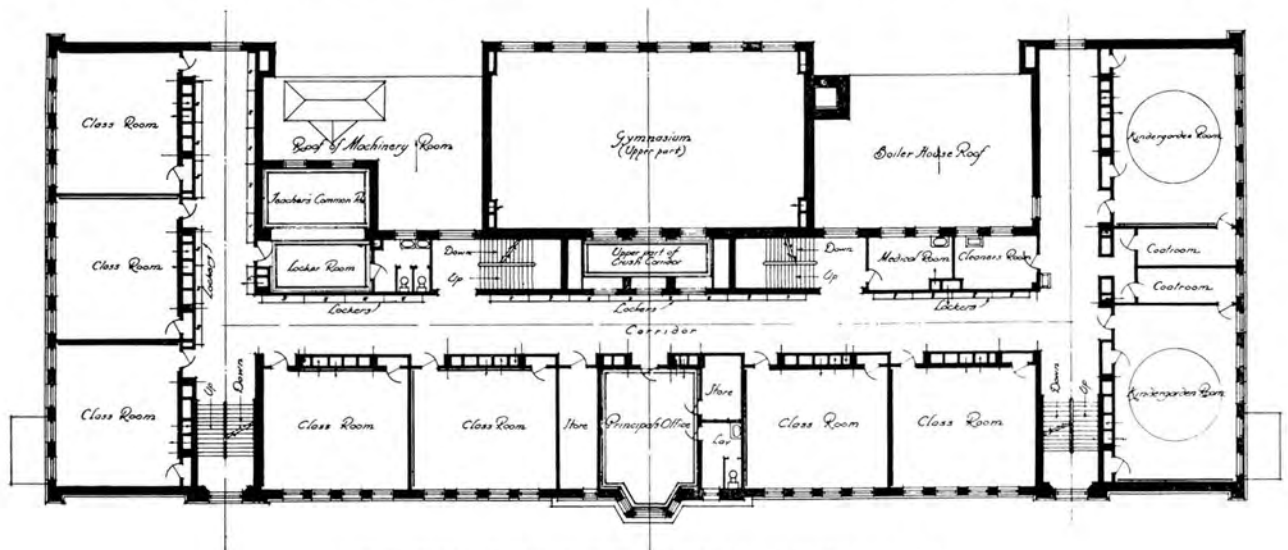


of access when used for public meetings. Steel corridor lockers are used throughout, of the key type. Cast iron door frames were used here for the first time and trim around same dispensed with, the plaster being finished flush on both sides. Window trim was considerably reduced, also around black-

boards. An endeavor was made to have the actual glass line to all windows placed close to ceiling. Windows were of ordinary English type with inside double windows. Corridors have linoleum centre with terrazo border and 6-inch base. Every effort was made at this time to dispense with wood trim,



HEROES MEMORIAL SCHOOL, COWANSVILLE, P.Q.
John S. Archibald, Architect



FIRST FLOOR PLAN—BANCROFT SCHOOL, MONTREAL, P.Q.
Nobbs & Hyde, Architects

that which was necessary being made perfectly plain with rounded edges. All corners and angles were rounded throughout the building.

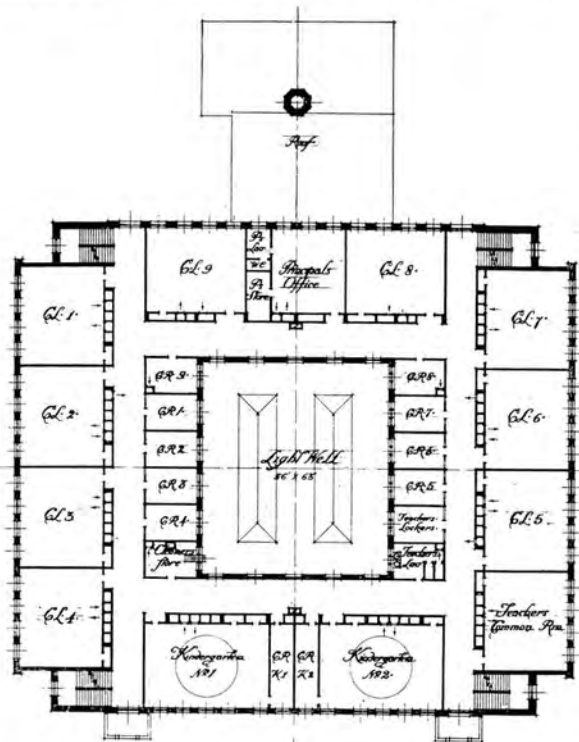
It will be seen from the above remarks that at this period of school construction a determined effort was made to design and construct a school building that would be practically fireproof, quickly emptied of pupils in case of fire, easily kept clean

and free from dust collecting trim, etc. With this design each Classroom receives an adequate supply of sunshine during the day.

During the years 1915 to 1921 several small temporary schools were erected on sections of large school sites. These consisted of four to eight Classrooms with Cloakrooms and small Teachers' Room; all being of one storey, without basement. The



BANCROFT SCHOOL, MONTREAL, P.Q.
Nobbs & Hyde, Architects



FIRST FLOOR PLAN—PEACE CENTENNIAL SCHOOL,
MONTREAL, P.Q.
Nobbs & Hyde, Architects

Classrooms have individual entrances with inter-communicating doors and were heated by Quebec stoves, suitably guarded. These schools were constructed of plank frame and brick veneer on concrete foundation, lined inside throughout with B. C. Fir. Separate lavatories for boys and girls were provided for each room, with sinks, drinking fountains and cupboards for supplies. These temporary schools were erected in districts which did not require a large school for some time to come, and from experience gained, they are serving their purpose very satisfactorily.

In 1921 the Devonshire and Maisonneuve Schools were designed by Messrs. Ross & Macdonald, Architects, and Mr. W. J. Armstrong, their Engineer. The Devonshire has 29 Classrooms, the Maisonneuve 30. Both have a Kindergarten, Sloyd, Cookery and Gymnasium. The plan of both of these schools are practically identical, except for some minor details. The illustrations of the Gymnasium and Sloyd give a good idea of their equipment and development over those erected previous to 1912. The windows throughout these buildings are all of the double-double English type and have proved very satisfactory, no trim to either doors or windows being provided. All electric light outlets in Playrooms are set flush with ceiling as shown in Gymnasium. For economy, the walls of Playrooms, piers, etc., are built of plastic brick and painted to a height of 5 feet 6 inches with sand finish plaster



PEACE CENTENNIAL SCHOOL, MONTREAL, P.Q.
Nobbs & Hyde, Architects

above. All corridors and staircases are well lighted by large windows. These two schools are heated by forced hot water and ventilated by partial re-circulation of air controlled by automatic dampers. They were the first schools in Montreal to be so ventilated and have proved both economical and satisfactory. The temperature of all rooms is under thermostatic control.

In 1923 the Herbert Symonds School, designed by Kenneth G. Rea, was erected and contains 29 Classrooms, Kindergarten, Sloyd, Cookery and Gymnasium. Heating of this school is by forced hot water with ventilation by partial re-circulation of air, this school being the first to be equipped with electric controlled steel corridor lockers.

In 1924 the Connaught School, designed by John S. Archibald, was erected and consists of 22 Classrooms with electric controlled corridor lockers, Kindergarten, Sloyd, Cookery and Gymnasium. The building is constructed to allow for one additional storey. Heating is by crude oil, pre-heated, and has given good results. The same system of ventilation was used as for the Herbert Symonds School. Its construction is similar to those built in the last few years.

The High School at Shawinigan Falls, P.Q., designed by Messrs. Shorey and Ritchie, was erected on a plot of ground approximately 200' x 100'. The playground is in the rear of the school and comprises an area approximately 100' x 400'. The balance of the playground is a wooded area sloping toward the playground basin. There are a great number of native trees and flowers in this wooded area which are of great value in Nature Studies and incidentally form a very attractive setting for the school. The school is of concrete and brick construction, and is both modern and fireproof. It is provided with an efficient heating and ventilating plant with thermostatic temperature control in the classrooms and Gymnasium. Adequate ventilation throughout the entire building is provided by forced pressure. Each of the classrooms accommodates 40

pupils and is equipped with electric clocks and automatic bells. Playrooms and lavatories for both boys and girls are in the basement, together with two lunch rooms for those who come from a distance and who are obliged to take their noon-day meal within the school. There is also a large Gymnasium and lecture hall with stage and dressing rooms. The cost of the entire building was approximately \$150,000.

The Heroes Memorial High School at Cowansville, P.Q., was designed by John S. Archibald and built in 1923. It was decided to dedicate the building to the men who served in the Great War and a stone panel bearing the name "Heroes Memorial" was placed in the front of the building, while a bronze tablet in the Assembly Hall includes an Honor Roll of the men of that locality who were killed in action. The school is constructed of structural steel with solid brick walls on concrete foundation. It is 85' long by 56' wide and contains an Assembly Hall with a seating capacity of 250. This hall is so located that with slight alterations it can be converted into two classrooms, should the increase in the population require more accommodation in the future. The school is a combination of elementary and high school. The first floor contains four classrooms, a teachers' room and a Physics and Chemistry laboratory. On the second floor there are two classrooms for the intermediate grades, a lunch room for the out-of-town pupils and the Assembly Hall. The basement contains the heating plant, lavatories and two large playrooms.

From the foregoing remarks it will be noted that the development of school design has progressed very considerably since the year 1910, much credit being due to the earnest co-operation and study on the part of all Architects concerned. Construction has been planned with a view to making these schools quiet in operation and fireproof in every possible way. There will undoubtedly be further improvements in school design and construction, but it may not be so rapid as during the last fifteen years.



The Riddle of Civilization and Art

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PART III—THE STANDARD OF BEAUTY AND LIFE

In the preceding articles we have seen in the case of civilization that (1) it is noble and aspires, (2) that it pursues a definite end and (3) that the end is not to be confused with the means. We have seen that the first and second are true of art, and we shall now find that the third is true also.

Parts I and II appeared in the June and July Issues

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WE discovered in the previous sections that civilization must be based on nobility and that it pursues a definite end. We have also seen that art, like civilization, is marked by that same quality of nobility or disinterested aspiration as distinct from happiness, which we have discussed under the term nobility, and further that art, too has a definite aim or end. It is, as we have seen, not a matter of individual taste, but has its own definite goal or mark beyond the individual, which we call beauty. This is clearly expressed etymologically in the word design, which implies a mark or aim; and art is essentially a design. It is neither the caprice of an individual nor the haphazard flinging together of elements on the canvas, as the satirists of our day have complained.

Further, we may notice of art, as of civilization, that the end is definitely opposed to the means. This applies to the individual work of art or thing of beauty, just as we have seen that it applies to the excellence of the objective world as a whole. This we saw was something to be admired for its own sake and not merely something that pleased or was useful to the subjective. The work of art, similarly is something abstract, something apart, something complete in itself. The thing of beauty or work of art is opposed to the useful. The useful is useful for something. It is a means not an end. Its end is outside itself. The thing of beauty is, as it were, self-contained and has an end in itself. It is, as we shall see, only in-so-far as it can in some sense be considered a complete whole in itself that it is beautiful. In the case of the paddle, considered previously, it was not its usefulness that made it beautiful, but a superadded excellence for its own sake, that was not a mere ornament but rather a permeation of being. The useful may also be beautiful; but its usefulness is not its beauty.

To grasp all that this involves would take us far afield; but we may notice that the beauty of the flower does not lie in any use that it may have. We might, for example, distil drugs from it; but that has nothing to do with its beauty. Nor does its beauty lie in the fact that it is useful as producing seeds for its own propagation. In the first place the whole plant is beautiful, and secondly the propagation is in order to propagate the plant itself as an end in itself to which the seed is a means; and therefore it is

the seed that is useful to produce flowers. The flowering plant is the end, and the seed begins a new cycle of which the flower is the goal. The child likewise begins a new cycle whose highest consummation is love.

We may be able to return to this; but the significance of man as distinct from the lower plants and animals is that the life, which in the plant, as far as we can see is an end in itself, gradually becomes a means to consciousness, wisdom and love, even though they may originally have taken their start as a means to life. Broadly speaking it is essentially true that life is for love and not love for life; and greater love hath no man than this,—that he lay down his life for that love.

Beauty, then, in art,—and wisdom and love in life and civilization,—are ends in themselves as opposed to means.

In fact these are the trio of beauty, truth and goodness.

What is the standard of this end? It is seen to be a composition or design, in which every part has its own independent value,—its *Autarkeia*; and yet the parts are dependent on an including principle of concord,—*Harmonia*; and in this way the design is a Whole.

We are now ready to ask:—what is the standard of this end, this superadded excellence, this beauty, this love, in which the rest are elements, or for which they are useful?

Again we find our text in etymology. The word art comes from a Greek root *ap*, (AR) which we find in a number of Greek words:—*ἀραρίσκω*, (ARARISKO) to fit together, to gratify, *ἀρτιόν*, (ARTUO) to fit together, *ἀρτίς*, (ARTUS) a bond, *ἁρμονία*, (HARMONIA) a fastening, concord, harmony, *ἄρτιος*, (ARTIOS) exactly fitted, complete, perfect in kind, *ἀρετή*, (ARETE) excellence, *ἄριστος*, (ARISTOS) best. We may notice that the notion of fitting together and of excellence is combined.

Art therefore is,—the best, the excellent, namely the perfect bond, that which is fitted together in concord; and our contention is that this as a definition is correct.

The English word, composition, (Latin 'con' and 'pono') is perhaps our nearest equivalent, and is what we understand by a design, words which we often use for a work of art.

Plato saw this very clearly and Aristotle followed him. The work of art or thing of

beauty is an excellent composition, a universe, a whole of parts.

We may put the principle into a nutshell and say that beauty is the preservation of balance in an arrangement or composition between the wholeness of the whole and the partness of the parts.

This is really the basis of all criticism of art and beauty. Take, for example, the case of a piece of architecture, or a picture or a poem. What we demand is that every part shall have its own interest and value,—in other words it should be in some way an end in itself. If we find that it adds no individual richness of its own to the whole, it has failed.

But on the other hand it is equally clear that even though every part had this independent value, nevertheless that would not necessarily make a beautiful design or picture. If the parts clashed with one another, and this element jarred with that, the whole would be broken up and spoiled. There must be a harmonious relation among the parts. That is what really makes them a whole.

We may term these two principles respectively the principles of *αὐτάρκεια*, *autarkeia*, which literally means self-sufficiency,—a term of a somewhat wider connotation than our word individuality, implying more of a complete end in itself,—and, on the other hand, the principle of *ἁρμονία*, *harmonia*, a term again implying more than our word harmony.

In the following pages the words are used both in a concrete and an abstract sense. The *autarkeia* is the individual part and the *harmonia* is the including whole.

We may call the principle that includes the two the principle of wholeness.

The problem of the nature of identity and difference is a fundamental one for kalology (the study of the beautiful). It is the problem of the one and the many in its most general form.

Many has no meaning apart from the one in the many. Nor has the one any meaning apart from the many. Different degrees can only differ in degree or in the identity of degree. Different existences can only be in or under the identity of existence. Different thoughts can only differ within the identity of thought.

There can be no identity that is not an identity between or in differences, and there can be no difference that is not in or under an identity.

The possible varieties of difference in identity is a difficult question; but there are, for example the following, which it is important to consider in relation to beauty. (1) Differences of kind within the identity of existence, (2) differences of particularity within or under the identity of the universal, (3) Differences of element within the identity of conjunction, (4) Differences of definite degree within the identity of degree, (5) Differences of permutation within the identity of combination.

The difference of part within the whole is a compound difference. An organic part is neither a mere section, nor a mere element in a conjunction.

Mere difference in identity, as such, or identity in difference, as such, does not constitute beauty; but whatever other identities there may or may not be, there must be the identity of wholeness.

The first essential that it is necessary to grasp is that beauty does not simply lie in any identity of differences, or unity in variety as such, as has so generally been supposed. Beauty is rather what we shall term a *harmonia* of *autarkeiai*, or a whole of parts, or what we might call an organic whole. Indeed we might almost

go so far as to describe kalology as the philosophy of wholeness.

In the first place, then, we say that an *autarkeia* is not merely any difference within any identity. It is not merely distinct and individual in the sense of separated. It is not merely a separate instance: it is not a mere slice: it has its own ordered content.

It is not a particular among other individual particulars in a universal: it is something more. A particular, in so far as it is a particular, embodies the universal and may be said to duplicate the other particulars. An *autarkeia*, on the other hand is something that is unique that is not duplicated. In a given thing its particularity may be said to end where its *autarkeia* begins and vice versa, or something very near to this.

Moreover an *autarkeia* is not a mere part or section. It is an organic part, and something that although it can be regarded from the aspect of its distinctness or separateness, has nevertheless another aspect in which it is a whole, uniting the distinctions within, as, for example, in the case of the head in the human body. That is to say,—it is not merely a difference within an identity, but it is also an identity of differences. It has its own parts, although it is a part itself.

A whole is essentially something complete in itself, as distinct from anything outside it: it is not a part. But on the other hand a whole is something complete in itself in the sense of being unbroken within, although it is made up of parts. Wherefore an *autarkeia*, or self sufficiency, although primarily regarded as a difference and a distinction and a part, as it also partakes of the nature of a whole is nevertheless something further.

Similarly a *harmonia*, although primarily an identity among differences is nevertheless something further. It is an identity that is itself distinct from other identities and has an individuality; and therefore may be regarded from another aspect as an *autarkeia*. It is a higher inclusive end. As inclusive it is a *harmonia*, as an end in itself it is an *autarkeia*. The human body as a whole is an illustration. It is a unity, a harmony, but it is exceptionally distinct and separate. It does not join on to the ground like a tree or a house.

Aristotle understood this last point quite definitely,—that a work of art as a whole is an *autarkeia* as well as a *harmonia* of *autarkeiai*. He pointed out that a poem, as a work of art is distinguished from a section of history in that it has a definite beginning and end (in the sense of conclusion). This makes it a complete and distinct entity or *autarkeia*.

In addition to the beginning and end, it has a middle, which the Greek poets called an *omphalos* or navel, the dominator of the whole, which is the unifier. It is therefore also a unity or *harmonia*.

We construct our poem, so that it is not necessary to enquire what came before or what follows after. In the manner of the fairy story it begins,—“Once upon a time,” and it ends,—“And they lived happily ever after.”

The same thing is equally obvious in the case of a picture. That is largely why we put a frame round it: it helps us to consider it as a

world apart, something distinct and complete in itself. Similarly the composition is arranged so that the eye is led into the picture. If we feel compelled to ask,—“But what is there outside to the left or to the right,”—then the composition has failed.

We might have thought that harmonia and autarkeia were mutually exclusive principles, and that the more there was of the one the less there would be of the other; but this is not at all so. It is true that we shall see later that this frequently occurs in practice; but it is not necessary, or art would be impossible.

Although we contrast autarkeia and harmonia, they are really relative terms, and from other aspects the autarkeia is a harmonia and the harmonia an autarkeia, just as the lower may be the higher in relation to something lower still.

Ultimately, therefore the beautiful is a world of worlds, or a kosmos of kasmoi,—κόσμος meaning both an order or arrangement and a world, and also an adornment, or ornament, or decoration,—varying from arrangements or designs of extreme simplicity, such as a circle, where the autarkeiai have very little content, to compound forms involving many ranges of kosmoi, such as we see in the human figure.

A circle is something that is complete in itself, an autarkeia. But it is also a harmonia, governed by its own constants of reference, a point that we cannot now discuss. We may further say that every pair of contiguous points therein has its own autarkeia, its individual direction, but with no jarring or clash. The same is true of all regular curves, hyperbola, conchoid, cissoid, etc.

The theory cannot be elaborated here; but it is the principle of all proportion, all symmetry, all rhythm, all balance. The flower, the Gothic cathedral or the human figure, which is the most beautiful thing that we know,—are all elaborate complexes of kosmoi of kosmoi.

We might have imagined that harmonia and autarkeia were necessarily mutually exclusive, but it is not so; and it is exactly the avoidance of this which constitutes beauty. If we compare the human figure at one end of the scale with, say, an amoeba at the other,—a mere amorphous mass with a nucleus,—we realize the distinction. The amoeba shows practically no autarkeia of part; but in the human figure we find the highly elaborated individuality or autarkeia of every part,—heart, lungs, brain, hands and feet,—all more specialized than in other creatures. Compare, for example, the fore-foot or fore-limb and hind-foot or hind-limb with man's hands or arms and feet or legs.

And yet there is at the same time an even more marvellous harmonia permeating the greater autarkeia of the parts. Consider, for example, the astonishing co-ordination in the case of a man playing on a musical instrument, or performing a surgical operation, and observe the immense diversity of his physical, mental and emotional powers harmoniously concentrated on a single issue in a manner without parallel in the living world.

If, again, we examine the beauty of his physical contours and masses, we find that they are mathematically reducible to systems of curves of conic section or closely approximating thereto, which follow our primary principle.

What is true of the major kosmoi is true of the minor kosmoi within. Just as the hand has more autarkeia than we find in the foot of the monkey or lower animals, so has the thumb in relation to the fingers. It is the fact that man's thumb can be “opposed” that gives to the human hand its significance. This the monkey cannot do.

The infinite variety of posture in dance that is partly mental and partly physical emphasizes these points.

The same laws hold good through every work of art or thing of beauty, whether it be a poem, a flower, a piece of music, or a lecture. Each part must have its autarkeia; but it must be relevant to the whole. The lecturer who says,—“which reminds me,”—and then proceeds to tell a funny story that he has the greatest difficulty in dragging in, and that has no relevancy, however good it may be in itself, is no artist; and the audience that tolerates such a performance is equally deficient.

The laws of the harmonia of design are too complex to consider at length; but they depend upon certain constants of reference, such as a focus, point of origin, an axis, boundary, co-ordinates, a dominator, or sub-dominator and so on. The last two terms are specially applied to compound elements. The head in the human figure, the central tower in a cathedral are dominators, in relation to which the whole design is constructed. The Western towers would be examples of sub-dominators.

If a work of art is an autarkeia, and therefore necessarily in some sense unique, it cannot merely be true to nature.

If art means, as we saw, the creation of something new and distinct, something with its own autarkia, we can understand why truth to nature in the sense of a copy, could never be the sole aim of art. As a part of an ordered universe, the work of art or thing of beauty will have correspondences, agreements, or identities, linking it with the rest of the kosmos; but as an autarkeia, a thing self-sufficient, a thing complete in itself and a rounded and distinct whole, it must in some way be unique and true to nothing outside itself.

Science and its diagrams aim at conformity with what they describe (Latin—describo=draw). Anything that does not conform is irrelevant. But nonconformity, independence, individuality, uniqueness is a part of the very essence of art.

It is impossible in a short article to discuss the theory of beauty; but we may now glance at a group of important and difficult problems connected with it, and, although our main argument can be followed without, the following few paragraphs will indicate some of the difficulties that necessarily present themselves for solution and give significance to the remainder.

The problem as to what way the autarkeia is differentiated within the harmonia in a thing of beauty is of great importance. It is something that involves what we term quality as distinct from what we may term “fact”.

It clearly is not difference of particularity in the identity of a universal. Nor is it merely difference of elements in the identity of a conjunction, nor merely difference of permutation in the identity of a combination, or correlatives in a correlation, although all these may doubtless play a part.

It seems primarily to be some kind of difference in identity within the field of degree.

As we have already seen incidentally, identity in difference

of particularity does not constitute beauty. The conformity of the particular with the universal and therefore with other particulars does not make beauty. Because different cows exhibit the identity of cow, or thieves exhibit the identity of thief, we do not therefore find beauty in either the difference or the identity or both together. A sprinkling of different spots of the same size and colour is not beautiful.

This was our objection to the old theory of mere identity in difference constituting beauty, or to Plato's ultimate good or beauty, which seems to be an example of such identity in difference. It is not qualitative. The "idea" or universal of white or red or ugliness is no more good or beautiful than the particular as such, simply because it is the "idea".

Beauty, however, is normative or qualitative; and it is doubtful whether any repetition per se can be normative or qualitative. It is what, for want of a better term, we called absolute, rather than relative. It is nearer to what we mean by truth than beauty. The notion underlying truth or repetition or conformity of particular to universal is in some way absolute. It implies an excluded middle. THIS is not THAT. A thing is true or is not true. The particular is either a particular of the universal or it is not. The difference of kind that constitutes the class is either there or it is not there. Quantity or degree does not enter into the question. The kind itself is not more or less there. Difference of particularity and difference of degree are quite distinct. A particular weight, sound, red, direction, etc. means an instance or occurrence. The determination of its degree is distinct from its determination as a particular of a class.

The truth cannot be more than true or less than true; and absolute truth can only be an absolute identity or correspondence. But there is no absolute beauty or goodness. Beauty and goodness can be more or less beautiful or good; and there is no limit to beauty or goodness.

Beauty, then, implies a further difference than is found in particularity, namely that of degree and comparison,—that of more and less,—and the more and the less are relative not absolute. A may be more than B, and B more than C. But B is not an absolute more. It is equally a less, as being less than A, similarly the more beautiful than X may be less beautiful or uglier than Y.

So beauty involves some kind of difference of degree. Every architect, musician or artist knows, for example, that proportion is an element in beauty; and proportion is some kind of identity in difference of degree. There may be different multiples of identical factors, or an identity of ratios including different terms, or indeed any equation of commensurables.

A thing of beauty is essentially a conjunction; but mere conjunction does not constitute beauty.

Difference of conjunction plays a more important part in beauty than difference of particularity. The difference of part and part in the whole, which is fundamental to beauty, is a difference within the identity of conjunction. But mere difference within conjunction does not in any way constitute beauty. A bundle, or a tray of miscellaneous objects is not necessarily beautiful.

All differences of kind are differences within the conjunction or identity of thought or existence. Obviously a difference outside the identity of existence or thought could not exist or be thought. It is true that people sometimes speak as though a thing could exist entirely independently of this universe of existence. But if both be existences, they are particulars of the same universal or identity, and are also within the conjunction of thought. They can be nothing but parts in a larger universe of existence.

Conjunction of differences of kind cannot be sufficient to constitute beauty. The mere conjunction of colour and mass, or colour and sound, does not constitute beauty. Besides; how is conjunction of difference of kind effected? It can only be through some further conjunction or common relation that in some way is measurable with regard to both. Mass and colour are brought into relation through extension in space. But again it seems that in this further conjunction we are no more necessarily near to beauty than we were in the case of identity of particularity in the universal.

We have to look for identity through degree, including multiples and ratios.

Conjunction does not seem in itself to be qualitative any more than classification or inclusion within the universal, although there is something less absolute and more variable about it. We can dissolve a conjunction; but we cannot remove a particular from its class; and where no variation is possible there can be no qualitative distinction.

Beauty may include identity of particularity within a

given class or kind, but it must include conjunction of some sort; yet it is rather toward identity of degree or proportion that we must look for the variations that give it possibility of qualitative value.

It is most important, moreover, to realize that identity of degree or proportion is not confined to a single class or kind; but can also occur between different classes, where otherwise there could be no identity, in the following manner.

It is true that we cannot compare five pounds with five minutes; but we can say that ten pounds is to five pounds as ten minutes is to five minutes; or that the ratio,—ten pounds to five pounds, is less than the ratio,—ten minutes to two minutes. On this principle all art and beauty are built. We can have identity of ratio, but not of actual degree between musical sounds and emotions, but only between ratios. The failure to realize this is the cause of much nonsense being talked about art, particularly music.

The problem of proportion and balance is exceedingly intricate and difficult and the whole question of relation between differences of kind and differences of degree is very obscure. There is no doubt that an immense number of differences of kind are entirely reducible to differences of degree; but the interrelations of degree within the differences of kind remain fixed. Colour and sound for the dramatic artist are differences of kind. Red and blue for the painter are differences of kind.

A pentagon differs from a hexagon in degree, but for the designer they may be regarded as differences of kind, and within the class or kind the degrees that constitute it are fixed. The differences between sound and light are reducible to terms of degree; but in most cases they are regarded as differences of kind.

It is not absolutely inconceivable that all differences of form might be reducible to differences of degree of a single kind. It is even conceivable that there is only form.

But on the other hand the facts may be the other way, and we may not be justified in assuming some of the identities that we do.

For example the architect assumes that three times three are the same as three squared. Three times three are nine units of one dimension, and three squared is also nine units. But what units? One squared. But what is one squared? A compound composed of an assumed identity of degree and a difference of kind. In the case of space we assume rightly or wrongly that there is a certain interchangeable identity of degree between the dimensions, that is to say that a line of a given length may be moved anywhere in space without alteration in length. This, however, is not entirely unquestionable. Between time and space and mass we assume an even less evident identity; as in the case of momentum, when we say $mv = m'v'$.

But between differences of kind, degree is incommensurable; and we can only have such identities as identities of ratio or multiples of ratio, etc.

This question as to where difference of degree ends and difference of kind begins is more important in theory than in practice. But the fact that the problem exists indicates solutions both for harmonies and discords, which we feel but cannot always quite explain.

The question of difference of permutation in the same combination is an important one for art, as it involves the problems of rhythm and symmetry; but it must be left for another occasion.

The principles of art and civilization are seen to be the same; and civilization is simply the widest and most inclusive of the arts. Art itself, then, is no mere ornamental extra to life, but the principle of being. Civilization must for the future be regarded as an art and its principles understood. Historically the failure to do this has been the cause of unbalanced civilizations, where the design has perished in chaotic individualism or blank socialism.

We may therefore sum up this very brief preliminary survey of art by defining art as a balanced order, a noble scheme or arrangement, which is a whole or end, composed of individualities, each one valuable and interesting as an end in itself.

But these are the very words in which we defined civilization. In short, civilization is the art of living.

Civilization is not happiness, it is not knowledge (scientia), it is not even the good; although it includes all these, but the principle of beauty,—

a harmonia of autarkeiai, or a kosmos of kosmoi. That is to say it is an art, and the widest and most inclusive of all the arts. One cannot be civilized without being an artist, although one can be an artist without being civilized, that is to say,—the artist may only apply the principles of art to a limited field; but we only become civilized when we are not only artists but apply the principles of art and beauty to the whole of life, both individual and communal.

Art or beauty, then, is not by any means a sort of ornament to life, an added extra to be sought when the main business of life is accomplished—as many people think, perhaps most moderns, including numbers of artists themselves. On the contrary, beauty turns out to be the principle of existence, the principle of balance that avoids chaos on the one hand and blank on the other, which are the aspects of nothing, so to speak, through which existence steers,—the Scylla and Charybdis of life and civilization; as an intelligent study of history will reveal

If this be true, it is of profound significance. We find for this problem of life and civilization a definite clue, that it is hardly too much to say the world has hitherto missed. It is true that it is really the principle of Plato's Republic; but the world has chosen rather to regard that as a particular scheme, in which doubtless many faults might be found, rather than as an illustration of a universal principle.

Historically, man has sought to answer the riddle in terms of a single end,—happiness, asceticism, liberty, discipline, knowledge or science. But the answer does not lie that way: it is not an end, but an end of ends. Knowledge gives us the elements; but even knowledge is not per se creative. But what knowledge can give is the insight into the necessity of the creative, the artistic. It can show in what creation consists and what beauty is. We cannot make an artist but we can educate him. (e-duco=I lead out from). We cannot put anything in; but we can get something out. Here is, perhaps, not the worst, but the most pathetic fact in modern education and modern civilization. We have gathered more knowledge, more facts than the world ever had before; but what have we done with them? We have produced modern industrialism and the science of the great war, and have learned that beauty produces ticklings; but we have not made a civilization.

We are an age of quarrymen rather than of architects; but all the stones in the world will only make a pile and not a cathedral, even when carefully classified as to colour and texture and chemical composition and size and shape, and with all the ticklings that they produce duly tabulated. The cathedral is the design not the elements. If we had more power of design, we might use our vast knowledge; or shall we say,—if we learned to use the power of design, which is man's birthright, but which we have bartered for a mess of pottage. As it is, although our science of building, our knowledge of materials, our psychology of blood-pressure and tickles is far beyond that of previous ages, we fail because we have no design to build.

We have all become specialists and all think that there is one special end to pursue. But

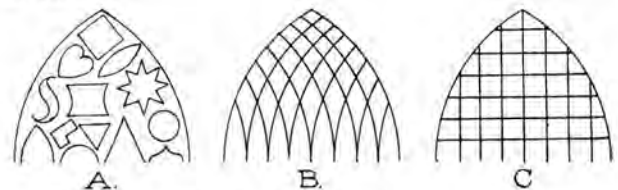
that is not so—the goal is this end of ends, the design that includes them all; and what we require is architects not builders. It is probably literally true that the architectural profession, if genuinely composed of architects rather than builders, would of all specialists make the best "job" of civilization, if it were handed over to it—certainly not the politicians, who as Sokrates dryly remarked are the only people who have made no foundation-study of their own subject. But even architects are specialists and we need something bigger still.

It would be interesting to follow out the application of these principles in a few typical fields, such as town-planning, possibly the clearest of all illustrations, political science, education, love and marriage, or indeed any and every problem that can present itself in human life; but that would require volumes. We must content ourselves with the barest indication of two points.

Man is an individual being in a society; and we have therefore the autarkeia and harmonia that our principle involves. The individual man is a being of many capacities and elements. Here again we have autarkeia in a possible harmonia; consequently it is in the principle of design that we must look for the solution of political science and of education.

Historically the social principle and the individual principle have been regarded too much as mutually exclusive,—that we must have one or the other—and the pendulum has swung to each extreme in both directions, as in the socialism of Sparta or Peru, or the individualism of the Italian Renaissance that ultimately destroyed Italy and allowed her to be crushed under the heel of Spain, or the worse chaos of the individualism of modern industrialism. Apparently the pendulum is to swing the other way again, and the world of civilization once more to become a mere herd, as in Sparta, free from responsibilities and anxieties, but destitute of true individual initiative and character.

But a glance at any design will show the folly of this.

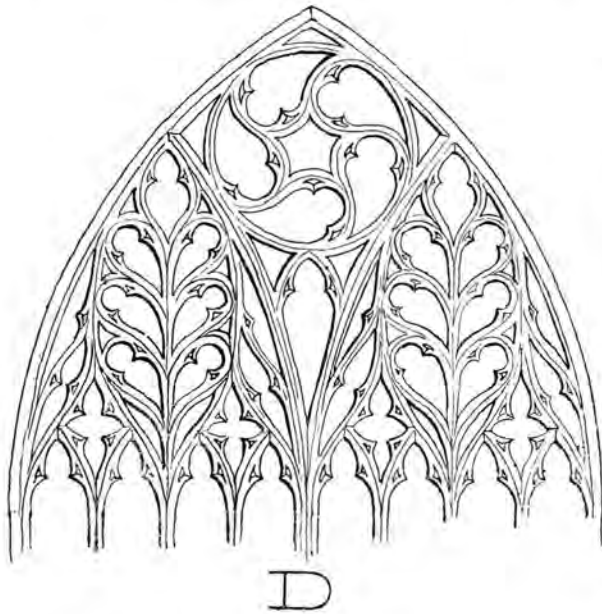


Absolute individualism is chaos, and absolute socialism is blank. We require both the autarkeia and the harmonia.

It is true that absolute individualism or absolute socialism is impossible; for a difference that is not a difference in an identity, and an identity or relation that is not a relation between elements, are obviously non-existent abstractions.

But we can go very far wrong in either direction. If we are designing a tracied window, we may have each shape a perfectly good shape in itself, as in A. but the whole is chaotic, and is really only held together by the bounding line and a slight adjustment of the shapes to each other. On the other hand, an extreme conformity to the main contour as in B, often

sarcastically known as "churchwarden Gothic," or between part and part as in C is not far removed from blank.



D, however, has an autarkeia in all its parts, even the minor leaf-shapes are all different; but there is a single principle running throughout the whole. There is definite balance between the reversed sides of the symmetries. There is growth from a single point of origin. There is a yielding and accommodation of part to part, particularly seen in the flamboyant shapes. The central ornament is a definite dominator in the design, and there is a conformity in the major simple curve types, and again in the minor compound curve types. It is neither socialist nor individualist, but design.

Such then is the simple foundation principle; although the working out of its laws in detail is complex.

We may therefore say that life is an art; and education, which presumably is or should be the foundation of life, must be the foundation-art, both in its own practice and in its content.

Art, therefore, is both the basis and the goal of all education, alike for the teacher and the taught; by which is not meant the contentless art of so many art-schools, which is a technique for technique's sake, that embodies nothing, and often does not even understand its own principles, but rather an art which includes all knowledge, all emotion, all physical well-being, all material environment, all activity, all expres-

sion, and all realization of human experience, both physical and spiritual.

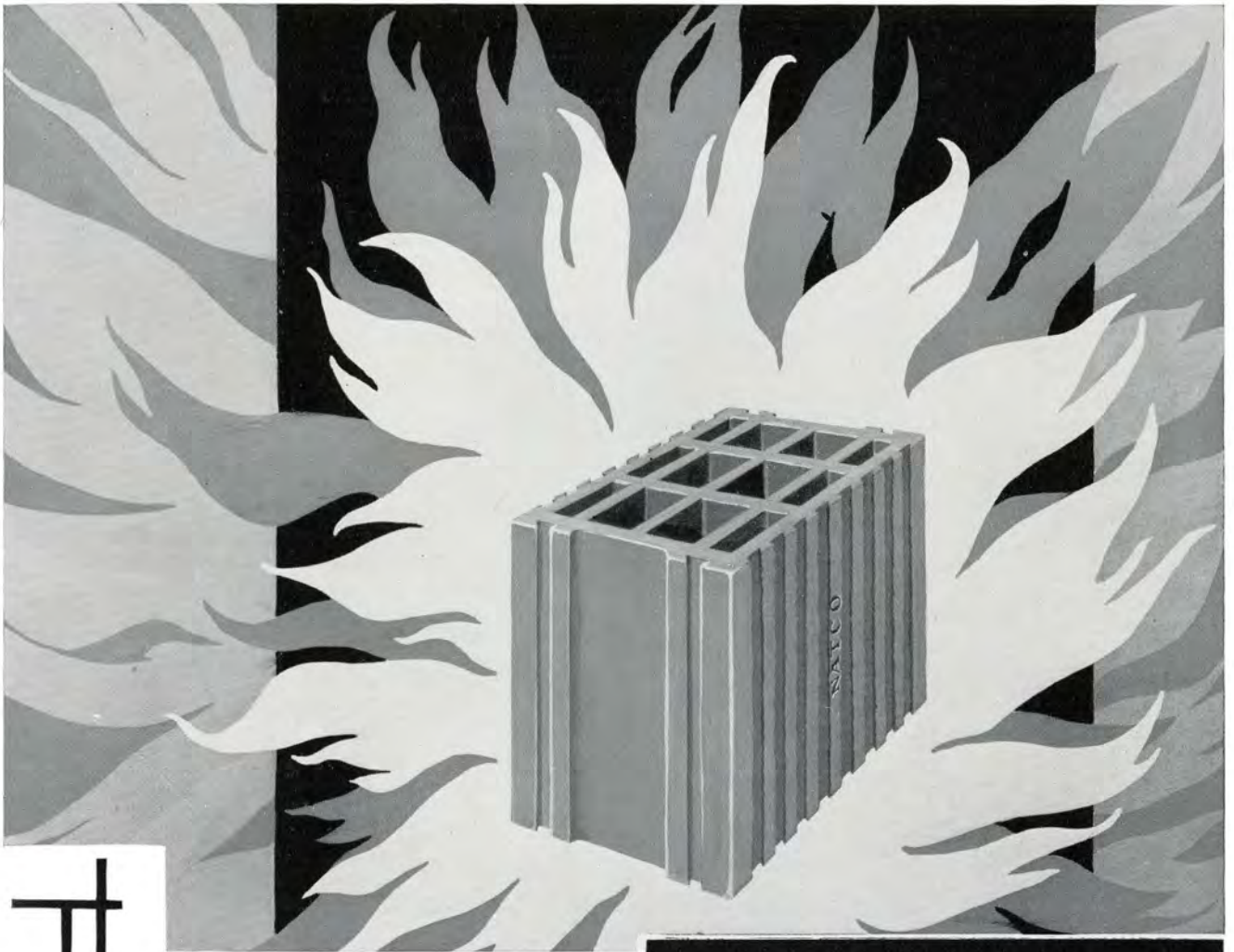
Education itself is an art, perhaps most nearly paralleled by landscape-gardening, which also deals with living individualities; but how many educators know that education is an art? And of those who do, how many know anything whatever about the principles of design? The curriculum and methods of our schools are painful evidence that any elementary knowledge of design is practically absent.

As we cannot run before we can walk, we must therefore in all education study art in its simpler forms and then rise to the higher, and so learn its principles and thereby obtain the power to judge civilization and build a civilization that is sound.

The study of art in life and education must logically begin where it can best be realized, not in the highest complexities of spiritual character, or the inter actions of a complicated order of society, but in the simple patterns of drawing, architecture, poetry, music and those of beauty in nature. Yet the modern world,—and perhaps particularly America, as it is the most modern,—is anxious to run before it can walk. That we cannot do. To attempt to be a politician or educationalist, before we can understand the principles of design in a linoleum-pattern, or a leaf or a flower, is about as intelligent as for a child to attempt to solve the most intricate problems of spherical trigonometry, who does not understand elementary arithmetic or geometry.

Let us teach our children first to master simple designs and obtain some creative power and understand what they are doing, whether in music, poetry or the spatial arts. Let them pass from the simpler vegetable forms to those of the human face and eventually to those of the nude human figure, following the sound advice of Plato. When we have mastered the individual beauty of the nude human form,—the highest physical beauty of which we know,—we can there pass to the universal external beauty, and from that, again, to the individual spiritual inner beauty, and thence to the universal spiritual beauty, to use Plato's own splendid phrase, becoming "the friend of God,"—the universal creative artist.

But we have a long way to travel; yet we may arrive; and then we can come round to the place whence we set out on this enquiry, and again stand as Perikles stood over the dead,—but our own dead this time,—and say: "such then is our civilization, our city, which, lest we should lose her, these boys whom we now celebrate have died a glorious death." But the responsibility is ours.



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Activities of Provincial Associations

Province of Quebec Association of Architects

Secretary, Ludger Venne, 2020 Union Ave., Montreal

Architects and builders in the Province of Quebec are held by the law "jointly and severally" responsible for their buildings for a fixed length of time. The parties concerned have recently obtained from the Legislative Assembly that this length of time be reduced from ten to five years. This amendment to the law was greeted by the profession at large with great satisfaction. Mr. J. O. Marchand, president of the Association, Mr. J. Cecil McDougall, president of the Council for 1926, and Mr. J. S. Archibald, by their untiring efforts have largely contributed to the granting of this amendment.

According to a resolution of the Council following a general ballot of the Association, the members may from now on place on their buildings in course of construction a sign governed by the following regulations: the sign shall be 12" high by 24" long; it shall contain but the name of the architect, his title of architect and the name of the city where he is practicing; the letters shall be printed in brown on a cream or buff field. It is hoped that by their dignified and standard character and by the fact that they can only be used in this province by the members of the P. Q. A. A. these signs shall afford to the profession at large a publicity which shall be beneficial collectively as well as individually.

Dans la Province de Québec, les architectes et les constructeurs sont de par la loi, tenus "solidairement et conjointement" responsables de leurs travaux pour une période de temps déterminée. Les parties intéressées viennent d'obtenir de la législature que cette période soit diminuée de dix à cinq ans. Cette modification de la loi a été accueillie avec satisfaction par les membres de la profession en général. M. J. O. Marchand, président actuel de l'association, M. J. Cecil McDougall président du conseil de 1926 et M. John S. Archibald ont grandement contribué par leurs efforts incessants à l'obtention de cette modification de la loi.

En vertu d'une résolution du Conseil faisant suite à un vote général de l'association, les membres pourront à l'avenir apposer sur leurs édifices en voie de construction une affiche répondant aux exigences suivantes: cette affiche aura 12" de hauteur par 24" de longueur; elle contiendra seulement le nom de l'architecte, le titre d'architecte et le nom de la ville dans laquelle il, exercera sa profession, les lettres y seront peintes en brun sur un fond crème ou chamois. On espère que ces affiches par suite de leur caractère à la fois digne et uniforme et du fait qu'elles ne pourront être employées que par les membres de l'A. A. P. Q. dans cette province fourniront au corps professionnel une efficace publicité tant au point de vue collectif qu'individuel.

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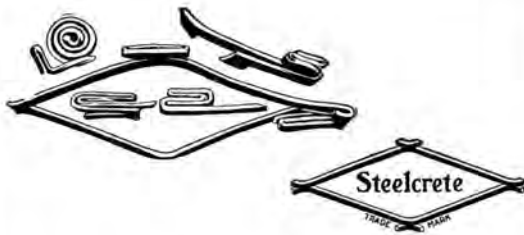
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Illinois Society of Architects Issues Notice to its Members on Professional Ethics

THE increasing activities of a group of advertising promoters among American Architects during the last few years, has resulted in a special notice being sent to the Members of The Illinois Society of Architects calling their attention to an infraction of the Canons of Professional Ethics as adopted by that Society. The warning has to do with the publication of special volumes illustrating individual architects' work, for which advertising is solicited by the promoters and a specified number of copies of the book furnished without cost to the architect. The activities of these promoters have even reached the Dominion, and because many of our Members have been approached with similar propositions, we consider the warning issued by the Directors of the Illinois Society timely, and in order that our Members may be informed of the action being taken by this Society, we publish herewith a copy of the Notice sent out by them:

"The attention of members of the Illinois Society of Architects is directed to the fact that certain advertising solicitors have been making and are making a systematic canvas of architects' offices, requesting that they be given permission to get out a book separately illustrating each architect's work.

These solicitors offer to supply the architects, free of charge, with 500 or more volumes of a book, illustrating their work, which they propose to get out and pay the expenses of publication, providing only that the architect shall furnish them with photographs of buildings executed by him, together with a list of the material men and contractors whose material and construction work was employed in the buildings to be illustrated.

The Board of Directors of the Society wishes to direct the attention of its members to Section XI of "Canons of Professional Ethics of the Society," which reads as follows:

ON ACCEPTING COMMISSION OR FAVORS

"The architect may not receive any commission or any substantial service or favor from a dealer, a contractor, or from any interested person other than his client."

These solicitors admit that they expect to derive a profit from the publication of these books through advertisements solicited from the material men and contractors who had been engaged on the work of building the buildings illustrated. They admit also that their fees for advertising are at the rate of \$150 per page, but they deny that such fees for so small an edition of a book, with such a limited circulation, amount practically to a hold-up of the material men and contractors.

Why can contractors be persuaded to subscribe to advertising in such books? The answer—Hope of possible favor from the architects whose works are published. The result—either the contractor gets the favor which he expects, or he does not. If he gets the favor which he expects, but usually denies that he expects, then the architect is guilty of violating Section XI of the Canons of Ethics, putting it frankly, he is guilty of graft. If the contractor does not get the special favor which he

(Continued on Page xxx)



Architects:
ROSS & MACDONALD

BENEDICT STONE
Castle Building, Montreal

Contractors:
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Illinois Society of Architects (Continued)

tacitly expects to get when he takes such advertising, then he believes himself to have been defrauded. In other words, he carries a "bad taste in his mouth."

If the architect is doing work worthy of publication, and is not adverse to having it published, it is pretty sure to be published in the legitimate architectural or general press. If it is good, it is good news; and if it is bad, it is bad news, and even bad news is popular with some publications.

The architectural profession, as a whole, stands preeminently for clean business, high minded, disinterested professional standards.

If an architect wishes to have his work published in a single volume for convenience in illustrating the work which he has done, there can be no serious objection to his publishing his work, providing he does not attach thereto laudatory statements with reference to himself. If he does publish his work, he should be man enough to pay the legitimate expenses of publication.

Board of Directors,
Illinois Society of Architects."

Competition for the Shakespeare
Memorial Theatre

Canadian Architects will be interested to learn the results which have just been announced of the preliminary Competition for a design for the rebuilding of the Shakespeare Memorial Theatre at Stratford-upon-Avon. Of the six successful contestants in the preliminary Competition, three are British and three American. Under the terms of the Competition, these six architects must submit further designs by November next and from them one will be selected by the Assessors, and the construction of the new building will be given to the architect whose design is finally chosen. Seventy-four architects submitted plans, among whom were several Canadians. The Assessors were Mr. Guy Dawber, F.R.I.B.A., Mr. Cass. Gilbert, President of the National Academy of Design of U.S.A., and Mr. Robert Atkinson, F.R.I.B.A. The following architects were selected to enter the final Competition: Miss Elizabeth Scott, 15 Gordon Square, W.C. 1, London; Robert O. Derrick, 120 Madison Avenue, Detroit, Michigan; Albert R. Mohr and Benjamin Moscovitz, Pershing Square Building, New York; Albert J. Rousseau, 2001 Vinewood Boulevard, Ann Harbor, Michigan; Percy Tubbs, Son, and Duncan and S. Rowland Pierce, 15 Gower Street, London, W.C. 1; and D. F. Martin-Smith, 45 Bloomsbury Square, W.C. 1.

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NOTES

Members are reminded that the Competition for a New Cover Design for the Journal will close on October 15th. Designs must be sent to the office of the Institute, 2020 Union Avenue, Montreal.

* * *

A Competition for a design for a War Memorial to be erected on the Memorial Boulevard, Winnipeg, is announced by the Winnipeg War Memorial Committee. Copy of the Conditions of the Competition may be obtained upon application to L. M. Ault, Secretary, Winnipeg War Memorial Committee, City Hall, Winnipeg.

* * *

The Competition for a design for a cenotaph to be erected in the city of Calgary has been extended to September 15th. Three prizes will be awarded, \$200, \$100 and \$50. The chief assessor is Professor Cecil S. Burgess, head of the Department of Architecture, University of Alberta.

* * *

Messrs. Watt & Blackwell of London, Ontario, have donated plans for a cenotaph to be erected in Victoria Park in memory of Londoners who died during the great war. It is estimated that the cost of the monument will be approximately \$50,000.

* * *

The Ontario Association of Architects has been compelled to take action on three different occasions during the past month on account of persons representing themselves as Registered Architects when they had no right to the title. The statute calls for a penalty of \$25.00 for the first offense and \$100.00 for subsequent offenses, and the Council of the O.A.A. intend to take immediate action against any offenders.

* * *

The General Contractors' Association of Toronto and the Toronto Builders' Exchange have requested the Ontario Association of Architects to have their members lengthen the time allotted by architects for figuring on their work. They point out that five to six working days to figure on large work is not sufficient and that by allowing more time contractors would be able to submit better prices.

* * *

Gordon M. West, of Molesworth, West and Secord, Toronto, is spending his vacation in England.

* * *

866,000 houses have been erected in England and Wales during the last eight years.

* * *

The British Architects' Registration Bill which was referred to the Select Committee of the House of Commons, after having passed its second reading will not be presented to the House, owing to the fact that the Committee did not give a deciding vote. Of the eleven members of the committee,

(Continued on Page xxxiv)



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Notes (Continued)

only ten were present when the vote was taken and as the final vote was five to four not to report the Bill, the Chairman, in view of his position, did not vote. An amended Bill will probably be presented at the next session of the House, and will be modified by the incorporation of many of the suggestions made by the various societies and bodies who gave evidence before the Select Committee.

* * *

The seventh Annual Meeting of the Franco-British Union of Architects took place in Paris on July 4th. Monsieur Georges Legros was elected President to succeed Sir Reginald Blomfield. Mr. Guy Dawber was elected Vice-President. One of the important matters receiving attention at the meeting was the question of International Competitions which was referred to a Special Committee for further consideration. The next Annual Meeting will take place in England in June, 1928.

* * *

Mr. G. E. H. MacDonald, A.R.C.A., was successful in submitting the winning designs in the Dominion-wide Competition for the five-cent and twenty-five-cent Jubilee Coinage. Mr. Gustav Hahn also of Toronto, submitted the winning design for the one-cent coin. Both Mr. MacDonald and Mr. Hahn received \$500 for each of the successful designs.

Books Reviewed

ARCHITECTURAL CONSTRUCTION, Volume II, Book II. STEEL CONSTRUCTION. An analysis of the Structural Design of American Buildings. By Walter C. Voss and Edward A. Varley. Published by John Wiley & Sons, Inc., New York. Price \$10.00.

In the preface of this volume the authors state that one of their objects is to bring about a closer co-operation between the architect and the engineer. "The architect who aims to become reasonably well-versed in the fundamental principals of Structural Design and detail will not

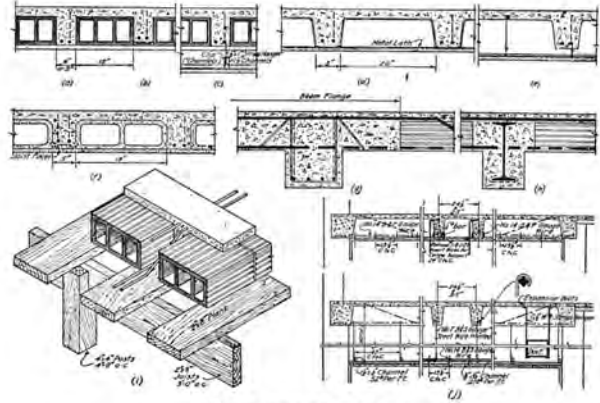


FIG. 185. TYPES OF RIBBED SLABS

- (a) tile-joint, plastered direct to concrete rib
- (b) tile-joint with saddle block
- (c) tile-joint with suspended ceiling
- (d) stationary metal coirs with lathed soffite
- (e) removable metal coirs with suspended ceiling
- (f) gypsum core
- (g) concrete girder support for tile-joint slab
- (h) structural steel girder support for tile-joint slab
- (i) typical forms for support of ribbed slabs
- (j) detail for suspended ceiling

Illustration from "Architectural Construction," so arrange the plan as to penalize the construction, but will be able to sense the usual economic principles and govern his layout accordingly. Likewise, the engineer should become as well versed in the general practice of the architect as possible, in order that he may wisely guide those features of the design which seriously affect

(Continued on Page xxxvi)

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Books Reviewed (Continued)

his efforts toward economy, without any sacrifice in the beauty or serviceability of the building." The need for such a book is unquestionable. The majority of practicing architects require a general knowledge at least of engineering practice. The book is replete with mathematical data and diagrams and contains a great deal of useful information on the design of Beams, Columns, Floor and Roof Construction, Mill Building Construction, and Miscellaneous Framing. In addition to tables giving floor loads and tests, the book contains authentic information on some of the newer developments of building construction, such as: bar and steel joists, metal and clay tile floor construction and concrete reinforcement. There is also a paragraph devoted to stair construction illustrating the different types of Structural Steel Framing. This volume is 9" x 12" in size and contains 564 pages, 43 plates and 609 figures. It is the third of a series of books prepared by the authors on Architectural Construction. Book 1 of this volume dealt with Wood Construction. We understand that others are to follow on Concrete Construction and Walls and Foundations.

Manufacturers' Publications Received

Oil Heating Institute—

A very useful and informative booklet on Oil Heating has just been issued by the Oil Heating Institute, an association of the leading manufacturers of oil burning systems in the United States. So little is really known of this new method of heating, that the information contained in this booklet will be of great assistance to architects in determining its usefulness. In addition to data concerning costs, it includes information on the size and space required for storage tanks, etc. Following the general information on the subject of Oil Heating, there is a description given of several of the most important oil burners on the market at the present time. The book is 5½" x 8" in size and contains 76 pages.

The Ontario Gypsum Company, Limited—

A series of architects' reference books in folder file form has just been issued by the Ontario Gypsum Company, Limited, which should prove interesting to architects. One of the series is on Insulex, which we understand has been

compiled by an architect, and contains a lot of useful information on the proper application and mixing of Insulex. There are several tables which show the insulating values of different materials and many diagrams showing methods of insulation. The file also contains technical literature on Gypsum Partition Tile, Short Span Pre-cast Reinforced Gypsum Roof Tile, Long Span Pre-cast Gypsum Roof Slabs and Gypcrete Floor and Roof Construction; in the latter is included an abridged report of tests on Gypcrete slab construction made by the University of Toronto. There are five different pieces of literature contained in this folder all of which are 8½" x 11" in size.

National Terra Cotta Society—

"Building Floodlighting and its possibilities with Terra Cotta" is the title of a booklet which has just been issued by the National Terra Cotta Society. The improved method of floodlighting now used on many of the large buildings erected in the United States during the past few years and the introduction of the set-back in high buildings, has made it possible for the architect to secure effects which heretofore were impossible. A great deal of research work in building floodlighting and its possibilities with Terra Cotta has been done by Mr. D'Arcy Ryan, Director of the Illuminating Engineering Laboratory of the General Electric Company, and this booklet contains some of the papers delivered by himself and other Illuminating Engineers at the 29th General Meeting of the National Terra Cotta Society. Mr. Ryan has demonstrated to the National Terra Cotta Society the reflection qualities of Terra Cotta which are so essential in the successful floodlighting of buildings. There is also reproduced in the booklet a number of night photographs taken of prominent buildings which tend to show the wonderful effects that can be obtained by illuminating the exteriors. The book contains 15 pages and is 8½" x 11" in size.

Portland Cement Association—

A four page folder has just been issued by the Portland Association, containing a reprint of an article from "The Western Construction News" on the three million dollar Highland Hospital at Oakland, California. The building is of Spanish Colonial design and is of monolithic reinforced concrete. The folder illustrates some rather unique features of construction and design.



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No 15

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