

JOHN A. RUSSELL

109.

JOURNAL

NOVA SCOTIA
TECHNICAL COLLEGE
HALIFAX, N. S.

ROYAL ARCHITECTURAL INSTITUTE OF CANADA



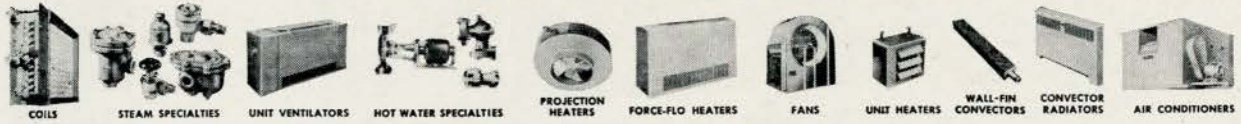
VOL. 26

TORONTO
SEPTEMBER

1949

No. 9

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JOURNAL

ROYAL ARCHITECTURAL INSTITUTE OF CANADA

Serial No. 289

TORONTO, SEPTEMBER, 1949

Vol. 26, No. 9

PRESIDENT A. J. HAZELGROVE (F)

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Editorial and Advertising Offices - - - - - 57 Queen Street West, Toronto 1

SUBSCRIPTION RATES

Canada - Three Dollars per year. Great Britain, British Possessions, United States and Mexico - Five Dollars per
year. All Other Countries - Six Dollars per year. Single Copies - Canada, 50 Cents; Other Countries, 75 Cents.

JOURNAL R. A. I. C.

SEPTEMBER 1949

THE effort of the Royal Architectural Institute of Canada, through its Toronto Chapter Members, in organizing an exhibition for the Canadian National Exhibition, is worth more than passing mention. It was not merely a very bright flash in the pan because, besides being shown to hundreds of thousands of people in one centre, it will go on tour throughout the Dominion under the auspices of the National Gallery. Publicity for architecture and the profession of architecture is something we hear little about these days.

IN depressions, a committee of enthusiasts is fairly easily organized in the hope that the dissemination of knowledge as to the function and services of the architect will guide some sinners, who would normally go to a builder, to the architect. In times of boom, architects burdened with care, are loath to give up time to the organizing of an exhibition committee, and the mere thought of cutting mounts and hanging pictures would strike them as a peculiar form of insanity. We live at the moment in such an atmosphere, and the work of the busy architects on the Toronto Committee makes their achievement the more creditable and remarkable.

WE can only assume that, unlike many previous committees that sought merely to prove the need for an architect, this group was fired by a desire to give publicity to fine architecture. Nothing, in our view, could be more important in boom or depression, and nothing more futile than the exhibition based on the narrow, and frequently fallacious, thesis that you cannot afford to build without an architect. In a country where possibly sixty percent of wage-earners cannot afford to pay an economic rent, the idea of the "architect designed home" cannot be more than a will-o'-the-wisp. The exhibition at the Canadian National Exhibition, and at centres throughout Canada will show the discerning public an architecture of which they were previously unaware, and those who can afford it will employ an architect. The anonymity of the exhibits so far as the architect is concerned represents a great step forward, and is indicative of the public spirit which fired the committee. In a comparatively new country like Canada with towns and cities with vastly unequal opportunities for seeing good architecture, the touring exhibition of photographs is one that the Royal Architectural Institute of Canada, the provincial associations and the National Gallery should foster by every possible means.

HOWEVER praiseworthy anonymity may be in the touring exhibition in which Architecture is the theme, it is to be condemned in the public press where a specific building is mentioned or shown. This is an old story, but not one to be dropped on that account. Periodically we get worked up about it, and more than once have gone to bat for recognition of the architect. We have started at the top and found the publisher shocked to find that such a state of affairs exists. He has passed us on to the general manager, who expresses equal surprise, and passes us on to the city editor. The latter denies our charges and points to a perspective in a recent issue. It is true that newspapers do not erase the architect's name on a perspective because, in so doing, they might be liable to the just processes of the law. The photograph of a building has no such copyright especially if taken by a staff photographer. Somewhere in the machine, we believe there is an advertising editor or official who refuses to give "free publicity" to a non-advertising person — in this case the architect. So it is that on the opening of a building, photographs of it will be shown, distinguished guests will be mentioned and credit given to the contractor and even sub-contractors. So zealous is the press in suppressing the architect that last year in a photograph in which we posed with a provincial premier, our left arm, only, appeared in the published cut (sic). This caused us no embarrassment except from the ribald laughter of our family, but it indicates the lengths to which some person who is neither owner, manager or editor will go to achieve the eradication or even the partial eradication of the architect. We believe the President of the Institute would do every architect, and the cause of architecture, a service if he were to write every leading newspaper in twenty Canadian cities asking its policy in this matter.

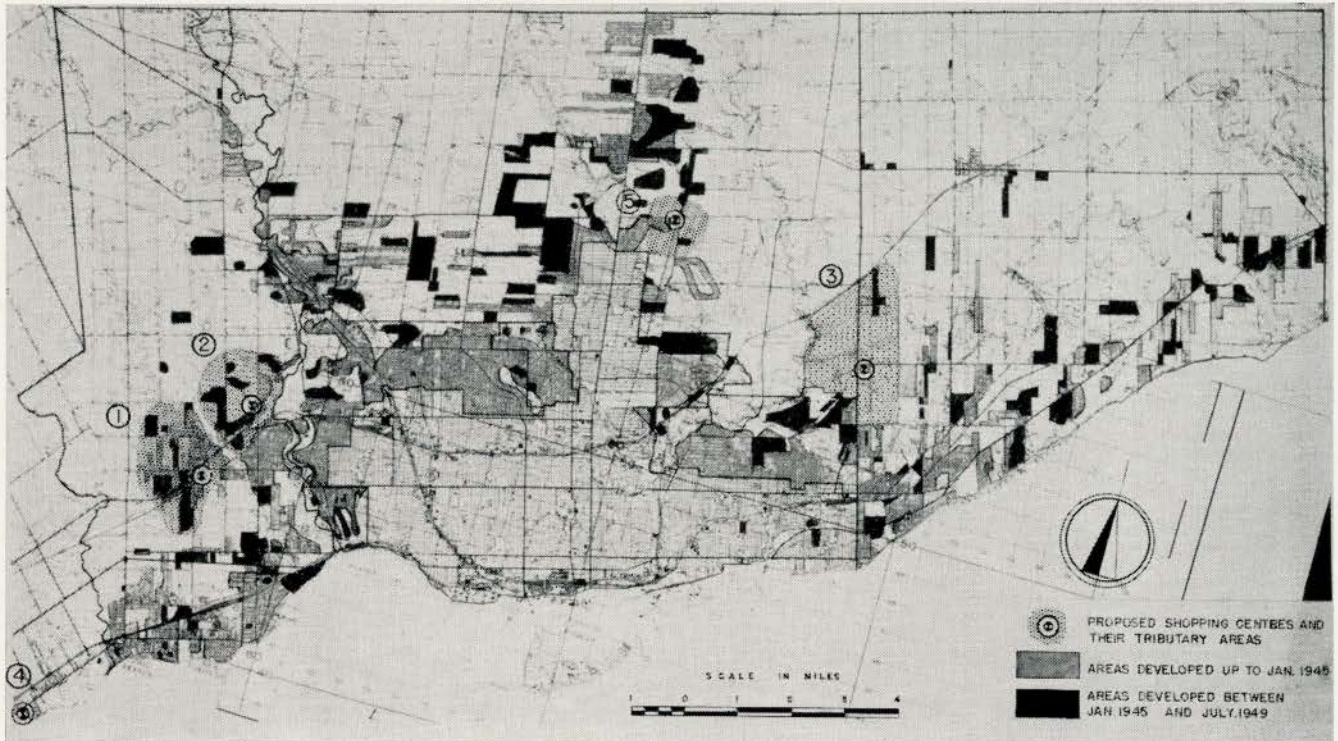
WHERE a mere individual, we hope with no selfish motives in mind has, after twenty-five years of sporadic effort, got his left arm in the public press, the President might get the architect's name mentioned or a view of his bust. We are not seriously interested in busts, but layman and architect would agree that, where a building is good enough and important enough to receive newspaper publicity by photographs or otherwise, its author should receive full credit.

SOME changes have taken place in the subject matter for the balance of issues for 1949. In October we shall show Sunnybrook Hospital by Allward and Gouinlock; in November, the Bank of Montreal by Chapman, Oxley and Facey, Marani and Morris, Architects and K. R. Blatherwick, Associate Architect; and in December, the National Capital Plan.

Editor

THE TREND IN SHOPPING CENTRES

By E. G. FALUDI



(Plate 1)—New Residential Areas in Metropolitan Toronto. Since 1945, about 5,000—6,000 acres of land have been subdivided, providing approximately 25,000 building lots. In Etobicoke and North York Townships there is already visible evidence of the integration of these subdivisions into neighbourhoods.

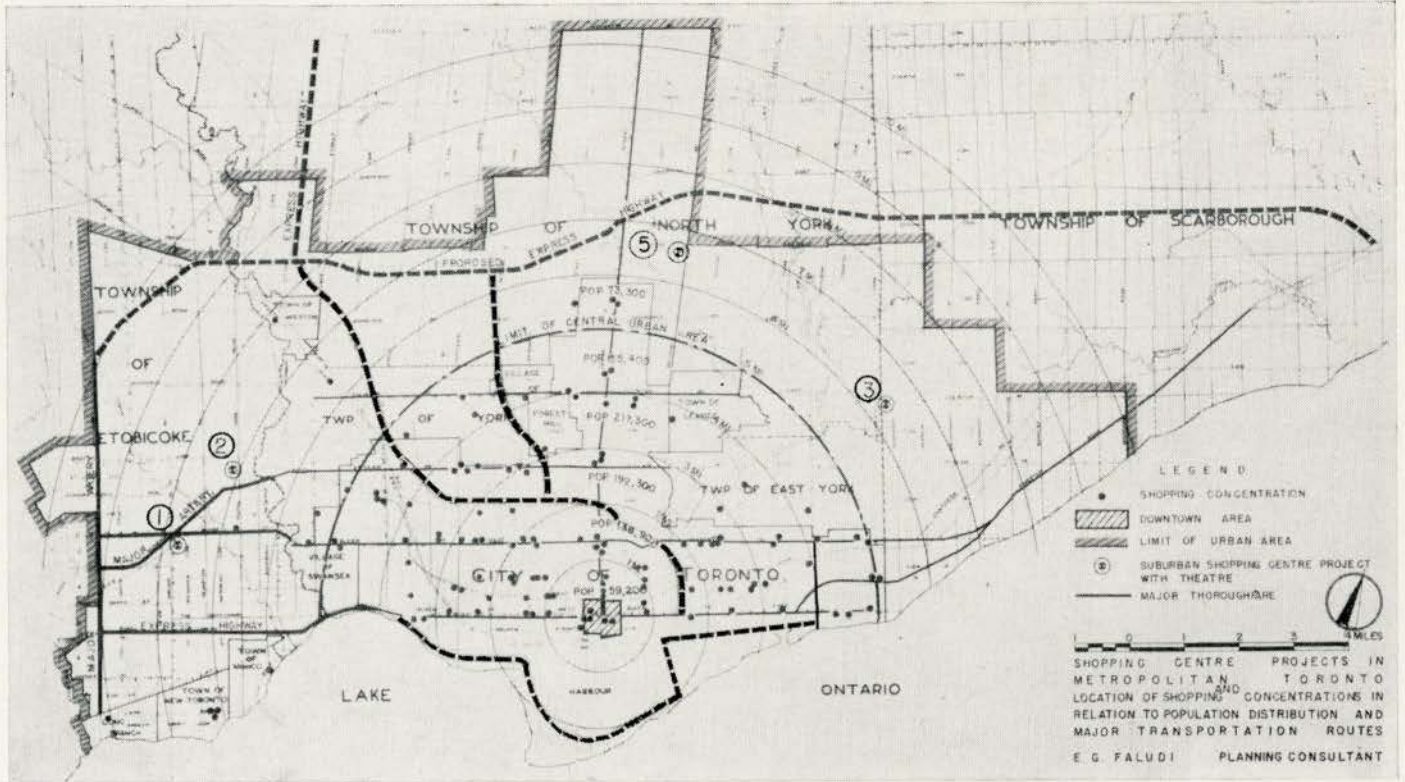
THE unprecedented development of urban land that has taken place in recent years around the larger population centres of Canada indicates that a decentralization process of metropolitan communities has already started. The single "territorial body" of some cities, such as Toronto, Montreal, Winnipeg and Vancouver is slowly exploding into a solar system of self-contained, but not self-governing satellite communities. The major symptom of decentralization is migration towards the suburban fringe, or still farther out to the surrounding countryside which is too common a phenomenon to require detailed description.

The gradual opening of subdivisions and the building of new industrial settlements around the above-mentioned cities is no longer haphazard. To some extent it is guided by master plans and controlled by restrictive zoning by-laws. Already there are examples of new residential settlements around shopping and business centres, which are in the course of development according to a plan. Each settlement has its own schools, churches, recreational areas and is protected against encroachments. Arteries connect them with the heart of the city and mass transportation facilities have been provided.

Since the shopping centre is becoming an integral part of our future satellite communities and their components, it is essential that its function be widely understood, and that full consideration be given to its planning and design.

Recent experience in the U.S.A. provides us with information on standard requirements. However, the principles which govern the design of shopping centres in the U.S.A. cannot be always and fully applied to Canadian conditions. Our population growth, distribution and density, purchasing power and habits have created an urban organization with a specific pattern that is consistent with the underlying forces of our national growth. The economic and social framework of our communities is different from that in the U.S.A., and consequently the spatial relationships in our retail business centres are often different.

Experience in the U.S.A. indicates that varying climatic and social conditions, buying habits, purchasing power, building by-laws, the location of competing shops, transportation facilities, highways, topographical barriers, etc. are important determining factors in the selection of location and design of shopping centres. It is logical, therefore, to believe that many of the established



(Plate 2)—Distribution of shopping nuclei in Metropolitan Toronto. Shopping centres are focal points in the new residential areas. The trend is toward the replacement of the scattered store clustering by planned and controlled shopping areas.

standard requirements should be considered as a guide rather than as fixed rules.

Types of Shopping Centres

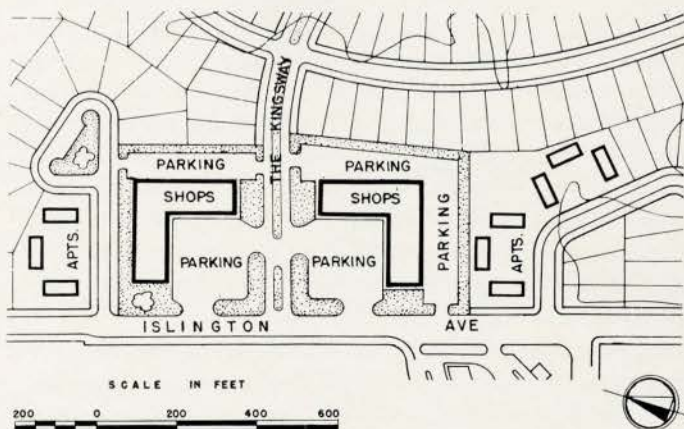
The pattern of the retail business structure may be reduced to two basic conformations:—

- String street development, stretching along a traffic artery;
- Nucleation, clustering of retail uses, assuming a structural unity at a street intersection or adjacent to it.

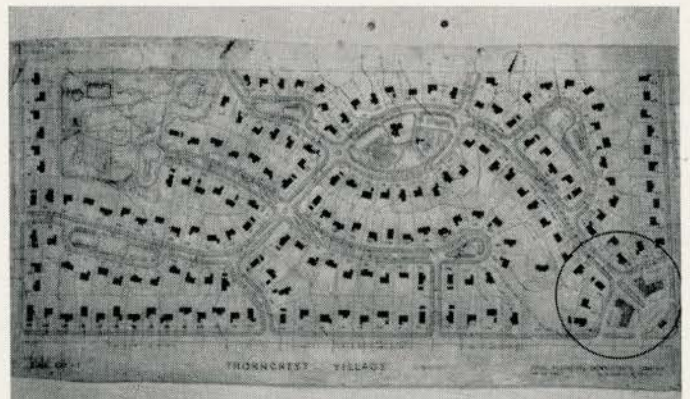
The nucleation may vary in nature, size and intensity of land use from the neighbourhood grocery-drug store

combination to a major retail subcentre, providing on a reduced scale, all the services of a central business district.

Attempts have been made to define sub-classifications of the nucleation type, based on the population and size of its tributary area, and on the distance the residents have to walk or travel to reach it. Normally, a minimum of about 250 families is required to support a small shopping centre. With this nucleus, a maximum of about ten stores can be considered. However, we shall also distinguish smaller units — based on geographical divisions of the various types of residential units.



(Plate 3)—Humber Valley Village West. Planner: E. G. Faludi. This small centre is planned to serve for daily purchases, consisting chiefly of food products. It is separated from the surrounding residential lots and the access streets by landscaped strips.



(Plate 3A)—Thorncrest Village. Planner: E. G. Faludi. The shopping area has been conceived complementary to a self-contained community, which is practically controlled by a property-owners' association, and regulated by deed restrictions and the zoning by-law of the Township. The shopping centre is a portion of a larger commercial area designated as such by the official plan. It will also operate as a unit, together with the Humber Valley Village West shopping centre.

1. Neighbourhood Shopping Clusters

Store clusters or isolated store groups usually comprise two or more complementary, rather than competitive convenience-goods stores. Thus, there may be a grocery store, a meat market, a fruit and vegetable store grouped together. The tributary area is usually the size of a super-block, or an area within a radius of 1600' from the store cluster. The minimum tributary population required is 250-500 families (1000-2000 people).

2. Small Neighbourhood Shopping Centre

This may consist of: drug store with some catering facilities, cash and carry grocery (food market), dry cleaning shop, combined with laundry, beauty parlour, barber shop, filling station, bakery and delicatessen, shoe repair shop, hardware shop, restaurant.

The tributary area is a residential area within a radius of half a mile around the shopping centre. The tributary population required is minimum 500-1,000 families (2,000-4,000 people).

3. Large Neighbourhood Shopping Centre

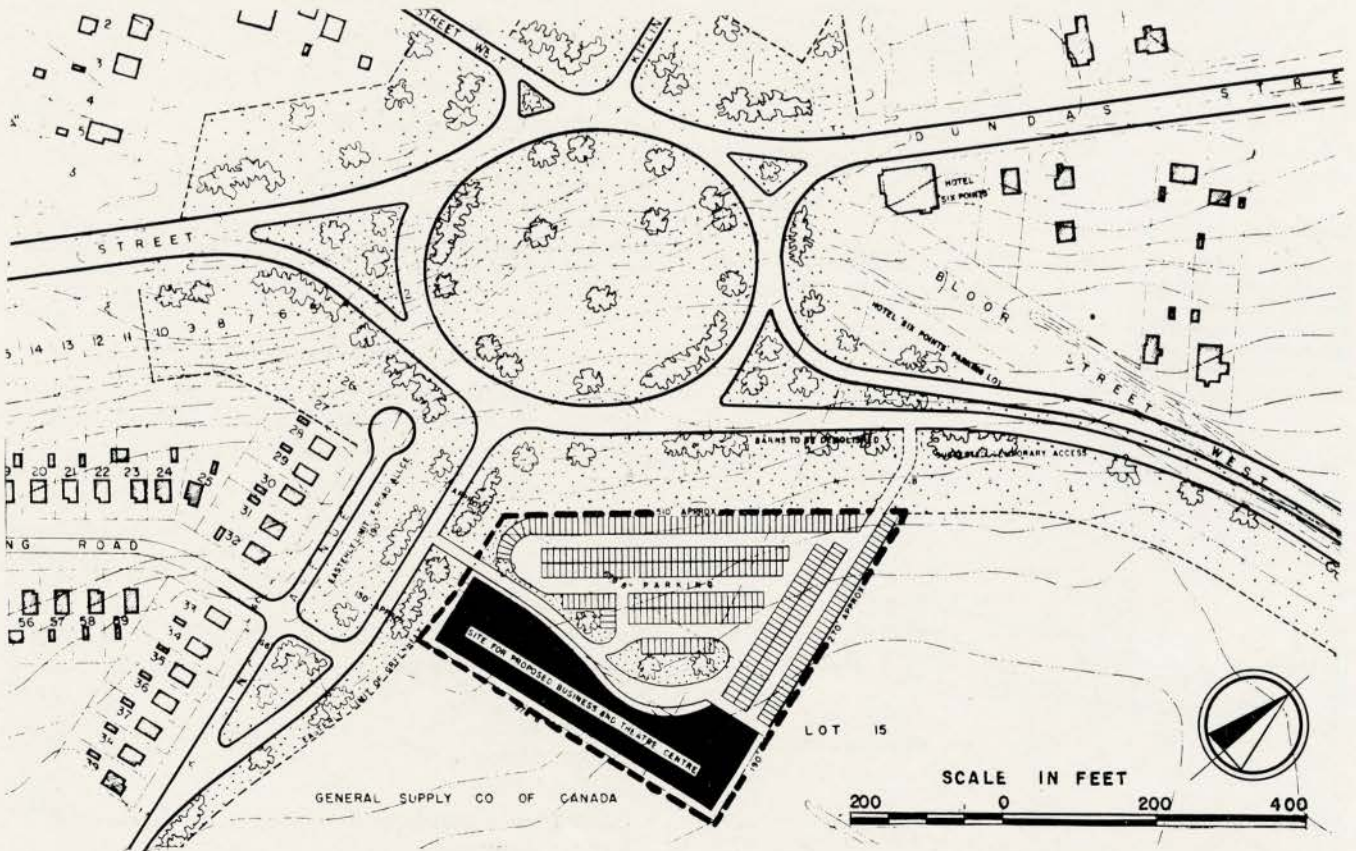
In addition to the stores mentioned under small neighbourhood shopping centre, there is also: service grocery, florist, milliner, radio and electrical goods, 5-10 cent store, bank, post office, gift shop, candy and nut shop, lingerie and hosiery shop, shoe store.

The tributary area lies within a half to one-and-a-half miles around the shopping centre. The tributary population required is minimum 3,000-4,000 families (12,000-16,000 people).

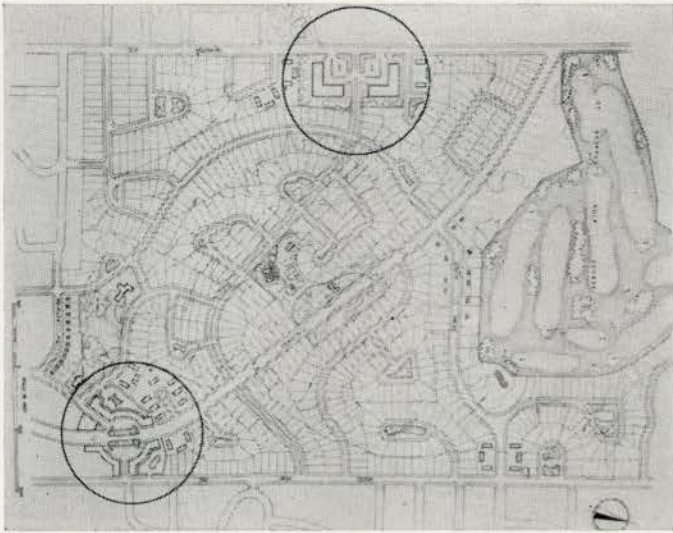
4. Community Shopping Centre or Retail Sub-centre

In addition to the above, there would be:—department store, dress shop, theatre, frozen foods (with rental food lockers), cafe, book and stationery shop, dentist, physician, baby, toy shop, haberdashery, sporting goods shop.

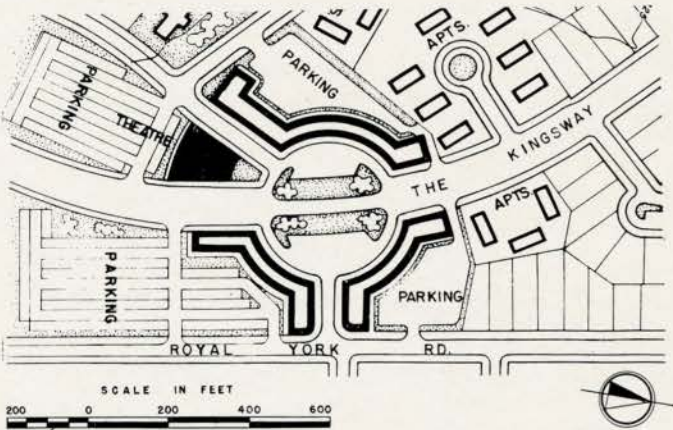
The major tributary area is a residential area within and beyond a 2-3 mile radius around the shopping centre. The tributary population required is minimum 4,000-5,000 families (16,000-20,000 people).



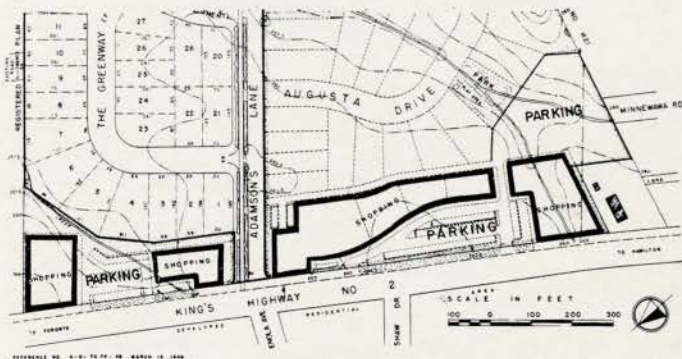
(Plate 4)—Westwood Six Points: Planner, E. G. Faludi. This shopping centre is in a strategic location and is visible from all parts of the traffic circle. The principal stores are a supermarket and a theatre of 750 seats, which may be duplicated when population increase warrants it. The parking area is planned in the front of the store buildings, necessitated by the topographical features, shape and size of the property.



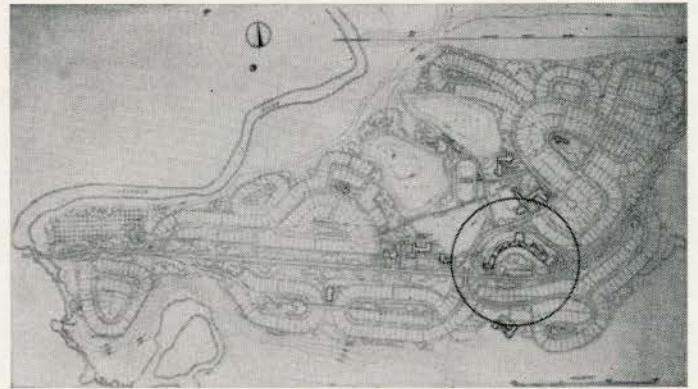
(Plate 5)—Humber Valley Village: Planner—E. G. Faludi. In this self-contained neighbourhood particular areas are designated for recreational, educational, cultural and commercial uses by an overall plan of the township of Etobicoke. Four access routes are provided to the shopping centre to attract customers from all parts of the surrounding residential areas and from outside the community.



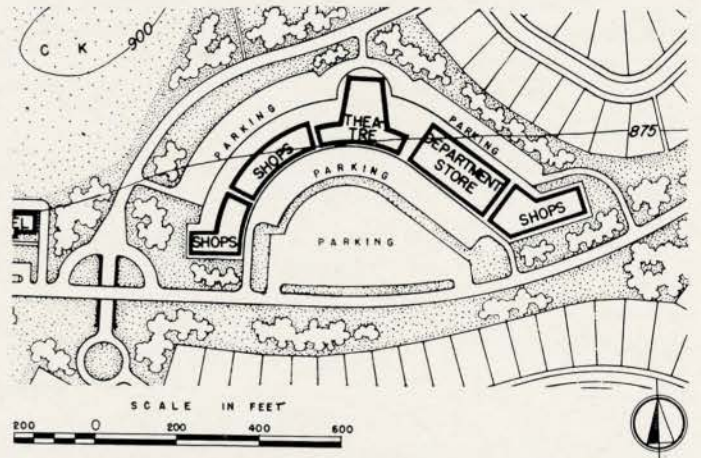
(Plate 5A)—Humber Valley Village East Shopping Centre: Planner—E. G. Faludi; Architects Hanks and Irvine. The function of this centre is two-fold: (a) to provide a retail centre with sufficient parking facilities to serve a population beyond the immediate tributary area, and (b) to replace the congested Bloor Street store clusters situated a mile away which have no parking facilities. Rear and front parking is provided to satisfy customer and service circulation requirements.



(Plate 6)—Grove Farm Development: Planners—A. P. Adamson and E. G. Faludi. Alongside a main highway (No. 2), this shopping centre is expected to draw passing and local trade. Two separate building groups are planned: the larger one with a curved frontage will serve to satisfy immediate tributary areas and the smaller one is planned as an extension, when further increase of population warrants it.



(Plate 7)—Terrace Bay: planned by E. G. Faludi. The general plan, covering about 350 acres of effective townsite, shows the relation of the shopping centre to the residential pattern, civic groups, recreational focal points and to circulation routes. The town is built on two terraces and access between them is provided by a subway passing under the Trans-Canada highway. The subway is on the western boundary of the shopping centre.



(Plate 7A)—Terrace Bay Shopping Centre: planned by E. G. Faludi. The major characteristics of this community shopping centre are: (a) the curved building to increase store frontage and encourage window shopping; (b) front and rear parking; (c) separation of the parking and store areas from surrounding residential lots by a greenbelt; (d) separation of store and parking areas from the traffic of a major highway. The store buildings are designed by Mathers and Haldenby, architects.

Population Requirements of Retail Stores

Due to lack of available Canadian data, we quote information gathered by the U.S. Census Bureau, showing the population per store in eleven typical cities (U.S. Census 1928)

I	Inhabitants per Store (persons)
Kind of Business	
Art and Antique	13,371
Automobile	6,673
Automobile Accessory	3,270
Bakery	2,548
Boot and Shoe	3,346
Building Material	6,960
Cigar and Tobacco	2,071
Clothing and Furnishing, Men's Ready-to-wear	2,397
Clothing, Women's	4,063
Confectionery, Ice Cream, Soft Drink	1,017
Custom Tailor	4,245

Dairy and Poultry Products - - - - -	11,772
Department - - - - -	53,486
Drug - - - - -	1,545
Dry Goods and Notions - - - - -	2,065
Electrical Appliance and Supply - - - - -	9,057
Florist - - - - -	2,510
Fur and Fur Clothing - - - - -	19,118
Furniture and House Furnishing - - - - -	2,388
Gasoline and Oil - - - - -	1,643
General - - - - -	90,569
Grocery, Delicatessen - - - - -	325
Hardware - - - - -	2,748
Hat and Cap - Men's and Boy's - - - - -	26,638
Jewellery - - - - -	4,958
Junk - - - - -	36,131
Meat - Poultry and Fish - - - - -	1,189
Millinery and Artificial Flowers - - - - -	6,136
Motorcycle and Bicycle - - - - -	57,565
Musical Instrument and Sheet Music - - - - -	12,239
Office Equipment - - - - -	15,473
Optical Goods - - - - -	26,995
Paint, Oil, Varnish and Glass - - - - -	11,772
Photographic Supply and Camera - - - - -	63,483
Plumbing and Heating Fixture and Supply - - - - -	9,447
Radio - - - - -	18,306
Restaurants - - - - -	813
Sporting Goods - - - - -	44,985
Stationery, Books, Magazines, etc. - - - - -	6,402
Toys and Games - - - - -	83,860
Trunks and Leather Goods - - - - -	21,227
Typewriting and Calculating Machines - - - - -	40,193
Variety - - - - -	18,610

It was found in public housing projects, that 250 families are the basic minimum to support any general store any place.

Selection of Locations

Within developed or undeveloped areas of a community a shopping centre must fit in the present and the anticipated economic and physical pattern.

A fundamental assumption is that as a community grows and develops it tends to evolve a rational pattern or basic structure composed of elementary functional areas. By planning and zoning procedures, the most suitable business and shopping areas can be identified and designated as such. The selection of the location of the shopping centre should be based on a survey of existing and possible future competing centres, the recognition of possible shifting markets, and the buying power of the population within the tributary area, or within the territory of attraction.

The possible purchasing power is based on the average family income and the percentage per household spent on personal commodities and services. Average families spend an estimated 70% of their income on living expenses (i.e. food and shelter and basic requirements). With the assistance of statistical data for particular locations this percentage may be divided into specific amounts spent locally. With these figures available, it is possible to determine the number and type of businesses which may reasonably be expected to operate successfully in any given area.

The following tables indicate the relation between family incomes and expenditures in the U.S.A.

II—Average Expenditures per U.S. Family by Percentage

Income Level	Food	Shelter	Clothing	Transportation	Other
Under \$ 500 - - - - -	43.6	33.5	7.5	3.9	11.5
\$ 500—\$ 750 - - - - -	43.8	32.0	7.9	4.7	11.6
\$ 750—\$ 1,000 - - - - -	41.5	32.2	8.5	5.8	12.0
\$ 1,000—\$ 1,250 - - - - -	38.4	32.9	8.9	7.2	12.6
\$ 1,250—\$ 1,500 - - - - -	36.9	32.4	9.3	8.2	13.2
\$ 1,500—\$ 1,750 - - - - -	34.9	32.3	9.7	9.2	13.9
\$ 1,750—\$ 2,000 - - - - -	33.1	32.9	9.7	10.3	14.0
\$ 2,000—\$ 2,500 - - - - -	31.4	32.4	10.5	11.3	14.4
\$ 2,500—\$ 3,000 - - - - -	30.0	32.5	11.1	11.5	14.9
\$ 3,000—\$ 4,000 - - - - -	28.2	33.2	11.6	11.7	15.3
\$ 4,000—\$ 5,000 - - - - -	26.0	33.0	12.5	12.8	15.7
\$ 5,000—\$10,000 - - - - -	23.3	34.2	12.5	12.8	17.2
\$10,000—\$15,000 - - - - -	19.9	35.9	13.6	13.1	17.5
\$15,000—\$20,000 - - - - -	19.6	32.2	13.8	14.5	19.9
\$20,000 and over - - - - -	15.3	36.2	14.7	14.7	19.1
All Levels - - - - -	33.6	33.0	10.1	9.4	13.9

(National Resources Planning Board 1935-36)

III—Average Expenditures per U.S. Family in Dollars

Income Level	Food	Shelter	Clothing	Transportation	Other
\$ 1,000—\$ 1,250	\$ 433	\$ 371	\$100	\$ 81	\$142
\$ 1,250—\$ 1,500	487	427	123	107	172
\$ 1,500—\$ 1,750	527	489	147	139	210
\$ 1,750—\$ 2,000	558	556	164	172	234
\$ 2,000—\$ 2,500	617	638	207	222	284
\$ 2,500—\$ 3,000	690	748	255	266	343
\$ 3,000—\$ 4,000	770	906	316	320	417
\$ 4,000—\$ 5,000	852	1081	408	417	518
\$ 5,000—\$10,000	1038	1526	557	570	763

(National Resources Planning Board 1935-36)

IV—Amount Spent per Average Family per Year for Special Items

Beauty Parlour	\$ 50.00
Clothes	150.00
Laundry	40.00
Medical	100.00
Movies	40.00
Telephone	18.00
Rugs and Curtains	10.00
Shoe Repair	6.00

(National Resources Planning Board 1935-36)

V—Percentage of Total U.S. Retail Sales Made by Selected Kinds of Business

Food Store	25.2%
Country general stores	3.4%
General merchandising	13.9%
Automotive sales	13.9%
Apparel stores	8.0%
Furniture and household furnishings	3.9%
Other	31.7%
	100%

(U.S. Census Bureau 1935)

VI—Types of Retail Volume Distributed by Various Operations

Independents	73.1%
Chain groups	22.8%
Others	4.1%

(U.S. Census Bureau 1935)

VII—Table of Family Expenditures of Low Income Groups

Rent	20% of income
Savings, insurance, dependents, etc.	10% of income
All living expenses	70% of income

(Compiled by the Public Buildings Administration for Defense Housing Projects — 1941)

VIII—Distribution of Living Expenses

Feeding	45%
Merchandise	14%

Clothes	14%
Car	7%
Filling Stations	2%
Furniture	1%
Hardware	2%
Drugs and Cosmetics	7%
Restaurant and Bar	7%
Others	1%
	100%

(Compiled by the Public Buildings Administration for Defense Housing Projects — 1941)

IX—The 45% Feeding Item Above is Then Broken Down as Follows:

Candy	4.0%
Dairy Products	6.2%
Delicatessen	1.7%
Fruit and Vegetables	3.2%
Dry groceries	14.3%
Canned groceries	6.1%
Meat	8.3%
Bakery	1.0%
Others	.2%
	45%

(Compiled by the Public Buildings Administration for Defense Housing Projects — 1941)

X—Percentage Distribution of Estimated Consumption Expenditures, 1950 and 1960, with Expenditures for 1940

	1940	1950	1960
Food, Liquor and Tobacco	30.98%	31.16%	30.62%
Clothing, Accessories, and Personal Care	13.89%	14.02%	13.93%
Housing	17.81%	16.59%	15.92%
Household Equipment and Operation	12.38%	12.96%	13.02%
Consumer Transportation	10.40%	10.88%	12.20%
Medical, Insurance and Death Expenses	6.69%	6.59%	6.50%

Recreation - - - - -	4.63%	4.90%	5.10%
Private Education - - -	1.60%	1.53%	1.47%
Religion and Private Social Welfare - - - - -	1.62%	1.37%	1.23%

(From "America's Needs and Resources" Twentieth Century Fund Survey - 1947)

Composition of the Shopping Centre

Before estimating the size of the shopping centre, we shall determine for what retail uses a given location is best suited. It is therefore necessary to:-

1. identify the consumer groups to which the location is convenient,
2. determine the size of these groups,
3. define the ranking of various retail articles and services for these groups, in terms of convenience and desirability.

The first step requires a study of accessibility, and possible traffic; and the second and third steps a study of buying habits. The study of accessibility should provide information as to the number of shoppers who may be attracted, moving by foot, car, or public transportation.

Size of the Shopping Centre

Several methods have been developed for estimating the ultimate size of the shopping centre and the amount of area needed for shops, parking, and other facilities. However, no single cut-and-dried method, as indicated below, is sufficient in itself to define scientifically the size of a shopping centre. A satisfactory solution may be reached by checking against results arrived at by individual methods and reasonably compromising for an average. The basic methods establish a:

1. Ratio of store frontage required to the population to be served. Some planners assert from 50' - 100' per 100 persons. This quantitative method, which seems simple and reasonable, however, lost its reliability in recent years as greater store width and depth are demanded by super-markets, and better parking facilities are required because of the increased number and use of cars.
2. Ratio of square feet of store area to population. A large number of successful shopping centres contain an average area of approximately 4,000 sq. ft. per 100 persons, or an acre per 1,000 persons living within the tributary area.
3. Ratio of the number and type of retail outlets to population needs and buying power in the tributary area, taking into account:-
 - (a) the tributary and transient population
 - (b) its purchasing power in the direct tributary area and in the larger district where the places of employment are located (see tables I-X)
 - (c) the location and character of competitive shopping areas.

Size of Stores

The following table indicates the approximate area requirements of the various types of stores, based on stores existing or under construction in different shopping centre projects:-

XI—Average Useable Dimensions and Areas for Types of Retail Stores in Large Suburban Centres

	Dimensions	Area (sq. ft.)
Super Market - - - - -	120' x 200'	24,000
Food Market (Chain) - - -	100' x 125'	12,500
Theatre - - - - -	60' x 150'	10,000
Food Market (Independent) -	50' x 100'	5,000
Department Store - - - - -	50' x 100'	5,000
Five and Ten (Chain) - - -	50' x 100'	5,000
Drug Store (Chain) - - - - -	40' x 100'	4,000
Variety - Junior Department -	35' x 90'	3,150
Ladies Wear - - - - -	30' x 100'	3,000
Drug Store (Independent) - -	30' x 90'	2,700
Restaurant - - - - -	25' x 100'	2,500
Shoes - - - - -	25' x 100'	2,500
Bank - - - - -	30' x 75'	2,250
Hardware - - - - -	30' x 70'	2,100
Furniture - - - - -	30' x 70'	2,100
Meat Market - - - - -	35' x 50'	1,750
Men's Wear - - - - -	25' x 70'	1,750
Ladies' Hat Shop - - - - -	25' x 70'	1,750
Tea Room, etc. - - - - -	25' x 50'	1,250
Post Office - - - - -	25' x 50'	1,250
Jewellery (Watch Repair) - -	15' x 75'	1,125
Bakery - - - - -	15' x 70'	1,050
Dry Cleaning and Dyeing - - -	15' x 70'	1,050
Laundry (Pick-up) - - - - -	15' x 70'	1,050
Delicatessen - - - - -	15' x 70'	1,050
Radios and Repair and Electric	15' x 70'	1,050
Candy and Ice Cream - - - - -	20' x 50'	1,000
Florist - - - - -	15' x 50'	750
Barber - - - - -	15' x 50'	750
Beauty Parlour - - - - -	15' x 50'	750
Cigar and Tobacco - - - - -	15' x 50'	750
Book and Stationery Store - -	12' x 50'	600
Shoe Repair - - - - -	15' x 34'	510
Gift Shop - - - - -	15' x 30'	450

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Application of Methods to Define Area Requirements

For the application of basic data to estimate area requirements we quote from *Planning Neighborhood Shopping Centres* by M. Villanueva. (National Committee of Housing Inc. publ; 1945.)

"After evaluating the purchasing power of an area, and adjusting the fluctuating ranges that may apply to a neighborhood unit in an urban community, the next step was to find out how these facts could be used.

"Two theoretical neighborhoods with populations of 5,000 and 2,500 respectively, were chosen; the former representing the average in 69 areas found in Los

Angeles County where there was provision for only neighborhood business; the latter being a more common size neighborhood throughout the land.

"The theoretical area requirements indicated on the accompanying tables for 5,000 and 2,500 population were determined according to national per capita retail trade expenditures obtained from the 1940 census for the United States. This information was checked regionally and finally a field check was undertaken to compare the information obtained from the census against several small communities in this population range.

"These tables should not be used as a yardstick for all neighborhood shopping centres from coast to coast, although they can serve as a guide for local planning.

"Briefly, the results of the survey as tabulated reveal the following theoretical land needs:

- (a) 2,500 population, 5.46 acres or 2.18 acres per 1,000 population.
- (b) 5,000 population, 12.90 acres or 2.58 acres per 1,000 population.

"According to the Los Angeles County Survey, the neighborhood shopping centres were found to use 1.19 acres per 1,000 population as an average, which did not include adequate off-street parking spaces but accounted for an overabundance of store buildings.

"Having arrived at the basic per capita expenditures relating to the various trades, the potential sales volumes were established for the different types, apportioning the trade among an arbitrary number of merchants, but within profitable limits. Each of these stores was then given a normal floor space and in addition an off-street parking space to the extent of two square feet for each square foot of store space.

"Despite the fact that national averages seldom apply to local problems it was definitely found that, within a certain limit of probabilities, the basic data is workable if a realistic survey of local conditions can be made to recognize surrounding zones of influence. For example, in the food group the sum of \$83.36 represents the national average per capita per year for all communities rural and urban. In suburbs this sum is a minimum rather than an average. From the record it appears that in the States of California, Connecticut, New Jersey, New York and Pennsylvania, the average food sales volume is \$109.68 and is truly representative of metropolitan districts. This implies range fluctuations within this group from \$90 to \$130, according to the importance of the centres involved, but it may reach as low as \$83.36 in the very small town which supplies only part of its needs. Actually, the variations in comparable centres are narrow as revealed in the analysis by cities.

"Although it was the intention of this study to recommend accepted store sizes for the different trades, the actual sizes shown on the tables are only average; the number of square feet required by a merchant depending on what he can afford to spend in rent rather than what he would like to use. Too many contradictions were noticed to formulate definite dimensions. Another apparent difficulty is that of obtaining a reasonable rent in a good new building from low income trades such as shoe repairing shops and barber shops, usually found occupying cheap old buildings on a side street. As it is not sound to split up a modern building according to certain small requirements for floor space, only reasonable all-purpose sizes were included. Small space requirements can be met by combining several marginal trades in one store space.

"All rents were capitalized on the estimated volume of sales and not on the square footage basis, with the result that several stores of identical size pay different rents. Although capitalization of rents is accepted for store groups with one ownership, it is seldom applied to other groups. The principle, however, offers the best means of rent distribution on an equitable rather than arbitrary basis. The profitable returns are clearly demonstrated on the tables where it is shown that one single market can handle a given sales volume in a smaller space than that occupied by three competing food stores. Furthermore, this market can afford to pay a higher rent than these three stores combined, although the value of the single market structure is less than that of the three other stores.

"It will be noted that the theoretical rents, indicated in this study for neighborhood shopping centres serving 2,500 and 5,000 population, although obtained from field surveys, do not necessarily prove that they produce an adequate financial return to the owners of business properties. It is well known that outside of 100 per cent locations a great many stores hardly earn their own way, and that any efforts to improve business centres should naturally be of benefit to all concerned; the merchants, the property owners and the public at large. Constructive efforts to reduce the number of stores and to increase both business volume and rent levels have been few and far between but the exceptions are significant. The commercial facilities of Radburn, N.J., Parkchester, N.Y., and Houston, Texas, have been an inspiration in the preparation of this study, as examples of intelligent determination of local needs in the modern manner.

"Off-street parking spaces as an integral part of the commercial area requirements are included in the overall acreages shown."

**THEORETICAL AREA REQUIREMENTS FOR A TYPICAL NEIGHBOURHOOD SHOPPING CENTRE
FOR 2,500 POPULATION (625 FAMILIES)**

Serving a residential unit covering one square mile and located at least two miles away from any other shopping centre. Based on the national average per capita expenditures, U.S. census, 1940.

Per Capita Sales Basic (1)	Total	Types of Stores in Neighbourhood Centre	Size of Stores Adjuncts	Area Sq. Ft. Per Store	Estimated Sales	Prevailing		
						Rents	Per Cent (2)	
Food								
Food - - -	\$83.36	\$208,400	1 Grocery (no meats) - -	20 x 60	1,200	\$ 60,000	\$ 1,560	2.6
			1 Grocery (with meats) Self-Service - - -	25 x 70	1,750	90,000	2,340	2.6
			1 General Store, Meats - - - - -	20 x 60	1,200	58,400	1,518	2.6
					4,150	208,400	5,418	
			Alternate (In place of three stores) - - -	40 x 100	4,000	208,400	5,418	2.6
Automotive								
Filling Station -	16.57	41,425	2 Filling and Service Stations	120 x 200	24,000	20,712	890.5	4.3
				120 x 200		24,000	20,713	890.5
Repair Garage	3.35	8,375	1 General Service-Repair Garage including yard (combination) - - -	100 x 110	11,000	41,425	1,781	
	19.92	49,800			59,000	49,800	2,618	10.0
Drug and Stationery Store								
Drugstore -	9.15	22,875	1 Store including Fountain, Cigars, Books, and Varieties - - -	25 x 100	2,500	29,325	1,407	4.8
Cigars - -	1.58	3,950						
Stationery -	.45	1,125						
News - - -	.55	1,375						
	11.73	29,325						
Laundry—Dry Cleaning and Shoe Repair								
Laundry - -	3.80	9,500	(Pick-up Service) - - -	20 x 81	1,620	17,900	1,432	8.0
Dry-Cleaning -	2.49	6,225						
Shoe Repair -	.87	2,175						
	7.16	17,900						
Eating and Drinking Places								
Lunchroom (3) and			1 Lunchroom and Counter - - - - -	50 x 100	5,000	20,000	1,380	6.9
Restaurant -	16.21	40,525	1 Restaurant - - - - -	50 x 100	5,000	20,525	1,212	5.9
					10,000	40,525	2,592	
Barber Shop and Beauty Parlour								
Barber Shop and Beauty Parlour - -	3.65	9,125	1 Combination Store with Alcove - - -	20 x 70	1,400	9,125	780	8.55
Real Estate and Insurance								
			1 Office - - - - -	15 x 60	900		900	
Totals - - - -		\$355,075			79,570	\$355,075	\$15,147	

(1) The basic per capita sales indicated are national averages subject to local adjustments, according to regional variations. It is to be noted that a higher purchasing power exists in the suburban areas specifically referred to in this study for Connecticut, New Jersey and New York.

(2) The prevailing rent percentages indicated are according to typical occupancy expenses listed in Dun's Review of February 1921 for 50 retail trades. Percentages for service establishments were obtained from separate sources of information according to the National Cash Register Co., Merchants Service in "Expenses".

(3) Averages checked for several small communities show \$12.50 per capita instead of the national average of \$16.21 for eating places. However, allowing for drinking places, in addition to eating places, the overall figure of \$16.21 was maintained.

Note: These footnotes also apply to the table of 5,000 population. (page 276).

SUMMARY OF AREA REQUIREMENTS:

Store Buildings and Adjuncts - - - - - 79,570 Sq. Ft. = 1.82 acres or .73 acres per 1,000 population
 Off-Street Parking - - - - - (1.82 ac. x 2) = 3.64 acres or 1.45 acres per 1,000 population
 Total: (Exclusive of provisions for future growth) = 5.46 acres or 2.18 acres per 1,000 population

**THEORETICAL AREA REQUIREMENTS FOR A TYPICAL NEIGHBOURHOOD SHOPPING CENTRE
FOR 5,000 POPULATION (1,250 FAMILIES)**

Serving a residential unit covering one square mile and located at least two miles away from any other shopping centre. Based on the national average per capita expenditures, U.S. census, 1940.

Per Capita Sales		Types of Stores in Neighbourhood Centre	Size Buildings and Adjuncts	Area Sq. Ft.	Estimated Sales	Prevailing			
Basic	Total					Rents	Per Cent		
Food									
Food Total	\$83.36	\$416,800	Arbitrary Distribution						
			1 Delicatessen	- - - -	20 x 60	1,200	\$ 60,000	\$ 1,560	2.6
			1 Grocery, no meats	- - - -	25 x 70	1,750	90,000	2,340	2.6
			1 General store; meats	- - - -	20 x 60	1,200	58,400	1,518	2.6
			1 Market for all foods	- - - -	40 x 100	4,000	208,400	5,418	2.6
			Alternate in place of 3 stores and a market: (One Super-Market in place of 4 stores)						
			- - - -	- - - -	50 x 100	5,000	416,800	10,836	2.6
General Merchandise									
Variety Store	\$ 7.42	\$37,100	1 Variety Store	- - - -	40 x 80	3,200	37,100	1,892	5.1
Apparel Group									
Clothing Store	3.26	16,300	1 Clothing Store (family)	- - - -	25 x 70	1,750	16,300	766	4.7
Automotive Group									
Filling Stations	16.57	82,850	4 Filling and Service Stations (each)	- - - -	120 x 200 120 x 200 120 x 200 120 x 200	24,000 24,000 24,000 24,000	20,712.5	890.5	4.3
							20,712.5	890.5	4.3
							20,712.5	890.5	4.3
							20,712.5	890.5	4.3
Auto Repair	3.35	16,750	1 Auto Repair Garage and Yard	- - - -	100 x 115	11,500	16,750	1,675	10.0
		99,600							
Drug Stores									
Drug Store, Fountain	9.15	45,750	1 Drug Store, Fountain	- - - -	30 x 100	3,000	45,750	2,196	4.8
Stationery Stores									
Stationery	.45		1 Corner-store type, Fountain	- - - -	20 x 60	1,200	29,000	1,653	5.7
Cigars	1.58								
Fountain	3.22								
News	.55								
	5.80	29,000							
Arbitrary Distribution:									
Eating and Drinking Places	16.21	81,050	1 Luncheon and Counter	- - - -	50 x 100	5,000	25,000	1,725	6.9
			1 Restaurant (tearoom)	- - - -	50 x 100	5,000	25,000	1,725	6.9
			1 Grill	- - - -	50 x 100	5,000	31,050	1,832	5.9
Shoe Repair	.87	4,350	1 Repair and Bootblack	- - - -	10 x 57	570	4,350	391	9.0
Barbershop	1.82	9,100	1 Barbershop	- - - -	15 x 60	900	9,100	910	10.0
Beauty Parlour	1.83	9,150	1 Beauty Parlour	- - - -	20 x 70	1,400	9,150	915	10.0
Delicatessen	4.45	22,250	1 Delicatessen	- - - -	15 x 100	1,500	22,250	667	3.0
Dry Cleaner	2.49	12,450	1 Store (Independent Operator)	- - - -	15 x 60	900	12,450	996	8.0
Laundry	3.80	19,000	1 Store (Independent Operator)	- - - -	15 x 75	1,125	19,000	1,520	8.0
Real Estate and Insurance									
			1 Office	- - - -	15 x 60	900		960	
			1 Office	- - - -	15 x 60	900		960	
TOTALS		\$801,900				147,995	\$801,900	\$35,181	

Fuel and Building Supply Yard

Fuel - - -	7.70	38,500	1 Building and Yard - - 200 x 200	40,000	74,200	1,781	2.4
Bldg. Materials	2.14	10,700					
Lumber and Misc.	5.00	25,000					
	14.84	74,200					
GRAND TOTALS - -		\$876,100		187,995	\$876,100	\$36,962	

SUMMARY OF AREA REQUIREMENTS:

Store Buildings and Adjuncts - - - -	187,995 Sq. Ft. =	4.3 acres or .86 acres per 1000 population
Off-Street Parking - - - - -	(4.3 ac. x 2) =	8.6 acres or 1.72 acres per 1000 population
Total: (Exclusive of provisions for future growth) - - -	=	12.9 acres or 2.58 acres per 1000 population.

Spatial Arrangements

Having established the floor area of the stores, the next step is to determine the area and location requirements of such facilities as parking and circulation. The accessibility to the shopping centre from the tributary area by various means of transportation will affect the amount of land required for parking. The service circulation preferred by particular stores will impose the location of it.

Parking Area Requirements

For calculating the amount of land needed for parking two approaches may be used:

1. Ratio Between Parking Area and Floor Area of Stores:

The Urban Land Institute indicates that two square feet of parking space for every foot of ground area is a minimum and that three square feet would be preferable.

The Federal Public Housing Authority, in connection

feet for each square foot of first floor store area, the amount of space allocated for adequate pedestrian walks, service, and planting is approximately 20%, although this item is possible of some reduction. For example, on an area of 8.6 acres, the following allocations of space can be made which will result in 2.3 acres of shops, 4.6 acres of parking, and 1.7 acres of pedestrian walks, service and planting. Allotting 300 square feet of area for each car space, including aisles and approaches, will result in 6.7 car spaces per 1,000 square feet of first floor store area. This is the approximate equivalent of a ratio of 2 to 1 parking.

"A similar analysis on the basis of a 3 to 1 parking ratio shows 10 cars per 1,000 feet of store area. As the space devoted to pedestrians and service will not increase proportionately, this item can be reduced to around 16% of the total site area. Table A shows the relationships which apply in each case."

Table A

	Ratio of 2 to 1 Parking	Ratio of 3 to 1 Parking
Area of centre - - - - -	375,000 sq. ft. 100 %	475,000 sq. ft. 100 %
Area of parking - - - - -	200,000 sq. ft. 53.3%	300,000 sq. ft. 63.2%
Area of stores (1st floor) - - - - -	100,000 sq. ft. 26.7%	100,000 sq. ft. 21.0%
Area for pedestrians, service and planting - - -	75,000 sq. ft. 20.0%	75,000 sq. ft. 15.8%
	Cars per 1000 sq. ft. of store - - - 6.7	Cars per 1000 sq. ft. of store - - - 10.0

with the commercial facilities for Public Housing Projects, establishes almost two square feet of parking space for one square foot of store space at the 150 family level. These provisions decrease to one-and-one-half square feet of parking space to one square foot of store space at the 250 family level.

An analysis made by the Urban Land Institute on 19 shopping centres indicates the following:

"In general where the ratio is less than 2:1, or 6 cars per 1,000 square feet of store, the shopping centre is a local one with a considerable percentage of walk-in trade.

"In developing the ratios for parking and other uses, an analysis was made which indicates that on a rectangular shopping centre site of good proportions, and assuming off-street parking space ratio of two square

2. Another approach in determining the size of the parking area is to establish:

- the size, type, income level, local shopping habits and characteristics of the tributary population.
- the ratio of population using public transportation facilities.
- anticipated average daily sales volume.
- anticipated average sales per customer.
- the servicing capacity of the store in a given period.

Parking Density

The shape and accessibility of the parking area will influence the method by which cars shall be parked. Depending on the parking angle and the way of grouping the cars, the density of the cars to be parked varies from

124 to 149 per acre; providing a parking space of a minimum of 292 square feet to 322 square feet per car. (American Automobile Association Parking Manual).

Location of Parking Space

The service circulation established by certain types of stores may impose a preference in locating the parking facilities either on the front or on the rear of the buildings. A balanced solution may be obtained by providing for off-hour service parking facilities on the front and an additional amount for peak hours on the rear.

SHOPPING CENTRES IN CANADA

The term "shopping centre" is often loosely used in connection with a grocery and a drug store covering 2-3 lots in a residential subdivision. In the broader sense it is still in the experimental stage in Canada. Several projects are either in blueprint form and to be started in the near future or are already in the process of construction. There is in operation no shopping centre which would comply with the standards discussed above. For Canadian examples, we are confined to those which are actually planned and designed with the intention of being implemented within a few years.

Most of these will serve self-contained neighborhoods, in which a group of subdivisions are integrated. The following is a list of Canadian shopping centres and their major characteristics:

A. Small Shopping Centres

Toronto Metropolitan Area

(a) Humber Valley Village West (Plate 3)

(b) Thorncrest Village (Plate 3a)

At the western fringe of metropolitan Toronto in the centre of a large area designated for residential uses are four subdivisions. These have been integrated into one neighborhood by virtue of the official plan, and the zoning by-law of the Township. With the exception of Humber Valley Village the other three subdivisions, Thorncrest, Islington Heights and Chestnut Hills, are already populated (40%) and may reach completion in a few years.

In the centre of the residential development, at the joining point of the four subdivisions along Islington Avenue (a future major north-south traffic artery) is planned the shopping centre. It has two component parts belonging to Thorncrest Village and Humber Valley Village respectively.

The tributary area is 900 acres with an anticipated population of 7500, or 1800-2000 families. The prevailing yearly income of the families already living in the neighborhood is within \$5000.

The area of the shopping centre is 9½ acres; the floor area of the stores is 1½ acres; the area set aside for parking is 4½ acres; green buffer areas and sidewalks occupy 3½ acres.

The building of the shopping centre is delayed until 70% of the anticipated population has settled within a one-mile radius.

(c) Westwood — Six Points, in Etobicoke Township (Plate 4)

This shopping centre is planned at the convergence of one principal highway and two major arteries. Construction will start in 1950. The direct tributary area is 700 acres with an anticipated population of 1500 or 2000 families. The average yearly income of the existing population is \$2500-\$3500. The area of the centre is 4 acres; the floor area of the stores is 1 acre; the parking area is 2.5 acres and the area for planting and pedestrians is .5 acres.

(d) Bayview — York Mills.

On the northern fringe of Toronto in North York Township at the intersection of Bayview and York Mills Side Road, south of the future Toronto bypass highway is the site of this shopping centre. The direct tributary area is about 600 acres with an expected population of about 5000-6000. No immediate development of the centre is expected.

(e) Stratford: Avalon Housing Project

It is planned for a tributary area of 400 acres with an anticipated population of 5000 people. The housing project is partly developed and the shopping centre may be built when the tributary population will have reached 300 families.

(f) Timmins: Melrose Height

The tributary area is planned as a self-contained neighborhood with two school sites, park and shopping centre at the northern fringe of the town. The area of 250 acres including another settlement (Westmount) was recently annexed to the municipality. The anticipated population is 2400 or 600 families. The area designated for the shopping centre is 3 acres. Development will start when the population has increased to 250 families.

B. Large Shopping Centres

Toronto Regional Area

(a) Humber Valley Village East, in Etobicoke Township (plates 5 and 5a)

The site of this prospective shopping centre is situated adjacent to the convergence of a major highway and a secondary traffic artery, the Dundas Highway and Royal York Road. It is centrally located with relation to large existing and future residential areas. The tributary area is 1400 acres with an anticipated population of 15,000-16,000 people or 3500-4000 families. There are already about 800-1000 families settled within ¼ mile radius around the centre.

The immediate neighborhood is in the course of development. The landscaping and the improvement of the buffer area between the shopping centre site and the residential land is already under way.

The total area of the centre is about 20 acres. The floor area of the stores is 3 acres; the parking area is 10 acres; for circulation, buffer areas and landscaping 7 acres has been designated.

(b) O'Connor-Eglinton (Scarborough Township) on the eastern fringe of metropolitan Toronto.

This centre may become a retail subcentre drawing from an anticipated population of 25000-30000. It is situated at the convergence of three traffic arteries - O'Connor Drive - Victoria Avenue and Eglinton. The final tributary area is 9000 acres and the immediate area about 3500 acres, with an existing population of about 13,000.

The development of the shopping centre will be carried out in two stages.

The areas designated are:

Area of the first stage, 8 acres. Area of the second stage, 5.5 acres. Total 13.5 acres.

Area of Stores: Stage I, 66,000 square feet. Stage II, 46,000 square feet. Total, 106,000 square feet.

Area of Parking: Stage I, 4.5 acres. Stage II, 3 acres. Total, 7.5 acres. Green buffer areas, 4 acres.

(c) Grove Farm Development: Port Credit (Plate 6)

This centre is designated as a major retail area drawing from a population within a five-to-six-mile radius. It is along a major highway (No. 2) between Toronto and Hamilton surrounded by large residential and industrial settlements. The tributary population is estimated at 30,000. There are scattered small retail nuclei within the tributary area. The site of the shopping centre is 5½ acres; of which the store floor area is 3 acres; the parking area 2½ acres and the green buffer areas are ½ acre.

The development of this centre may be expected within 2-3 years.

C. Community Shopping Centres

(a) Terrace Bay (Plate 7 and 7a) is a new town in north-western Ontario on Lake Superior, 7 miles east of the town of Schreiber. The shopping centre is situated adjacent to the intersection of the Trans-Canada Highway and a local artery.

The tributary area is 350 acres with a population of 5,000. Eighty per cent of the population has a yearly income of about \$2,000-\$2,400. The area of the shopping centre is 12 acres; the floor area of the stores is 3 acres; parking area is 6 acres and the green buffer area is 3 acres. This shopping centre is in the process of development.

Shopping centres have been planned also in St. John's (New Brunswick), Montreal, Ottawa and Vancouver in connection with housing projects developed by the Central Mortgage and Housing Corporation, and by private enterprise.

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In preparing this review of requirements the author is greatly indebted to those mentioned in the above Bibliography, from whose publications the author has quoted.

OFFICE BUILDING FOR THE SHAWINIGAN WATER AND POWER COMPANY, MONTREAL, QUEBEC

ARCHIBALD AND ILLSLEY, A. LESLIE PERRY, ASSOCIATED ARCHITECTS





MAIN ENTRANCE TO BUILDING

Photographs by Associated Screen News Ltd.



RENTABLE AREA, GROUND FLOOR



MURAL PAINTING, MAIN ENTRANCE LOBBY

MAIN ENTRANCE LOBBY



The Shawinigan Building, Montreal, P.Q., was designed to accommodate the offices of The Shawinigan Water and Power Company and its subsidiaries, and is situated at Dorchester Street and Beaver Hall Hill. The new building is another structure adjacent to historical Beaver Hall Square, and its situation, close to the new C.N.R. terminal adds to the further development of that part of the City of Montreal.

The building is a single-purpose one in that its space is given over entirely to the activities of the company with the exception of some areas of the ground floor and of the second floor. The Royal Bank of Canada occupies ground floor space at the east side, while L. E. Waterman Company Limited is located at the west side of the same floor.

There are a sub-basement and basement, and thirteen floors above the ground floor, all planned for various types of offices with larger areas for draughting rooms and other departmental needs. All floors except the sub-basement are served by high speed, gearless traction, peak period signal control electric elevators, travelling at a speed of 700 feet per minute with the elevator machinery housed in the Penthouse at the top of the building. The executive offices of The Shawinigan Water and Power Company occupy the 10th floor above which the structure is zoned back to its ultimate height.

The main entrance to the building is at Dorchester Street with a secondary entrance off Beaver Hall Hill. The service entrance to the building is from a private lane to the west. A feature of the main entrance lobby off the Dorchester Street entrance is a large mural painted by the well known Canadian painter, Mr. Robert W. Pilot, R.C.A. This mural is set against marble walls and is executed in oils. The main entrance lobby articulates with the elevator lobby, connecting corridor and other main areas of the ground floor. The interior treatment of the lobby and the associated areas is carried out with selected marbles for the walls, with terrazzo floors and plastered ceilings.

The elevator doors at ground floor are of stainless steel enriched by etched panels and casts of the company's coat-of-arms. At other floors the elevator doors are flush enamelled furniture steel.

Indiana limestone was used to face all exterior walls of the building, the accent of design being a vertical proportion with simplicity of detail and pleasing fenestration, and with the major portions of the ground floor openings. Black granite was used as a base right around the building, and this material was also used to accent the main entrance, a feature of which is the use of stainless steel and the carved coat-of-arms of the company. An extensive use of stainless steel was made for all window and door openings at the ground floor and this material is used to frame the large glazed openings, off the main entrance lobby. Structural steel encased in masonry or concrete forms the skeleton structure of the building, with steel and lightweight concrete for the floor construction. The building is supported on reinforced concrete caissons carried down to rock.

Floor finish for most offices is linoleum laid on cement finish floors. Vinylite Plastic Floor Tile, a product of a subsidiary company, was used as a floor covering for all elevator lobbies above the ground floor. Walls generally are of plaster with the exception of the ground floor public area where the finish is carried out in selected marble. Marble is also used for the Bank counters and dados with stainless steel for all grille work. Selected flush wood veneers are used for the walls of some offices, and where deemed necessary ceilings are treated acoustically with either plaster or board.

Nearly all windows are of conventional double-hung type equipped with Venetian-type blinds, plate glass baffles, and Koolshade screens as part of the air conditioning system, at those sides of the building exposed to prolonged sun glare. Wood trim has been reduced to a minimum, all door frames being of furniture steel of the 'buck' trim type. Office doors are of flush birch veneer stained and varnished. There is no decorative plaster other than for lighting troughs, simple coves and cornices used at selected locations.

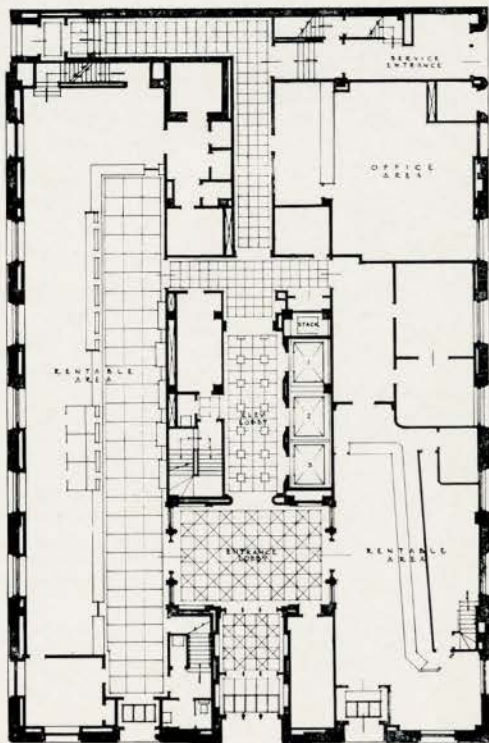
The interior treatment of retiring rooms and lavatories is carried out in ceramic and glazed tile work with recessed mirrors, flush lighting and acoustically treated ceilings. These latter are removable in order to give access to air conditioning equipment. Stainless steel has been used for copings and wall flashings. The main stack from the boiler room is of steel plate, terminating at an enclosure at the top of the building which incorporates air cooling equipment.

All roofs are covered with conventional, bonded felt and gravel roofing material. Those roofs which are used as decks have board walks as protection of surfaces. Cork and lightweight concrete has been used for insulation of roof areas, and cork is used as insulation behind the masonry spandrels. Interior partitions are of hollow terracotta tile with the exception of certain wood and glass partitions used at some office areas.

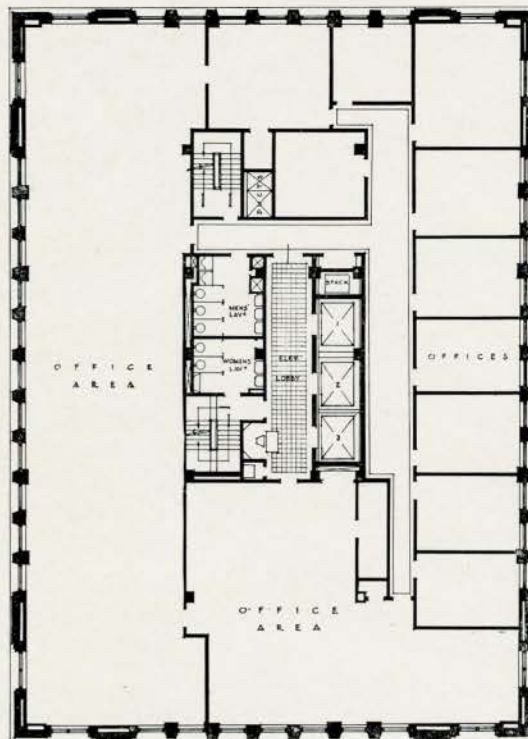
The building was designed by Archibald & Illsley, A. Leslie Perry, Associated Architects. Associated with the architects were The Shawinigan Engineering Company Limited, and Messrs. McDougall & Friedman, Consulting Engineers, Montreal, P.Q.

The general contractor for the building was J. L. E. Price & Co. Limited, Montreal, P.Q., which firm co-ordinated all trades during the construction.

Foundations for the building commenced August 27th, 1946 and all floors with the exception of certain areas of the ground floor were completed by May 1948. Selected areas were completed for occupancy by the company at an earlier date than for the general completion of the building.



GROUND FLOOR PLAN



FIFTH FLOOR PLAN

MECHANICAL AND ELECTRICAL EQUIPMENT

Boiler Plant

The boiler plant, located in sub-basement, consists of two Foster Wheeler water tube boilers, each having a nominal rating of 8000 pounds of steam per hour, and operating at 15 pounds pressure. There is also a smaller steel heating boiler to furnish steam for domestic hot water in the summer time. The boiler plant furnishes steam to the converters for the heating system, to the heating coils of the ventilating system and to the domestic hot water heaters, etc. Oil is used as fuel and is stored in two 8000 U.S. gallon tanks which are located and housed above the sub-basement floor. Each boiler is fired by means of an "Enterprise" rotary type oil burner, using No. 6 (Bunker "C") fuel oil. The burners on the water tube boilers are semi-automatic and the burner on the summer boiler is fully automatic.

Heating System

The building is heated by hot water with forced circulation through exposed cast iron radiators. The water is heated in converters located in Machinery Room in sub-basement. The converters operate with steam at 10 pounds pressure and the temperature of the water is controlled by means of Minneapolis-Honeywell Compensated Electric Control Systems, which control the temperature of the water in relation to the outside temperature.

The heating system is divided into two zones. One zone includes the south and west sides of the building and the other the north and east sides. Each zone has its own converter, circulating pump and temperature control system. The converters and pumps are connected so that either set could be used on either zone.

Winter and Summer Air Conditioning

All the office floors have complete winter ventilating and summer cooling. The main ventilating system is located on the Penthouse floor and consists of supply and exhaust fans, air washers, heaters, filters, controls, etc. Air is supplied and exhausted from the various floors by means of horizontal ducts on the ceilings of the floors and vertical ducts run in the core of the building and all outside air or re-circulated air can be supplied. Air is delivered to rooms by means of ceiling diffusers or wall grilles. Summer cooling is obtained by means of air conditioning units, one located on each floor above the Basement, and the units receive air from the main ventilating system. The units consist of fans, cooling coils, filters, dampers and housings and are located in furred ceilings over men's lavatories. Chilled water is circulated to the coils in the units from the water cooler in Compressor Room in Basement. The water for water cooler is cooled by means of two 100-ton Carrier Freon Compressors.

The cooling system of each floor is divided into two zones and each zone is independently controlled. One zone takes care of the south and west walls and the other the north and east walls. This is necessary due

to the fact that the south wall gets the morning sun, the west wall the afternoon sun and the other walls very little sun at any time. Two evaporative condensers to condense the refrigerant vapors are located in a separate Penthouse on the roof. The Basement is ventilated and receives its air from the main system and has a separate exhaust system. All toilets are on a separate exhaust system.

Plumbing

Water for Basement and Sub-basement is obtained direct from City low pressure mains. To obtain sufficient water pressure for the rest of the building a pneumatic water system was installed, consisting of air compressor, water and air storage tanks and booster pumps. Booster pumps are controlled by means of pressurestats which maintain a predetermined pressure throughout the system. Hot water for domestic use is obtained by means of combination hot water and storage tanks which receive steam at 10 lbs. pressure. All drinking fountains receive chilled water from a cooling water system consisting of cooler, pump, storage tanks, compressor and piping located in compressor room.

Electric System

Power is received over two 12000 volt underground lines from Hydro Quebec, one line serving normally and the other as a standby. The 12,000 volts are transformed by two 3 phase transformers to 575 volts. These transformers operate normally independently but loads can be paralleled on secondary side if necessary so that either transformer may be taken out of service. All motor loads including elevators, fans, pumps, etc., operate at 575 volts from a radial-type distribution system. The motor load is served by one transformer. The lighting load is supplied from the other 575 volt transformer and a radial type distribution system employing a 575 - 115 / 230 volt dry-type single-phase transformer on each floor.

These dry-type transformers are located on each floor together with the primary disconnecting switch and the branch circuit lighting panel associated therewith. Lighting in general is fluorescent with combination direct-indirect fixtures. The cove lighting employs both fluorescent and incandescent but not in the same cove. The cove-lighted areas are augmented by flush-type incandescent fixtures where ceilings are high and by flush-type fluorescent where ceilings are lower.

To take care of possible complete power failures, stair lights, corridor lights, exits, boiler room lights, switchboard and transformer room lights are arranged so that they transfer automatically to the 120 volt station battery provided for main circuit breaker operation.

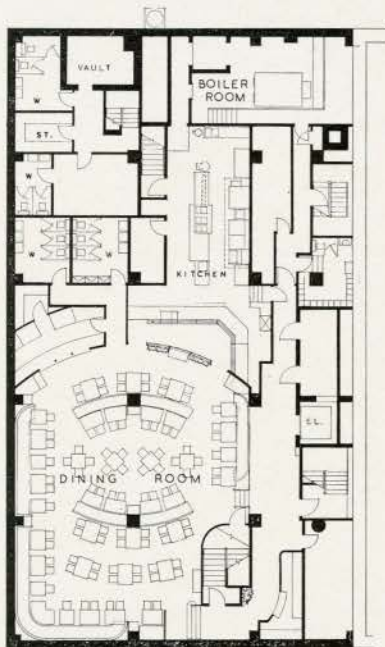
Public and private telephone systems are accommodated in separate under-floor fibre duct systems. A third duct in each run carries 110 volt circuits for floor receptacles as required. Vertical risers for telephones and their associated terminal boards are located on each floor.

**THE BAY-WELLINGTON BUILDING,
TORONTO, ONTARIO**

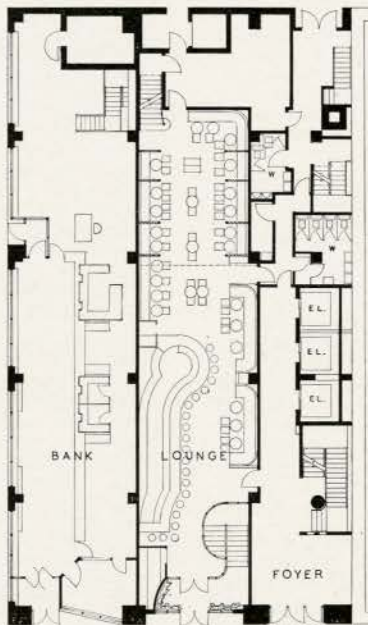
PAGE AND STEELE, ARCHITECTS



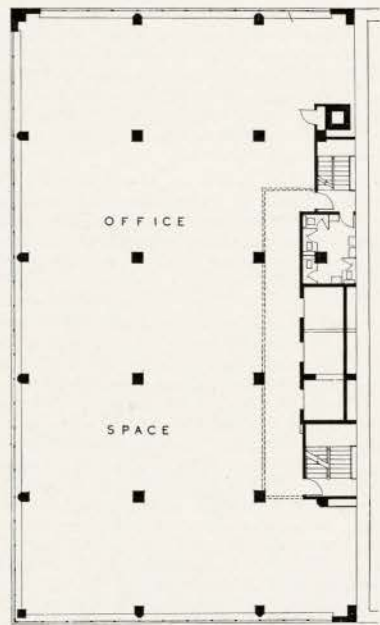
Photographs by Panda



BASEMENT FLOOR



FIRST FLOOR



SCALE
TYPICAL FLOOR

0 5 10 15 20 25



FOYER



COCKTAIL LOUNGE



MODELS OF THE BANK OF NOVA SCOTIA, TORONTO, ONTARIO
MATHERS AND HALDENBY, ARCHITECTS
BECK AND EADIE, ASSOCIATE ARCHITECTS





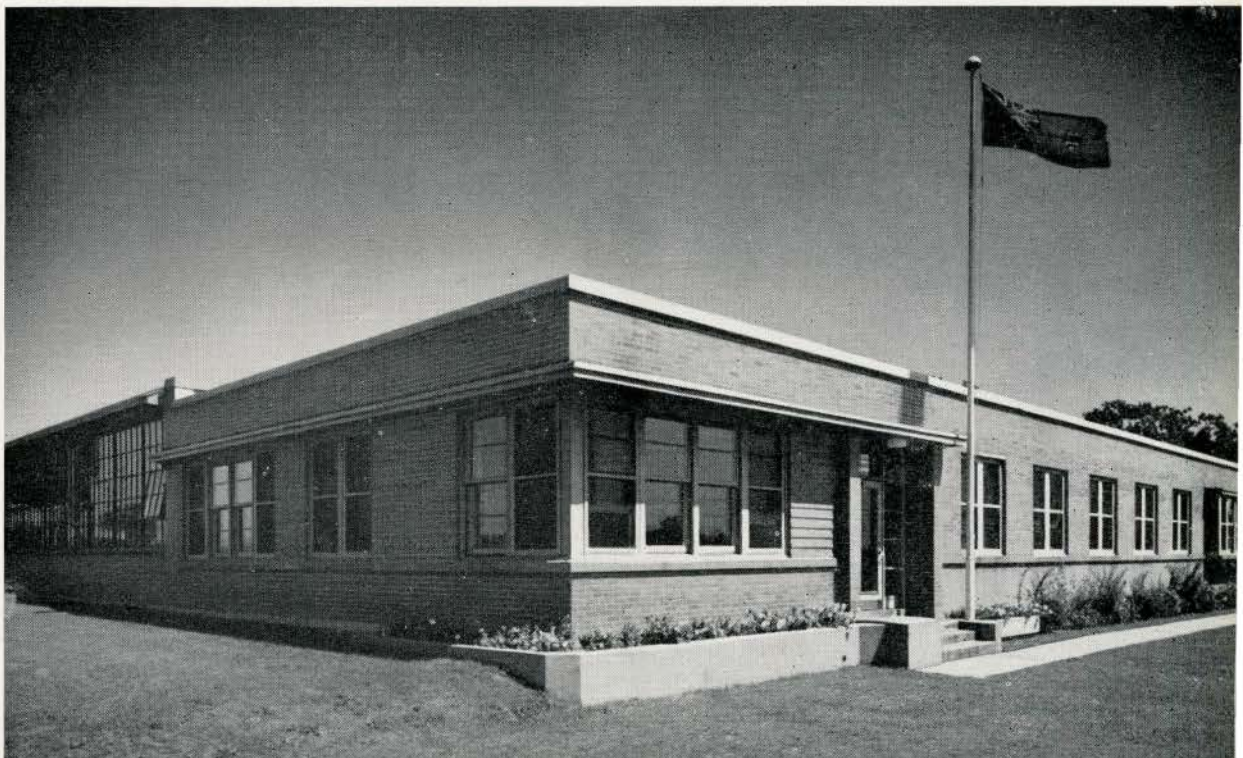
F. H. HOPKINS AND COMPANY LIMITED, MONTREAL, QUEBEC



BAROTT, MARSHALL, MONTGOMERY AND MERRETT, ARCHITECTS

NIGHT VIEW OF SHOWROOM

THE FOXBORO COMPANY LIMITED, MONTREAL, QUEBEC



RUPERT TAYLOR MOTEL, HOPE, BRITISH COLUMBIA

ROBERT R. MCKEE, ARCHITECT

LOCATION

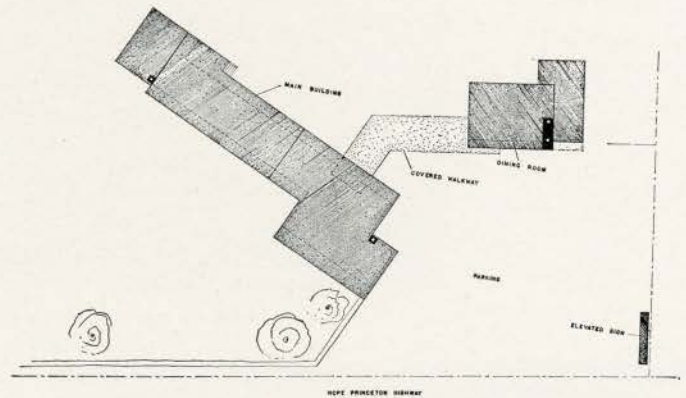
100 miles North East of Vancouver on the trans Canada Highway. The buildings are situated in a mountainous valley through which the Fraser River runs.

DESIGN

1. Cost was the major factor, hence two storey closely related units as opposed to separate individual units.
2. The owners required direct control over all vehicles entering and leaving the site. Their suite and office therefore front on the Hope-Princeton or principal road. The office thus controls both the Motel proper and the Dining Room.
3. Ground Terraces and elevated balconies were included to allow occupants to enjoy out-of-doors, the magnificent mountainous scenery on all sides.
4. The design was impaired by poor workmanship particularly in brickwork and sheet metal work since good labor was at a premium in the locality. The job had only periodic supervision because of its location and mistakes were made that could not be easily rectified without considerable expense.

COST

(Based on day labour contract). Cost per square foot exclusive of furnishings \$8.03 (Eight Dollars and Three Cents).



MATERIALS

Floors: (a) Ground floor concrete slab integrally waterproofed with Anti-Hydro. (b) Second floor wood joists with 2" Deck sub floor.

Walls: Frame sheathed with rough sawn cedar boards and batons.

Roof: Twenty year bonded tar and gravel.

Heating: Low pressure hot water system.

Plumbing: Fiat Skipper shower installations throughout. Septic tank and Disposal field to southwest.

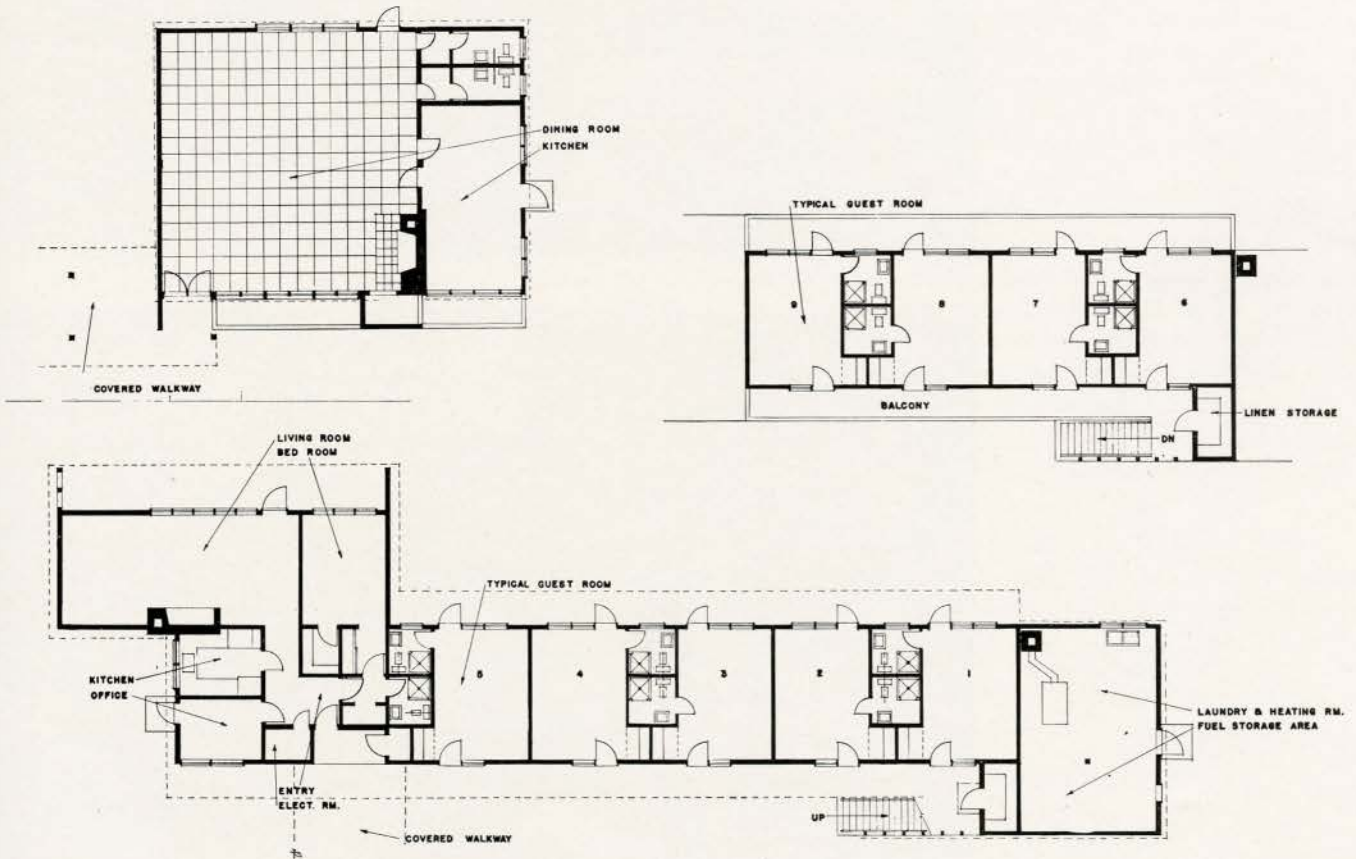
Photographs by Artray Ltd.

VIEW OF GROUP FROM ENTRANCE COURT





DETAIL TO SOUTH ELEVATION

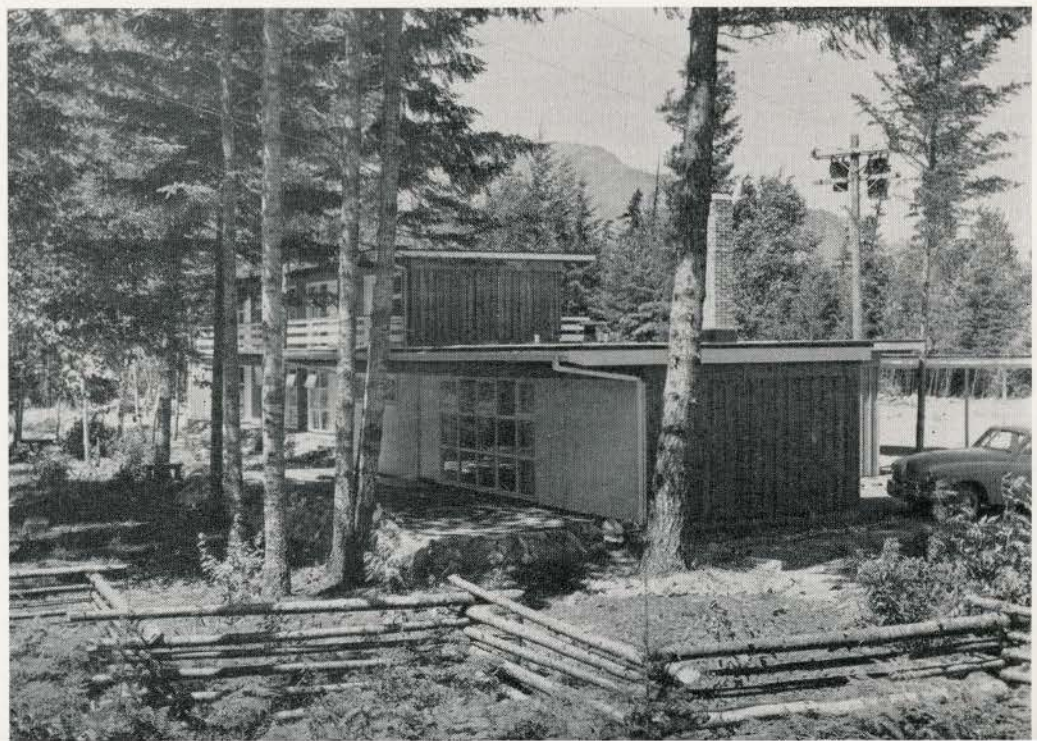




NORTH ELEVATION SHOWING COVERED WALKWAY TO DINING ROOM



INTERIOR OF ROOM



SOUTH ELEVATION

THE EARLIEST CHURCH ARCHITECTURE OF NEW FRANCE FROM THE FOUNDATION TO 1665

By ALAN W. GOWANS

THE first fifty-seven years of French settlement in Canada have been most adequately characterized as the "Heroic Age" — "*les temps héroïques*" of New France. Champlain's foundation of Quebec in 1608 inaugurates the "Heroic Age"; it ends in the summer of 1665, with the arrival in the little city of all the panoply of Louis XIV's absolute power, in the persons of Governor de Tracy, Intendant Talon, the Carignan-Salières regiment, and hundreds of settlers from France. In that year it was made manifest that the destinies of New France were henceforth to be in the hands of the King of France and his powerful ministers. The great individuals who had laid the foundations of New France — the gentlemen adventurers, intrepid merchants, and zealous missionaries — would still bulk large, but they would no longer dominate the scene.

Yet these men and women — Champlain, Maisonneuve, Boucher, d'Olbeau, de Queylus, Jeanne Mance, Marguerite Bourgeoys, Mère Marie de l'Incarnation, and the rest — left an indelible mark on New France. The efforts of Louis XIV and Colbert were soon seen to be ephemeral; it was the pattern set by the "Heroic Age" which proved to determine the fundamental orientations of New France.

In the material realm, the accomplishments of these founders of New France were not impressive. New France in 1665 was a poor, weak, and scantily-populated colony. With few exceptions, the gentlemen-adventurers and merchants had been interested in exploiting the colony, not in developing it. They saw in it an operating base for the fur-trade, and as such the gateway to immense fortunes; they used the colony as a means to an end, and kept always an eye on the markets of Europe, and the luxuries and comforts of life in France.

Had it not been for the need to protect the great river-highway of the St. Lawrence from the depredations of the Iroquois, New France might never have been settled at all. To defend the fur-trade and its profits from these enemies, permanent garrisons had to be established along the river. At first the expedient of garrisoning the banks with friendly, Christianized Indians, was tried; it was only when this proved infeasible that French colonists were brought over. At the same time, however, any extensive settlement, with a consequent growth of agriculture, meant that fur-bearing animals and the Indians who supplied the traders would inevitably be driven farther and farther away — a result to be avoided at almost all costs. This quandary in which the fur-traders found themselves explains their vacillating policies of

colonization, and the fact that by 1665 the population was not more than 2500 people. ⁽¹⁾ Such a highly unsatisfactory state of affairs, from the point of view of the nationalist — and mercantilist-minded Louis XIV and his ministers, was a fundamental cause of their direct intervention in the administration of the colony after 1660.

In spiritual affairs, the early founders of New France did much better. If the Récollets who came to Québec in 1615, and the Jesuits who arrived ten years later, were at first and primarily concerned with their missions to the Indians, they nevertheless did not neglect the spiritual needs of those French settlers who came to the colony. They set a high, albeit somewhat narrow, spiritual tone in New France, the evidences of which are still with us in the Province of Quebec. Furthermore, in contrast to the traders and adventurers, they poured money and resources into the colony. In spiritually exalted seventeenth-century France, the Society of Jesus could draw on almost limitless resources for its missionary work. The Ursulines, and the Hospitalières de Saint-Joseph, likewise maintained themselves in the early colony at the expense of wealthy individuals and corporations in France. The Récollets, sworn to poverty and lacking the material wealth of the Jesuits, left New France in 1629 and did not return until 1670. This is significant of the fact that the colony, throughout the "Heroic Age", was too poor to maintain out of its own resources adequate religious establishments.

There is, then, a fundamental dicotomy in early New France between the poverty of the country as a whole, and the comparative wealth of resources upon which certain elements in its society could draw. This characteristic of New France persists throughout its history. A parallel divergence can be seen in the stylistic characteristics of its church architecture.

An analysis of the church architecture of the "Heroic Age" in New France very well demonstrates this dicotomy in its embryonic form.

Between 1615, when the first chapel in Quebec was built by the Récollets, and 1665, I know of twenty-nine examples of church architecture, twelve of which were extant at the beginning of the year 1665. ⁽²⁾ Of these twenty-nine, nine, or somewhat less than a third, were built in stone. Every one of these stone churches was erected by a religious order with outside resources.

(1) Dominion Bureau of Statistics, *Chronological List of Canadian Censuses*, Ottawa, 1933.

(2) For a complete chronological list, see my article in the *Bulletin des Recherches Historiques*, lv, 1949.

The first stone church in New France was that attached to the Récollet residence of Notre-Dame-des-Anges in Québec, the first stone of which was laid June 3, 1620. The arms which the stone bore — those of France, and of the Prince de Condé, viceroy of New France — suggest the outside patronage which was responsible for the church's erection. ⁽³⁾ This supposition is confirmed by the fact that it was not this building, but the poorer wooden structure built by Champlain in 1615 ⁽⁴⁾, which served as parish church for the community until 1629, when both churches were ruined by the English who captured Québec in that year.

The Society of Jesus was responsible for five, or more than half, of the early stone churches. The Jesuits' first church in New France was a chapel attached to their residence in Québec; it was begun in August 1625, and completed in April 1626. Like the Récollets', it was also dedicated to Notre-Dame-des-Anges, and it too was ruined in 1629. ⁽⁵⁾ Following the restoration of the colony to France in 1632, the Récollets did not return; the Jesuits thereupon repaired the Récollet residence and church of Notre-Dame-des-Anges, using the residence until 1648 ⁽⁶⁾, and the church until 1666. ⁽⁷⁾

While using these buildings at Québec, the Jesuits also built a residence for themselves at Sillery, with a church dedicated to Saint-Joseph, begun about 1638 ⁽⁸⁾; a stone church at Tadoussac, in 1661 ⁽⁹⁾; one at Cap-de-la-Madeleine, also in 1661 ⁽¹⁰⁾; and, of most importance, the third parish church of Québec, Notre-Dame-de-la-Paix, in 1647. ⁽¹¹⁾

The remaining stone churches of the "Heroic Age", were erected under the auspices of female religious orders drawing their resources from France. The foundations of the Hôtel-Dieu and its chapel in Québec were laid August 12, 1638, although the building was not completed until the fall of 1644; ⁽¹²⁾ served by the Soeurs Hermites de Saint-Augustin, a nursing order, funds for its erection were provided by the Duchesse d'Aiguillon. ⁽¹³⁾

In the spring of 1641, the first stone of the Ursuline convent was laid in Québec, and the building with its chapel was completed late in 1642. It was gutted by fire in 1650; repaired, it existed until 1686 when a second fire destroyed it. ⁽¹⁴⁾ Our rather extensive knowledge of this building is derived from the letters of Mère Marie de l'Incarnation, Mother-Superior of the Order, to her relatives and patrons in France who provided its financial backing. ⁽¹⁵⁾

Funds for the erection of the Hôtel-Dieu in Montréal were provided by Mme. de Bullion, a wealthy Parisian widow whom Jeanne Mance met in 1640. ⁽¹⁶⁾ With her help, the Hospitalières de Saint-Joseph were able in 1644 to build in Montréal a hospital in wood, sixty-feet long by twenty-eight wide, and beside it a little *oratoire* in stone about nine or ten feet square. ⁽¹⁷⁾

This little chapel served conjointly for parish services with the wooden *Chapelle du Fort*, erected by Maisonneuve in 1643 ⁽¹⁸⁾, until 1656. From 1654 on, Maisonneuve

had projected a new parish church, but he could not raise the funds; in the end, most of the money for the new building had to come from the *seigneurs* of the vicinity, and even their resources were apparently insufficient. The fact that this third parish church of Montréal, the foundations of which were finally laid August 28, 1656, was located beside the Hôtel-Dieu, and was used both by the community and the hospital, suggests that in the last eventuality some of Mme. de Bullion's 60,000-livre bequest to the hospital had to go into its construction.

This whole episode points up again the disparity between the resources of the religious organizations in the colony and those of the colony itself. Without outside aid, the community could not build its church; with the financial aid received from the Hôtel-Dieu, it was possible to have for the parish church of Montréal the finest wooden edifice of the "Heroic Age". ⁽¹⁹⁾

A similar situation existed at Québec. Here the first two parish churches, that of 1615 dedicated to l'Immaculée Conception de la Sainte-Vierge, and the 1633 building dedicated to Notre-Dame-de-Recouvrance, were both unprepossessing structures in wood. ⁽²⁰⁾ When the

(3) P. G. Roy, *Les Vieilles Eglises de la Province de Québec*, Québec 1925, pp. 17-18.

(4) P. G. Roy, *La Ville de Québec*, Québec 1930, I, pp. 51-54.

(5) *Ibid.*, I, pp. 85-86, 141-142.

(6) *Ibid.*, I, pp. 231-2.

(7) From a letter written by Jesuit Father Thierry Beschefer, dated October 4, 1666, we learn that in that year the Jesuits were building a new church for themselves. He continues: "The little chapel which we are using at present is very well ornamented with fine decorations, large silver chandeliers, lamps, and all the rest . . ." Quoted in *Bulletin des Recherches Historiques*, xxxv, 1929, p. 335.

(8) The *Liber Baptisatorium de Sillery*, in the Archives of the Archevêché de Québec, sets the date for the residence as 1637. Benjamin Sulte's *Chronique Trifluvienne* (Montréal 1879) p. 6, quotes a Jesuit Father writing in 1640: "We have a church for the savages at Trois-Rivières, which . . . is not as old as that of Sillery", which would fix the date for the church of Saint-Joseph as about 1638.

(9) Replacing a wooden chapel of 1641, also built by the Jesuits. Destroyed by fire in 1664, another stone church was not built until 1747. P. G. Roy, *Les Vieilles Eglises* . . . p. 179f.

(10) Although only thirty feet long and eighteen feet wide, it served as a parish church until 1714. P. G. Roy, *Les Vieilles Eglises* . . . p. 57.

(11) See below.

(12) P. G. Roy, *La Ville de Québec*, I, pp. 159-60.

(13) *Bulletin des Recherches Historiques*, 50, 1944, p. 33, "Les Congrégations de Femmes au Canada."

(14) P. G. Roy, *La Ville de Québec*, I, pp. 211-212 and 465-466.

(15) cf the extract from Benjamin Sulte, *Lettres Historiques de la Vénérable Mère Marie de l'Incarnation*, quoted in Ramsay Traquair, *The Old Architecture of the Province of Quebec*, Toronto 1947, p. 10. The collected letters were first published in Paris, 1681.

(16) E. Z. Massicotte, "Jeanne Mance," in *The Canadian Antiquarian*, 3^o série, vol. ix, 1912, p. If.

(17) L. A. Hugué-Latour, *Annuaire de Ville-Marie*, I-ère partie, I-ère année, 1863, p. 59f, "Notice Historique sur l'Hôtel-Dieu de Ville-Marie."

(18) The first parish church of Montréal was a primitive structure erected by Maisonneuve the year he founded the settlement, 1642. The next year, he built a larger church in wood, known throughout its existence as the *Chapelle du Fort*, of *Annuaire de Ville-Marie*, supplement to the 1864 edition, p. 315f.

(19) It was fifty feet long and had a *clocher* "de forme regulier et élégant", with two bells. of *Annuaire de Ville-Marie*, supplement to the 1864 edition, p. 343f.

(20) P. G. Roy, *La Ville de Québec*, I, pp. 53-54, and pp. 117-118.

latter was destroyed by fire in 1640, the parish lacked resources to build another, until the Jesuits provided funds. In the interim, a chapel in the House of the *Compagnie des Cent-Associés*, which currently held the royal monopoly of trade in New France, was used; this room was somewhat grandiloquently styled "l'église de la Conception de la Bienheureuse Marie à Québec".⁽²¹⁾

Land for the badly-needed new parish church was donated in 1645, and a title proposed for it: Notre-Dame-de-la-Paix, to celebrate a peace concluded with the Iroquois in that year. Just as in Montréal, however, the community was too poor to carry the project further. Not until Jesuit support was given, in 1647, was the church begun. With their help, a fine stone church was completed in 1650. Eighty feet long, with a round apse and a *clocher* over the transept, its construction was an accomplishment far beyond the community's meagre resources, but well within the means of the Jesuits.⁽²²⁾ In 1664, the new Bishop of Québec expressed his pleasure in it to the Holy See; "there is a basilica here," he writes . . . "It is large and magnificent."⁽²³⁾

The bishop's statement was undoubtedly influenced by the sharp contrast made by his Jesuit-built cathedral with those other churches in his diocese which had been erected out of the native resources of the colony. The comparison abundantly illustrates that gulf between the native elements in the society of the "Heroic Age", and those drawing their resources from France, which we have already pointed out as characteristic of the history of early New France.

These native churches were few in number and abjectly poor. They included the first church of Château-Richier, built in 1658⁽²⁴⁾; the *chapelle Saint-Jean* just outside Québec, built about 1650⁽²⁵⁾; the first church at Sainte-Anne-de-Beaupré, built in 1660⁽²⁶⁾, and the parish church of Trois-Rivières, built about 1640, and replaced in 1664.

The parish church of Trois-Rivières is typical of the kind of church architecture produced by the colony's native resources in the "Heroic Age". The Récollets built a primitive chapel at Trois-Rivières in 1618, and in 1634 when Champlain founded a strong post there, the Jesuits built another, "attendant", says an entry in the *Jesuit Relations*, "qu'un bâtiment de charpente qu'on dressait fut achevé."⁽²⁷⁾ Not until 1640, however, do we hear from a Jesuit Father that "We have a church for the savages at Trois-Rivières, which, since it is not as old as that of Sillery, is not yet as strong."⁽²⁸⁾ This Jesuit structure was taken over by the colony as Trois-Rivières grew. Between 1645 and 1650 various projects were put forth for a more satisfactory parish church than this certainly rather primitive structure. Lack of resources, however, made them all abortive. The most the community could do was to put some repairs on the chapel. Finally, in 1661, there was an election of *marguilliers* (wardens) to handle business arrangements in connection with the building; in 1663 these officers acquired a piece of land for the new church.⁽²⁹⁾

Such desultory progress, as we have seen, also characterized the efforts of the Montréal and Québec communities to build their parish churches. Unlike these two, however, no outside help was forthcoming at Trois-Rivières, and after a quarter-century of effort all the community could show was a wooden church. This structure, finally erected in 1664, lasted only eighteen years, being replaced by another, also of wood, in 1682.⁽³⁰⁾

The churches built by the religious orders, and those for which the colonists themselves were responsible, are thus two distinct categories of church architecture in early New France. There is a third category of church building in this period which may be discerned — the humble chapels erected by the missionaries to the Indians. Examples of this class are the first chapel at Tadoussac, built by the Récollet Father Le Caron in 1617, and its successor built by the Jesuit de Quen in 1641;⁽³¹⁾ the first two chapels at Trois-Rivières, great Indian meeting-place⁽³²⁾; and the first church at Cap-de-la-Madeleine.⁽³³⁾

(21) P. G. Roy, *Les Vieilles Eglises* . . . p. 1.

(22) See the specifications in the contract of 1648 quoted in the *Bulletin des Recherches Historiques*, vii, 1901, p. 269.

(23) P. G. Roy, *La Ville de Québec*, I, pp. 179-180.

(24) *Bulletin des Recherches Historiques*, xxxix, 1933, p. 716f, "Notes historiques sur la paroisse de Château-Richier". Bishop de Laval refused to consecrate this church until 1685, when it was rebuilt in stone. From a letter written by Duchesneau to Seignelay dated November 13, 1681, we know that it was Laval's policy to consecrate only such churches as were "solid and durable"; obviously he did not consider the first church of Château-Richier as such. The significant extract from this letter is found in W. B. Munro, *The Seigniorial System in Canada*, New York 1907, p. 185, note 3.

(25) Built by a private citizen, Jean Bourdon, for the use of his family, it was located in Bourdon's *fief* in the district known as the *coteau Sainte-Geneviève*. It was served by a priest who lived with the Bourdon family, and was used as a parish church by those in the neighbourhood. P. G. Roy, *La Ville de Québec*, I, pp. 203-204.

(26) The first church building at Sainte-Anne was a sailors' shrine, built in 1658. See the *Bulletin des Recherches Historiques*, xxix, 1923, which contains a summary of an article by R. P. Georges Bélanger, *La Chapelle des Matelots à Sainte-Anne-de-Beaupré* in the *Annales de la Bonne Sainte-Anne-de-Beaupré*, April, 1923. The first church replaced this chapel in 1660; already by 1665 Mère Marie de l'Incarnation is describing in a letter "the church to Sainte-Anne in which Our Saviour does great miracles in favour of that holy mother of the Holy Virgin", and in 1676 a larger and more permanent stone church was built at Sainte-Anne.

(27) Benjamin Sulte, *Histoire de la Ville de Trois-Rivières*, Montréal 1870, p. 69.

(28) Benjamin Sulte, *Chronique Trifluvienne*, Montréal 1879, p. 6.

(29) *Ibid.*, p. 123f.

(30) Benjamin Sulte, "L'Eglise paroissiale" in *Mélanges historiques*, vol. xix, Série A, 1932, p. 33, note 10. Odoric M. P. Jouve, o.f.m., *Les Franciscains et le Canada, Aux Trois-Rivières*, Paris 1934, p. 32f.

(31) Replaced by the 1661 church. P. G. Roy, *op. cit.*

(32) Q. v. p. 10, and note 27.

(33) In a communication to the Holy See in 1661 Mgr. de Laval wrote, "The Jesuits had a residence on the Cap, and two years ago a wooden church was built and dedicated to Sainte-Marie-Magdeleine; the savages came to it from all over in great numbers. The Cap is also inhabited by a goodly number of colonists attracted by the fertility of the soil." (E. Z. Massicotte, "Notes Diverses sur le Cap-de-la-Madeleine," in *Bulletin des Recherches Historiques*, xxv, 1923, p. 389f.) Only two years later, the same year the Bishop was writing, this wooden church was replaced by a stone church erected with the help of the Jesuits, and served by them as a parish church for the French settlers. This is typical of the Indian missions; whenever French settlers came into the neighbourhood of the missions, the missionaries moved their charges away, in order to avoid the contamination of civilized vices.

It is also possible, perhaps, to distinguish a fourth classification of church architecture in this period — small *ex voto* chapels. Two examples only represent this group, the ancestor of the numerous group of processional chapels and shrines of later times. These are the *Chapelle de Champlain*, a small chapel built in 1636 to honor the founder of Québec⁽³⁴⁾, and Marguerite Bourgeoys' abortive project for an *ex voto* chapel to Notre-Dame-de-Bonsecours at Montréal, in 1657.⁽³⁵⁾

As we have said, it was during the "Heroic Age" of New France that the foundations of French-Canadian culture were laid. This is true in the economic and social field; it is paralleled in the church architecture of the period. The four categories of church architecture we have enumerated above form the basis of all the later church architecture in New France. An analysis of their stylistic characteristics is essential to the understanding of later developments.

Such an analysis is, however, no easy matter. What information we have about these early churches is scanty and vague. Nevertheless, the evidence allows us to form a reasonable, albeit necessarily somewhat tentative, picture of the character of the architecture in each category.

As far as the *ex voto* chapels and those erected by missionaries to the Indians were concerned, we may safely assume their architecture to have been of a primitive and simply utilitarian sort. The type of construction called by the early writers *en pieux* formed the basis of most of it — medium-sized trunks and branches or



(Figure 1)—Cabana d'écorce. Typical of the primitive chapels built by early missionaries to the Indian tribes.

roughly-squared timbers, usually of spruce⁽³⁶⁾, sharpened at one end or both, and driven side by side into the ground to form walls. The roof was formed simply of pliable branches bent to form a sort of vault, the whole being usually covered with some kind of bark. This sort of building is the "cabane d'écorce" mentioned by early writers. The door of such a structure consisted of a sheet of either bark or wood; a table covered with a white cloth served for an altar. A few candles burning in front of a crucifix suspended against the back wall completed the interior furnishings.⁽³⁷⁾

Such a chapel is described in the *Jesuit Relations* of 1635, as serving the Fathers who came with Champlain to Trois-Rivières in 1634: "Notre maison" (i.e., the chapel dedicated to l'Immaculée Conception de Marie, built in 1634) "en ce premier commencement, n'était que quelques bûches de bois jointes les unes auprès des autres, enduites par les ouverture d'un peu de terre, et couvertes d'herbes; nous avons en tout douze pieds en carré pour la chapelle et pour notre demeure, attendant qu'un bâtiment de charpente qu'on dressait fut achevé".⁽³⁸⁾

Technically speaking, such construction could hardly be called architecture at all. Bishop de Laval, who refused to consecrate such buildings, apparently shared this opinion.⁽³⁹⁾

A certainly higher level of accomplishment is represented by the wooden parish churches of the settled centres, our second category of the early church architecture of New France. These buildings were at least erected by builders with some technical training. There were a considerable number of such builders in the colony; according to a census taken in 1665, there were some thirty-six persons calling themselves carpenters, who lived in New France at that time.⁽⁴⁰⁾

One carpenter is listed in this census as living at Trois-Rivières. He may very well be that François Boivin "lequel s'est volontairement obligé . . . d'écarrir et former le bois d'un comble d'une église aux trois-rivières . . ." in a contract of June 24, 1649. This contract is a major piece of evidence for the local parish architecture of the "Heroic Age".⁽⁴¹⁾ The church to which it refers must be that abortive project for a new parish church at Trois-Rivières between 1645 and 1650, to which reference has already been made.

(34) Built by Governor de Montmagny, its exact location at Québec has been the subject of considerable research, but is not yet decided. cf Ernest Myrand, "La Chapelle de Champlain," in *Bulletin des Recherches Historiques*, iv, 1898, p. 290, and P. G. Roy, *La Ville de Québec*, I, pp. 147-148.

(35) P. G. Roy, *Les Vieilles Eglises* . . . p. 25.

(36) See the analysis of various timbers used by early builders in Antoine Roy, *Les Lettres, les sciences, et les arts au Canada sous le régime français*, Paris 1930, p. 160f.

(37) Benjamin Sulte, *Histoire de la Ville de Trois-Rivières*, Montréal 1870, p. 43.

(38) *Ibid.*, p. 69. The latter building anticipated by the missionary was not completed until about 1640.

(39) *q.v.*, p. 9, note 24. See Figure 1.

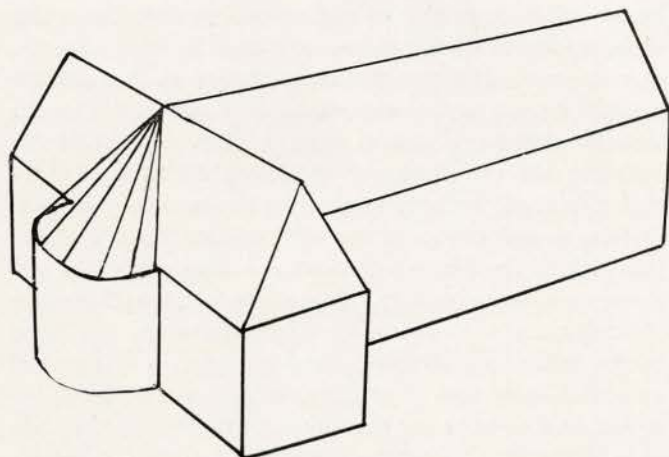
(40) Statistics of Canada, IV, *Censuses of Canada, 1665-1871*, Ottawa 1876, census of 1665.

Judging from the terms of this contract, the syndics in charge of building the new parish church of Trois-Rivières had an ambitious program. Since no mention of walls is made, they were presumably to have been of stone. The proposed dimensions of the church were generous indeed for the time – larger, in fact, than the parish church then under construction with Jesuit help at Québec. Ninety feet long by twenty-seven feet wide, the church was to have terminated in a round apse, with flanking chapels forming a transept. There is no mention of any kind of dome or steeple. Apparently this was quite typical for a church of this type and time; in 1749 Peter Kalm thought it worthy of note that the church at Baie-Saint-Paul, which when he visited it was considered as one of the oldest churches in the country, had no dome or belfry, only a bell set *en plein air* atop the roof. (42)

The contract is specifically concerned with the roofing of the proposed church. The round apse was to be covered *en sept pans*. This is a method common in later times; the 1725 church at Repentigny is one of several churches surviving from the *ancien régime* with an apse roofed in this manner, and allows us to visualize quite clearly how the apse end of the proposed church would have looked. (43) The bulk of the contract, however, has to do with the thicknesses of the various rafters, beams, joists and so forth that Boivin was to employ. Inasmuch as no dimensions in height are given, either for the walls or for the roof, it is considerably more difficult to reconstruct



(Figure 3)—An example of apse construction *en sept pans*, as specified in the 1649 contract for the proposed church at Trois-Rivières. (Repentigny, ca. 1725) Phot. I.O.A.



(Figure 2)—Sketch of the proposed parish church of Trois-Rivières as indicated by the 1649 contract.

the way in which it was planned to relate the roofs of apse, transept, and main body. I have made a rough sketch of what I think was the most logical scheme. (44)

Most important of all, from the point of view of architectural history, there is no mention of a plan to be followed. It is stated that "le dit entrepreneur doit observer tous les assemblages nécessaires suivant, et conforme en l'art de charpentier à dire à gens à ce connaisseurs, sous des bonnes visitations"; such a clause seems to mean simply that he will be checked for possible malfeasance. François Boivin's church will be designed

(41) The text of this contract, published in the *Bulletin des Recherches Historiques*, xxxi, 1925, p. 192, is as follows: (punctuation mine) "Obligation de François Boivin de Batir une Eglise aux Trois-Rivières, 24 juin 1649. Fut présent en sa personne François Boivin, maître charpentier, lequel s'est volontairement obligé à l'honorable-homme Jean Bourdon, procureur et commis général de la Communauté de la Nouvelle France, d'écarrir et former le bois d'un comble d'une église aux trois-rivières; lequel église aura quatre vingt dix pieds de long sur vingt sept pieds de large, avec des croisillons qui flanque le corps de l'église de seize pieds d'un cens, et dix neuf pieds de large de l'autre; le tout de dehors en dehors; et le dit comble sera formé en sept quartiers avec un cul-de-four paulme en sept pans avec les épaisseurs qui s'en suivent, scavoir: . . . "Les sublières auront de grosseur de sept pouces en un cens et huit en l'autre; les chevrons, et entrails, et jambettes, et liarnes, et corbles auront de grosseur quatre à cinq pouces pour les héritiers; et quatre noues renfoncés auront de grosseur suivant que le trait le requérera.

"Et le dit entrepreneur doit observer tous les assemblages nécessaires suivant, et conforme en l'art de charpentier à dire à gens à ce connaisseurs, sous des bonnes visitations.

"Et le dit Bourdon lui promet faire fournir le harnois pour emmener le bois qui lui sera nécessaire pour la construction du dit comble, le tout moyennant la somme de mille six cent vingt livres. Et le dit Bourdon lui promet fournir six barriques de farine dans le tems du dit travail, au prix courant. Et, en outre, il a été promis par Monsieur le Gouverneur que le dit Boivin et un de ses hommes seront exempts de gardes pendant le dit travail.

"Fait et arrêté au fort des Trois-Rivières en présence de Charles Sevestre, premier syndic, et le sieur Jacques Hertel, témoins qui ont signé avec les parties à la minute.

François Boivin,
Bourdon.
Ch. Sevestre,
Hertel."

(42) J. W. Marchand (ed.), "Le Voyage de Kalm en Amérique," in *Mémoires de la Société historique de Montréal*, vol. viii, p. 152.

(43) Fig. 3.

(44) Fig. 2.

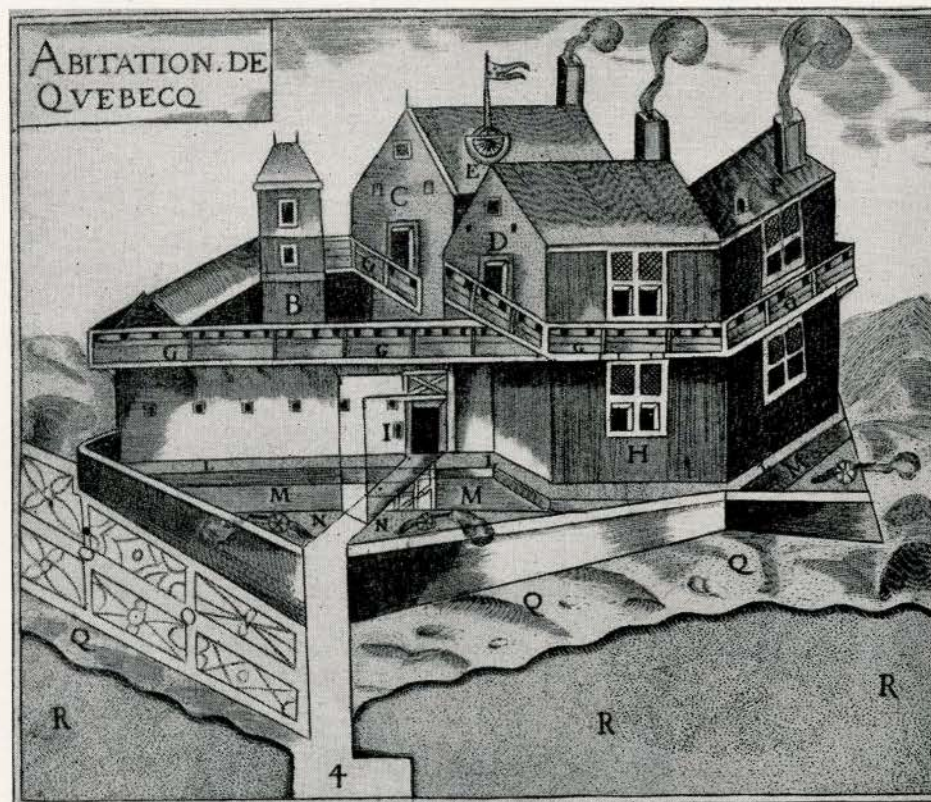
by no architect; rather, its outline will be determined by those traditions of the carpenter's craft in which Boivin, as a *maitre-charpentier*, has been trained up through the various stages of apprenticeship common to craftsmen from the mediaeval period onward. This contract for the building of a parish church at Trois-Rivières in 1649 introduces us, at the very beginning of the history of New France, to one aspect of the architectural history of the province of Québec which does not disappear until late in the nineteenth century. Here we meet the architecture of craftsmen who learn by apprenticeship, not from books; whose architecture draws not upon erudition, but upon rich resources of practical experience, of centuries of trial and error in the perfection of functional methods of building in a particular medium. Such an approach produces building of a simplicity and purity of design rare today, but common in the seventeenth century.

Champlain's "Habitation" of 1608 is perhaps the most familiar and best-known example of the early architecture of New France; it was built by craftsmen proceeding along exactly the same lines as those indicated in the contract for the Trois-Rivières church. ⁽⁴⁵⁾ Primarily

upon this building, I think, is based a prevalent assumption that the kind of craftsman-building it represents was the only sort of architecture known in early New France. It is undoubtedly true that in the "Heroic Age," and for two centuries afterwards, the architecture of traditional craftsmanship was a major element in the architectural history of New France and the Province of Québec. But even in this earliest period, I believe there is considerable evidence that it was not the whole story.

There remains to be considered in our analysis that category of church architecture represented by the stone churches erected in the early colony by the religious orders.

The term "stone", as applied to these early buildings, refers only to the walls, as far as we can judge. The roofs and interiors were almost entirely of wood. In case of fire, these wooden interiors were gutted and the stone walls often used *in situ* for a rebuilding, as was for example the case in the fire which burned out the Ursuline convent in December of 1650. ⁽⁴⁶⁾ This circumstance not only accounts for the great confusion existing in the records between "rebuildings" and "new buildings", but



- A Le magazin.
- B Colombier.
- C Corps de logis où sont nos armes, & pour loger les ou-
vriers.
- D Autre corps de logis pour
les ouvriers.
- E Cadran.
- F Autre corps de logis où est
la forge, & artisans logés.
- G Galleries tout au tour des

- logemens.
- H Logis du sieur de Cham-
plain.
- I La porte de l'habitation, où
il y a Pont-leuis.
- L Promenoir autour de l'ha-
bitation contenant 10. pieds
de large iusques sur le bord
du fossé.
- M Fossés tout autour de l'ha-
bitation.

- N Plattes formes, en façon de
tenailles pour mettre le ca-
non.
- O Jardin du sieur de Cham-
plain.
- P La cuisine.
- Q Place devant l'habitation
sur le bord de la ruiere.
- R La grande ruiere de saint
Lorens.

(Figure 4)—The "Habitation" built by Champlain's artisans at Québec, 1608.

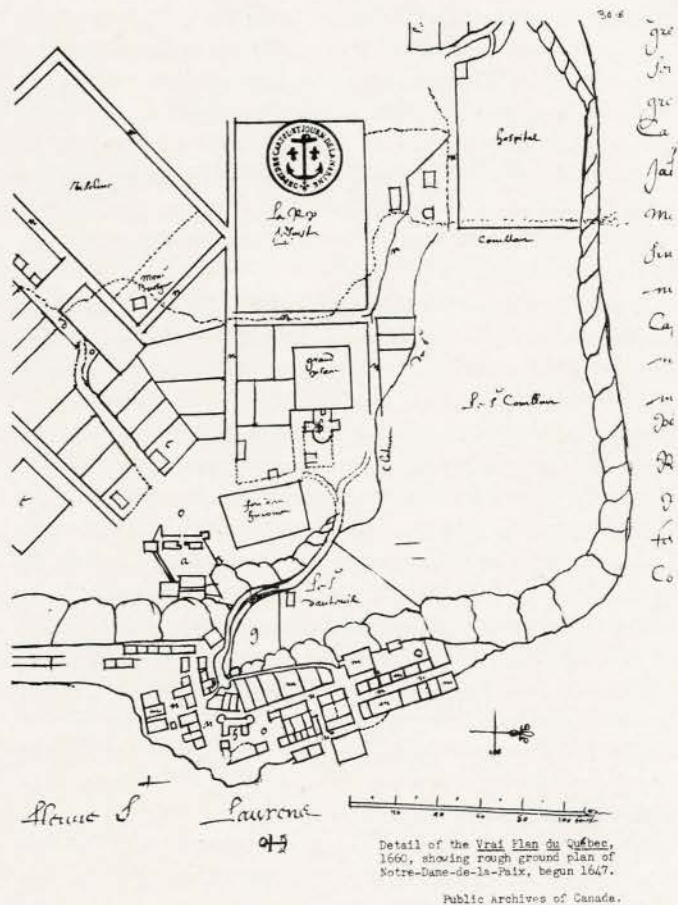
also attests to the thickness of these walls. Their thickness came from the use either of fieldstone, or the construction known as *en colombage*; (47) cut-stone work was usually restricted to the quoins, door- and window-frames. (48) Nevertheless, unprepossessing though these stone churches may have seemed, in terms of the great monumental church architecture of seventeenth-century France, it was there, I think, that these churches had their roots, rather than in the craft traditions which were responsible for wooden churches like that of Trois-Rivières. Such an assumption may seem rather bold, the more so since, as in the other categories of church architecture in early New France, reconstruction and analysis is here again necessarily quite tentative.

None of the stone buildings in question was extant after 1715. Those that escaped early destruction were soon remodelled, in the colony's prosperous years after 1665; hence such engravings of church architecture in New France as we have, do not represent them. Likewise, of the critical remarks about the colony's architecture that occur from time to time in contemporary sources few apply to these early buildings. There is, however, one observation of considerable importance. It is made by Jesuit Father Thierry Beschefer in a letter dated October 4, 1666. (49) "In a word," says this writer, "the churches here are like those in the good cities of France." We have already mentioned Bishop de Laval's terming Notre-Dame-de-la-Paix "large and magnificent"; (50); Laval, as a quite cosmopolitan figure, had perhaps more basis for comparison than Father Beschefer. Remarks such as these may justify inferences, but the evidence in general is not strong enough to warrant any very dogmatic conclusions.

One building only of these early stone churches can we visualize at all certainly: the third parish church of Québec, Notre-Dame-de-la-Paix. We have already alluded to the history of its construction, which began in 1647. By 1684 it was in ruinous condition, and between that year and 1689 it was almost completely rebuilt. From two contemporary sources we can form an idea of its original appearance, however. A rough floor plan of the church appears on the "Vrai Plan du Québec" of 1660 (51), and we have the text of a contract made for its construction in 1646, renewed in 1647 and again in 1648. (52)

The contract is by far the more important source of the two. It speaks first of the construction of the Fort of Québec, and then of the church; apparently the two were going on simultaneously. The first item in regard to the church concerns the *massonnerie*: Denis Bochart, Jacob Desbordes and Jean Garnier agree to construct the body of the church in stone eighty feet long, with an apse at the east end, *le tout suivant et conform au dessin*. For this they will receive the sum of 4200 livres and also *deux barriques de vin*. Arrangements are provided for the transportation of the necessary materials.

The second item concerns the *comble de l'église*: a contract made with Maître Nicolas Pelletier, *carpentier*, for 1500 livres, *et 30 lb pour le vin*, he is to make the



(Figure 5)—Detail of the Vrai Plan du Québec, 1660, showing rough ground plan of Notre-Dame-de-la-Paix, begun 1647. Public Archives of Canada.

planches de bas (floor), the *menuiserie* (internal woodwork), *le frontes-piece* (gable) *mesme la prolongeur de deux toises*, and *le lambris*. Some of this is open to misinterpretation, but the general picture of the church which these specifications present is clear.

The church had stone walls, clapboarded on the outside (*lambrisé*). This method of insulating a building against the cold was known in several provinces of

(45) Fig. 4.
 (46) Mère Marie de l'Incarnation in a letter describes this fire: "Enfin, tout fut embrasé en moins d'une heure, et tout ce que nous possédions d'habits, de vivres, de meubles et de choses semblables fut consumé . . ."; the interior, i.e., was burned out. cf Roy, *La Ville de Québec*, I, pp. 211-212.
 (47) *En colombage* construction roughly means the use of wooden timbers for the supporting members of the walls, with a rubble fill between. It was, in a sense, midway between wood and stone construction, and as such it was very popular in the era of Bishop de Laval, who often refused to consecrate all-wood churches. There are no certain examples of construction *en colombage* from the "Heroic Age", although it is probable that at least one of the earliest stone churches was of this type.
 (48) cf Antoine Roy, *Les Lettres, etc.*, p. 164f.
 (49) q.v., p. 4, note 7. The complete excerpt reads: "Les religieuses ursulines et hospitalières sont bien bâties. En un mot, les églises sont ici comme dans les bonnes villes de France. Les dimanches il y a autant de monde à la grand'messe et aussi bien accommodés comme les bons jours à l'église de Saint-Sauveur à Pont-à-Mousson . . ."
 (50) q.v., p. 8 note 23.
 (51) Public Archives of Canada. Figure 5.

France, and was often used in Canada; it appears that the Jesuit church at Sillery, as well as their residence, was treated in the same way.⁽⁵³⁾ This clapboarding covered the façade also. The phrase *la prolongeur de deux toises* may refer simply to an overhang of the eaves. It also could suggest, however, a belfry-like construction atop the gable, the ancestor of the Québec *clocher*. A crude indication of such a feature appears on the plan of the church on the 1660 map.

It would seem probable that the *clocher* first appears in Québec church architecture as a mark of distinction on the more elaborate stone churches. It must have been a suggestion of affluence, an "extra" feature. Presumably they were little dome-like structures at first, like the ones so commonly found in sixteenth- and seventeenth-century French architecture; those on the Château de Chambord are perhaps the most familiar examples. Father Beschefer's letter of 1666, cited above, refers to such a belfry on the Jesuit residence in Québec, built in 1648; as he describes it, the residence was "all in stone, covered in tile, with a fine dome for bells". This was certainly one of the finest buildings of the "Heroic Age"; the little *clocher*, as a mark of sophisticated architecture in the rough colony, was perhaps thought of by Father Beschefer as its crowning glory. We also hear of a *clocher* on the second parish church of Montréal, "*de forme régulier et élégant*" — a vague and unenlightening phrase as to its form, but suggesting that it was something out of the ordinary.⁽⁵⁴⁾

In addition to these features, the church had a wooden floor, and the *menuiserie* mentioned in the contract probably implies also wooden-panelled walls and vault.

Most important of all, I think, is the reference to a plan (*dessin*), and the corresponding lack of exact specifications which, we presume, would be taken care of by such a plan. Someone other than the workmen named was responsible for the design of the church. Who this may be we do not know for sure. A good guess would be one of the Jesuit Fathers — perhaps Father Vimont, who consecrated the building. The important thing is that there was a plan for this, and, presumably, for other stone churches of the period.

With the limited means to hand, such a plan need not have been elaborate — indeed, it could not have been. But for succeeding epochs in New France, these early stone churches, with a definite designer, set an important

precedent. In later times of greater prosperity, when the means were available for more ambitious building, there could be an attempt made, on this precedent, to erect in New France churches whose plans, as far as could be, resembled the great seventeenth-century churches of Old France.

We have then, in the church architecture of the earliest times in New France, four categories established in embryonic form. They are not so sharply differentiated as they will be in succeeding periods of New France's history, but the distinctive characteristics still appear.

We have first, the primitive architecture of the missions — simple utilitarian construction, hardly worthy to be called architecture. Not very different in character are the contemporary *ex-voto* chapels, a second group. Thirdly, there is the architecture of native craftsmanship, represented by those churches built by the colonists with colonial resources: simple and unpretentious, but rooted in the solid traditions of skilled crafts. Lastly, the architecture of the religious orders: necessarily limited by means and materials in this early period, but definitely following some kind of architectural plan, with the implications and possibilities of academic and scholarly traditions that this suggests. This latter architectural trend would require only the stimulus of material prosperity to burst forth and reflect, in a colonial way, the architectural glories of seventeenth-century France. But in the "Heroic Age" of the colony, these developments lay hidden in the future.

(52) *Bulletin des Recherches historiques*, vii, 1901, p. 269f: *Marchez faicts en 1646 et 47 jusque en 1648 au mois de septembre pour la construction de l'église et du fort à Québec*, p. 271f: . . . Pour l'église. Pour la Massonnerie. Par Denis Bochard Jacob Desbordes et Jean Garnier marchez faict du corps de l'église contenant quatre vingt pieds de long avec un point rond au bout devers l'est, le tout suivant et conform au dessin p^r le prix et somme de 4200 lb et deux barriques de vin faict le 18 avril 1648 . . . Item pour le charoy qu'il a fallu faire ceste année pour la sable, pierre, chaux et bois du comble et apporter les estempors la somme de 1122 lb . . . Pour le comble de l'église. Marchez faict avec M^e Nicolas Pelletier charpentier prix 1500 lb et 30 lb pour le vin le marché faict et passé le 24 de novembre 1647. Il reste du charoy qu'il conviendra faire pour l'église et la place pour la couvrir et faire le planchez de bas, le lambris, la menuiserie, et le frontespice, mesme la prolongeur de deux toises.

. . . faict à Quesbecq le 20 de septembre 1648 . . . collation faict à l'original pour moi secrétaire et notaire royale estably en la Nouvelle France le soizième jour d'octobre mil six cent quarante huiste: Bermen."

This document is in the archives of the Ursulines in Québec.

(53) cf Antoine Roy, *Les Lettres*, etc. . . . pp. 161-2.

(54) q.v., p. 7 note 19.

THE NATIONAL LIBRARY OF CANADA, ITS EVENTUAL CHARACTER AND SCOPE

A Brief submitted to the Chairman and Members of the Royal Commission on National Development in the Arts, Letters, and Sciences, by the CANADIAN LIBRARY ASSOCIATION — ASSOCIATION CANADIENNE DES BIBLIOTHEQUES,
August 18th, 1949.

THE Canadian Library Association — Association Canadienne des Bibliothèques — esteems the invitation of the Chairman and Members of the Royal Commission on National Development in the Arts, Letters, and Sciences to present a brief on the eventual character and scope of the National Library of Canada.

Since its organization in 1946, the Association, which now has a membership of more than twelve hundred persons, has studied the nature and services of the great national libraries of the world. Being fully convinced of Canada's need for a national library, the Association has taken such action as seemed expedient to promote its establishment.

Previous Brief

The Association takes this opportunity of directing the attention of the Royal Commission to *A Joint Brief on a National Library for Canada*,⁽¹⁾ which it prepared in collaboration with the Royal Society of Canada, the Social Science Research Council of Canada, the Canadian Historical Association, and the Canadian Political Science Association, and forwarded, with a covering letter, on December 18, 1946, to the Prime Minister. On January 25th, 1947, the Secretary-of-State, who represented the Prime Minister, discussed the brief with representatives of all the above-mentioned associations and one result has been the appointment in 1948 of the National Library Advisory Committee under the chairmanship of the Dominion Archivist.

Scope of Present Brief

The following brief takes a long-range view of the National Library and does not deal with matters which are already under consideration by the National Library Advisory Committee. The Association welcomes the programme already initiated by the National Library Advisory Committee and is confident that in the Committee's plans for a Bibliographical Centre, a sound foundation has been laid on which to build the services of Canada's National Library.

The Nature of the Collections

The distinguishing characteristic of a Canadian National Library will be its extensive collection of Canadian material. The aim, in the opinion of the Association, should be completeness.

There are fairly extensive collections of Canadiana in the United States, notably in the New York Library, Harvard University Library, and the Library of Congress; and much of the early material in these and other collections, being unique, is only procurable by photographic reproduction. Such libraries, however, are noted for their generosity and, doubtless, would co-operate by allowing their materials to be reproduced for use in Canada's National Library. Similar arrangements could, in all probability, be made with La Bibliothèque Nationale, Paris, the British Museum, and other libraries abroad.

Copies of all materials copyrighted in Canada should be deposited in the National Library.⁽²⁾ At present, by special favour of the librarians of Parliament, one of the two copies of all such material legally deposited in the Library of Parliament is reserved for the National Library.

The Association, though duly appreciative of this generous action, respectfully suggests that The Copyright Act ought to be so amended that the National Library shall become the legal depository for at least one copy of all material copyrighted in Canada. Furthermore, there is no penalty clause in the present Act, and that section which deals with legal deposit seems not to have been enforced. The legal deposit clause of The Copyright Act, therefore, should be strengthened.

Multiple copies of all Canadian government documents issued by the King's Printer and other agencies should be deposited, by authority, in the National Library. The National Library would then act as a central distributing agency to other libraries. This would lessen the work of the government departments concerned, simplify order procedure for libraries, and ensure a constant and complete supply of documents for one distributing centre.

Although books, periodicals, and newspapers will be the nucleus of the collection, pamphlets, broadsides, and other ephemeral publications should also be collected. Since it is impossible to ascertain the eventual importance of seemingly ephemeral material, it will be necessary

(1) Exhibit A

(2) The practice of legal deposit was initiated by Francis I when he promulgated the *ordonnance de Montpellier* in 1537, directing that one copy of every book printed in France should be deposited in the Librairie Royale at Blois and that one copy of every book printed abroad and sold in France should be offered there for purchase.

to collect all of it. Falconer Madan aptly expressed the value of ephemeral material in the phrase "The dust of today is the gold of tomorrow".⁽³⁾ The problems of storage and preservation of such material can be solved by microfilm reproduction.

The National Library of Canada should collect, in addition to printed material, phonographic records of Canada's dialects, folk-lore, and music. An archival and reference collection of Canadian films should also be made.

Although the primary responsibility of a National Library for Canada will be to make a complete collection of Canadiana, the ultimate usefulness of the library for reference and research purposes will naturally depend upon an adequate general reference section. Collections in the National Library, therefore, cannot be confined to Canadiana alone.

Services

Whereas the National Library will give direct service to the Government of Canada, and research workers in Ottawa, it will also serve as the prime library of the nation, and will, to the best of its ability, meet the needs of any person in Canada wherever he is situated, either by furnishing the actual material required by means of an inter-library loan, or, in the case of rare holdings, by lending, or supplying at cost, photographic reproductions or microfilm. Thus its services will extend into fields far beyond the reach of local libraries.

A detailed account of the various bibliographic and reference services has been fully described in the previous brief.⁽⁴⁾

The Building Site

The site of the National Library should be given the earliest consideration. The Canadian Library Association — Association Canadienne des Bibliothèques, urges that the site be centrally located in Ottawa, within easy

(3) Exhibit B

(4) Exhibit A

access of the Library of Parliament, the Archives of Canada, and the central group of departmental buildings. It is important to note that a wise planning of the building cannot take place until the site is chosen.

Type of Architecture

The design of the National Library should bear a direct relation to the various functions which will be carried on within it. Architectural plans should be drawn up only after considerable study of operating methods used in modern libraries. When Canada plans its National Library, it will have an opportunity of demonstrating the advantage of a National Library built along "functional" lines, as is the National Library of Switzerland, and thereby of giving leadership to the planners of provincial and local libraries.

It should be observed that there can be no point at which a National Library ceases to grow. It will not discard material as a public library does. For this reason, it is essential that any building designed as a National Library should be planned with a view to future expansion. Only thus can its ever-expanding contents be suitably housed and easily administered.

In Conclusion

The National Library's primary function will be to collect books that have been written by Canadians, or that, though written by non-Canadians, are of appreciable significance to Canadians. It should regard these publications and other media of information as vital to the diffusion of knowledge, the well-being of Canadian life, and as tools to be put to use for Canadian citizens. Operating to a large extent in co-operation with provincial and local libraries, the National Library should make its resources available to all government services, business men, workers, teachers, scholars, in short to all the people of Canada.

All of which is respectfully submitted by The Canadian Library Association — l'Association Canadienne des Bibliothèques, 46 Elgin St., Ottawa, Canada.





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ARCHITECTURAL EXHIBIT

CANADIAN NATIONAL EXHIBITION 1949

By G. D. GIBSON

"Obviously, the actual administration of Institute affairs must be in the hands of a few, but there is great opportunity for non-corporate service by the individual member . . .

" . . . consider the opportunity for more active interest in Institute affairs, either through local Chapters and Provincial Associations or by direct communication with Institute Headquarters. True that in many instances geography makes personal contact difficult, but increasingly it is apparent that professional unity through the Institute must develop as a very potent force to meet the pretensions of unqualified parties who would seek to undermine the Profession of Architecture to their own aggrandisement. In the face of persistent pressure, where mere weight of numbers is held to constitute validity, the Royal Architectural Institute of Canada must speak as the voice of all the Architects of Canada in defence of their confreres in the several areas of attack."

*Editorial by A. J. Hazelgrove
in the January, 1949 Journal*

WHEN asked by the Editor some time ago to write an article on the Architectural exhibit at the Canadian National Exhibition I visualized the moderately pleasant task of reporting on an unqualified success with the preconceived conclusion that such an exhibit was relatively easy and inexpensive to produce; that it was received by the public and the profession as an overwhelming super-colossal smash hit and that it should become an annual bigger and better affair. Now that the C.N.E. is over I must unfortunately, to a large extent, reverse my opinion.

Although acting in a very minor capacity myself, I have been in a good position to watch the development of the exhibit from the original idea to the final product, through all the stages of planning, discussions and execution and I am quite convinced that were it not for the enthusiasm and terrific hard work of the Chairman and six or seven members of his committee, the project would never have been completed.

The exhibit was financially supported by the R.A.I.C., the O.A.A., the Toronto Chapter, O.A.A. and the National Gallery. The total budget was \$2600.00 out of which some \$1500.00 went to the rental of space, leaving \$1100.00 to spend on the exhibit proper. I have conservatively estimated that a commercial display firm would charge \$7500.00 for executing the project and so the deficit of about \$700.00 which was incurred and which

was generously made up by a few "angels" does not appear very large.

In forming his working committee the Chairman endeavoured to obtain representatives from all schools: older, established architects, young, independent architects, architects from small and large offices, local and out-of-town architects, students. Of a total committee membership of 32 not more than 12 attended meetings; of those, about eight actually contributed physically to the production. A few members formally resigned but, in most cases an attitude of almost complete apathy prevailed. To those who actually did work, the highest praise should be given for their enthusiasm, arduous long labour and loyalty to a cause which often looked like a losing one. Since this was conceived on a national scale, representatives in all Provinces were written requesting co-operation in the way of submitting appropriate examples. In addition all chapters of the O.A.A. were written with the same appeal. The response to these requests was most discouraging; of the provincial representatives four did not even reply; another stated flatly that there was no interest in his Province in such an exhibit; from the four Ontario Chapters (apart from Toronto) there was no reply. The response from the remaining Provinces was excellent and much appreciated by the Committee, as was the interest shown by two individual members of the Ottawa and Hamilton Chapters.

The problem was to produce an architectural exhibit which would be "in keeping with the dignity of a learned profession", would be of popular interest and which could be dismantled easily and shipped to various centres in Canada by the National Gallery. The final form of the exhibit was arrived at after many weeks of planning and discussions. The panels were made of very sturdy material to withstand travelling and were of uniform size and colour; the selection and arrangement of photographs was left to the independent discretion of several committeemen. In this way the panels achieved a variety of expression, within the physical limitations, which tended to avoid monotony of execution. Shelves and tables were built to receive models but, as the size and type of models available was not known beforehand, the placing of the material was difficult and in some cases unfortunate. One panel was supplied by the Community Planners Association and another by the National Gallery.

(Continued on page 306)



NEWS FROM THE INSTITUTE

BOOK REVIEWS

GENIUS AND THE MOBOCRACY

By Frank Lloyd Wright

Published in Canada by Wm. Collins Son & Co. Canada Ltd., 53 Avenue Road, Toronto. Price \$5.50.

"—push bottom power", plush bottom power could be push button power. Why not? All gagism (ours). Bewildered, the reader flounders along with his Boswell, looking in vain for Johnson. Wonders sometimes whether Boswell is Johnson, or Johnson is Boswell. Assive of reader. It will appear strange to posterity as to mobocracy (ours) that so lucid a mind (his), the master of so organic an approach to modern building, could produce so unorganic a discourse, or is it that he who, in construction, is so conscious of wood is, in writing, mesmerized by the trees. Lieber Meister deserved better treatment. Sad, resurrected (not really, Giedion did a good job) only to be reinterred in morass of pseudo quasi philosophy Can't help lovin' that man. Which? Why?

E.R.A.

BUILDING FOR MODERN MAN

A Symposium edited by Thomas H. Creighton

Published in Canada by S. J. Reginald Saunders & Co. Ltd., Toronto. Price \$4.50.

There are grounds for the suspicion that an ideological crisis has arisen in the development of architecture. To some extent the crisp philosophical basis which gave the Modern Movement its initial drive has proven inadequate for the present stage of development. Questions of reconciling creative individuality with the social idea as the determining factor in architecture; the problem of a new monumentality; the incipient development of a split aesthetic — one set of values for utility buildings, one set for non-utility buildings — all these point to the necessity for a redefinition of design philosophy to-day.

The symposium, *Building for Modern Man*, presents papers by some of the greatest figures in the field of architecture, Walter Gropius, Sigfried Giedeon, Richard Neutra, Frank Lloyd Wright, Joseph Hudnut. Their papers together constitute a statement of design philosophy for our time. These men gathered at a two-day conference at Princeton University in the spring of 1947 as members of one of a group of academic conferences that marked Princeton's Bicentennial Celebrations. In *Building for Modern Man*, Thomas Creighton, architect, author and editor of *Progressive Architecture*, has assembled the twenty-four papers presented. In so doing, he has accomplished an outstanding job of introducing, summarizing, evaluating and synthesising the scattered brilliance of these star performers. He has managed to avoid undue repetition, has indicated the strengths and weaknesses of the conference, and has achieved his goal of present-

ing "as complete a statement of the position of architecture in the middle of the twentieth century as the practising and criticizing profession can make for itself".

Conference purpose was the evaluation by the designing profession of its own work at the end of one era and the beginning of another. "It was not the purpose of the conference to give professional architects an opportunity to discuss their particular problems of design — the intent was to discuss the sort of environment that is socially and psychologically desirable". The papers are general in content and philosophical in concept. The symposium is thus not a description in detail of how to plan a bus terminal or a town hall; these particulars are in ample supply elsewhere, but the generalization of architectural philosophy found herein are sadly lacking.

The book, following the conference plan, begins with an inquiry into the environmental needs of man, both as an individual and as a member of society. The discussion then moves to a consideration of limits and possibilities imposed on design by technical, social and economic factors. Then follows a study of the philosophical, physiological and psychological effect of form. In the next two sections, the symposium considers the direct application of these design principles to the planning of both the extensive and the limited environment. There is a section on the problems of architectural education, and a section devoted to a discussion between F.L.W. and Robert Moses, called "Inspiration and Pragmatism". You can predict accurately which title belongs to which speaker. This selection contributed little to the general course of the symposium, and seemed quite out of character with the thoughts developed.

In my opinion, the most significant contribution of the entire symposium in defining to-day's design philosophy is found in Section 1, "The Social Basis of Design". Almost without exception, the distinguished participants plead for an understanding of social man. Architecture begins with the study of man is the constant theme. As Dr. Gropius would have it, "a conscious intellectual approach to architecture as a social science", and, as Ernest Kump proclaims "we cannot begin to plan until we know the people we are planning for — we must discard the idea that man is made for planners and realize that planners are made for man".

In Section 2, "Limitations and Possibilities", I believe the dominant thought is for the coordination of technical studies with sociological and scientific research. John Burchard presents the outstanding paper in this section with its contention — "the great distinction of to-day is that we ask that more classes of people be well served by our buildings — The great social demand of to-day for hospitals, schools, housing groups, transportation ter-

minals, distribution and recreation centres, power complexes (TVA) are the spur to whatever is in the long run to be significant in our architecture". Burchard sees the architect as first of all an interviewer, a recorder of needs, an examiner of techniques and lastly, in final synthesis, a designer, a space arranger. This argument reinforces Richard Neutra's plea that the designer should be called in from the outset in the creative programming of architectural commissions.

In the Section on "Form", the psychologist Adelbert Anes, of the Hanover Institute, makes the foremost contribution when he defines valid architectural form and discusses form as a source of physical sensation of psychological implication (psychological optics). The problems of educating the eye to the acceptance of logical non-traditional form is developed in terms of habit of the eye and mind. The reader is recommended to test the conclusions of the symposium on "Form" against the sensitive, humanistic philosophy in Eliel Saarinen's book *Search for Form*. In the symposium it is significant to find Sigfried Giedion, Talbot Hamlin and Joseph Hudnut each making their appeal for an emotional quality in architectural form at this crucial stage in the development of the new architecture. — Hudnut — "we judge buildings by what they contribute to social health . . . we like school houses better than country houses". — Giedion — "in our period feeling seems so much more difficult than thinking". Scale is defined by several participants as an architectural expression of the human spirit, reinforcing again the humanistic basis of design stressed throughout the conference.

The Section on "Education" pleads for a sound historical and philosophical understanding. The Conference forwarded to Dr. Julian Huxley, Director-General of UNESCO, a request to appoint a committee to draft a plan for basic reform in architectural education — to include social economic and emotional factors as well as technical competence.

Those who attended the O.A.A. Convention of 1949 will be intrigued to find one of the panel discussion leaders, Fred Severud, making his contribution as an outstanding engineer to this section of the symposium.

I found the Section on "Planning" rather weak with not much new to contribute. Arthur E. Morgan, in his paper on "Decentralization", states sadly "the architect working in an American city is building monuments in a graveyard" and Roland Wank of TVA fame astutely notes that "nothing is quite as detrimental to planning progress as a period of prosperity" — he quotes current attitudes to housing and to TVA counterparts.

In "Space Use", Section 6, the symposium concerns itself with an appreciation of the modern concepts of time and space in accord with recent philosophical and mathematical inquiries. Architect George Howe presents a brilliant paper on "flowing space, the concept of our day".

Obviously I must confess to a rather lengthy review liberally sprinkled with quotations but this symposium of general architectural philosophy should be studied by everyone conscientiously concerned with architecture. It is to be regretted perhaps that so broad a field was attempted in two days of discussion and that architects active in other than the American scene did not participate, but these limitations were inherent in the conference program and possibilities. The great significance of this meeting of architects, writers, historians, teachers, psychologists, engineers and planners gathered together to explore a statement of principles for our time was the unanimous derivation as this principle of the architecture of humanism.

James A. Murray

MODERN INDUSTRIAL CONSTRUCTION,
A DETAIL REFERENCE

By Duane F. Roycraft

Published by Roycraft Publishing Company, 1175 Penobscot Bldg.,
Detroit, Mich. Price \$10.00.

This work is prepared for use as a reference book of details in the designing of factory and industrial construction. Its purpose is to enable the designer of factory work to obtain better results, by making available to him structural details which have been proven sound in actual usage.

The book contains some two hundred odd sheets of details, — mostly to large scale — which show the construction of such items as:—doors and door frames, expansion joints, louvers and louver frames, stairs, ventilators and stack curbs, walls and monitors, miscellaneous details.

It is bound in loose leaf form to enable individual sheets to be extracted while in use; and also to permit the insertion of additional sheets of selected details, which an architect may wish to incorporate in his own volume. (It is unfortunate that the publisher has not included a number of blank sheets in the book for this purpose.)

It should be of value in the office doing considerable industrial work to supplement the standard details existing there; as well as in the office doing infrequent industrial work, to act as the main source of information.

W. E. Fleury

ERRATA

The Editor wishes to draw attention to two errors that got into the issue on Denmark. On page 227, paragraph 5, the figure "8" should have been "88", and on page 246, paragraph 2, the word "Russian" should have been "rushing". These occurred during the rather difficult period of translation and dictation, and the Editor expresses his apologies to Mr. Krohn and his associates in Denmark, who will realize how conscious we are, even at this distance, of things "Russian".

ARCHITECTURAL EXHIBIT

(Continued from page 302)

One of the problems that arose was the obtaining of a sufficient number of architects to be in attendance at the booth during the fourteen days of the Exhibition. Through the good offices of the Toronto Chapter this problem was taken care of, but it was disappointing to the Committee that more senior architects did not volunteer for this task, rather than delegating very junior members of their staffs. In a number of cases those scheduled for duty arrived late or not at all with the result that the booth was on occasions quite unattended.

The interest expressed by the Press was considerable and fairly good coverage was given by local newspapers, magazines and radio stations. The reception by the public is difficult to judge. In a setting of hot-dog stands, squeeze-boxes and guessing contests the exhibit appeared somewhat quiet and lacking in popular appeal. That may have been the fault of the designers or it may have been inherent in the conditions of the problem. Certainly the number of people who viewed the exhibit was comparatively small but I believe many of those who did carefully "do" it got something out of it. Three casually-overheard conversations are reported:

(1) (Old farmer-type viewing 1849 school house) — "That's the stuff to give 'em — door at the end, windows on the side" (and turning to a photo of a house on a hill) — "No good ever came out of that — house on a hill. Unlucky, you know."

(2) (President of a large oil company who got pushed into the relative calm of the booth by the crowd in the aisle and then spent two hours looking at it — to attendant) — "Could you tell me the name of the architect who designed that house?"

(3) (Young couple, looking at panel of house sketches) "Why, these are just like the ones we have been making" (and, later, having viewed the working drawing and detail panels) — "Maybe we should get an architect".

In conclusion the question inevitably arises: "Should such an exhibit become an annual affair?" My own feeling, and I believe that of most of the working committee is that it would be a good idea. Such an exhibit has the basic purpose of arousing interest in the public. Little can be accomplished with one isolated exhibition. It is only by constant repetition that a message can be driven home. But equally important is the effect on the profession itself. An exhibition should provide a breathing spell for an architect in which he can take his bearings, re-adjust his sense of values, perhaps receive some inspiration and then carry on, refreshed. It takes a lot of work but, up to a point, is fun to do; it takes a lot more money than a "learned and dignified profession"

can dig up; and, unless the lethargic, low-spirited and painfully impecunious attitude of a large proportion of the membership of our Institute changes very radically, I seriously doubt that it would be possible to find any willing horses to carry the load another year.

CONTRIBUTOR TO THIS ISSUE

Alan W. Gowans

Mr. Gowans is a graduate of Toronto University in the Department of Fine Art, and is now teaching History of Art at Rutgers University, the State University of New Jersey. The article which appears in this issue represents a thesis for the degree M.F.A., which he wrote while at Princeton University.

LETTER TO THE EDITOR

I read quite a different theme in Prof. Lasserre's reference to Russia getting the kind of architecture she wants:

Whether it was good or bad did not seem to be his point. Whether good, or bad, one gathered that it was eminently suitable to the Russians' present philosophy. And theirs IS a striking example of this occurrence.

In the August issue of the *Journal*, we read of the Danes getting the kind of architecture they like.

One concludes that every country ultimately gets the architecture it expects. What do Canadians deserve of their architects?

Those of us who worked on the current R.A.I.C. Travelling Exhibit, "Progress through Design", tried to draw a picture of a new high level of Canadian architectural expectation. A new design philosophy that is growing out of our new way of living; as of 1949.

And I feel sure that Prof. Lasserre will agree, when it reaches Vancouver, that here is a broader version of what he and others have been advocating in B.C. so well.

Perhaps someone can suggest a unifying policy more suitable to Canada than the unfortunate simile used in the *May Journal*?

Or, perhaps it is only necessary for us to carry on in our progressive democratic way.

G. Englesmith

NOTICE

Fellow of the Royal Institute of British Architects, with well established office in the West End of London, England, wishes to make contact with Canadian Architect of good standing with the view to collaborate or future association of practices. Would fly over for interview. Write to office of *Journal*, Royal Architectural Institute of Canada, 57 Queen Street West, Toronto.