JOURNAL

ROYAL ARCHITECTURAL INSTITUTE OF CANADA

Serial No. 267 TORONTO, NOVEMBER, 1947 Vol. 24, No. 11

PRESIDENT . . . . . CHARLES DAVID (F)

CONTENTS

J. F. SULLIVAN, PUBLISHER

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

SUBSCRIPTION RATES

Canada and Newfoundland—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.

R.A.I.C.
JOURNAL
NOVEMBER 1947

THERE are some venerable words in the English language, like children, family, love, father and mother, that go back to the roots of our history, and bring to mind people and emotions that, in spite of wars and cataclysms, have held our civilization together. There is no more significant or personal word in the language than the word "home", and to vulgarize and commercialize it by such terms as $5,000 home, insulated home, prefabricated home or radiant heated home is surely a sin against the English language. Stripped of its associations, we have a house; a thing beautiful, dull or ugly in itself, composed of bricks and wood, plaster and plumbing. "House" was once a word that had a history and dignity of its own — "In My Father's house are many mansions" — but dignity, uncoated with a sugary sentimentality, is an unsaleable product. When Stevenson wrote, "Home is the sailor, home from the sea; the hunter home from the hill", he meant the dwelling with all its associations, but more particularly the people in the dwelling. He was using the word with all the meaning it has accumulated through two thousand years of use. He would turn in his grave to think of it in terms of cost per cubic foot, and he died, happily, before the invention of the funeral "home". Probably, the first person to use the word home, in its new crude commercial sense was a real estate salesman. We can see him, with his clients, before a quite unsaleable speculative builder's house; a house that lacked charm and convenience, and the cost was probably high. The salesman then had the brilliant idea of vesting in a pile of bricks and mortar something personal, intimate, desirable and irresistible. He offered for the first time in our language and history, a home for sale. Since then his brethren have seen the commercial possibilities of the word. The interior decorators have seized on it, and those who traffic in the dead have reached the ultimate in its commercial exploitation.

A funeral home is nothing more than a privately operated morgue or mortuary. Morgue is a definitely unpleasant word with which we associate post mortems, the flotsam and jetsam of life and murder in the rue, if not in the morgue itself. We are definitely in favour of pleasant, though not necessarily Gothic, surroundings, and an atmosphere as little like the "home" as possible. So far as a name is concerned, we are quite sure that a craft that invented "mortician" would have little difficulty in coining a new one. We take no objection to the word parlour, since that is an element in the Victorian house that is best forgotten. We associate it with horsehair furniture, antimacassars and wax flowers, overlooked on the wall by tribal chiefs and their female blood relations. We see no connexion between the 19th century parlour and the modern funeral establishment, but as the word is completely impersonal, we are prepared to overlook it.

WE have thought for a long time of writing an editorial on the abuse and misuse of the word "home". We have not done so in the hope that someone, who could do it better than we, would write an editorial in the New York Times, or some equally important and widely read journal. It would come better from an American, than a Canadian, writer because we are quite convinced that the misuse of the word home has an American and a commercial origin. Of course nothing much can be done about it. This *Journal* may still speak of houses where houses are intended, and so might government publications and university departments of extension, if arguments, in the right quarters, were sufficiently effective. But their influence would be trifling against the avalanche of articles and advertising that flood the country and fill the air.

THE future commercial possibilities inherent in "home" are unpredictable in the hands of the magazine press and the radio. We may yet live to see an advertisement announcing, "For sale — beautiful rural property with well appointed back-home delightfully screened by cedar clump". It would seem that "home" is vulnerable for financial gain from all quarters, and "house" may remain in the language in only a few instances where the press and soap operas have little influence. At the moment, we can think of only the White House, the House of Lords, the House of Seagram and the House of God.

Editor

DESIGN AND TRANSPORTATION

By RICHARD E. BOLTON

THE study of transportation may be undertaken from many viewpoints. Its history represents a series of victories over mechanical difficulties for the Engineer while, to the Socialist, its development overshadows in importance the destruction of private capital. The Economist bases his conception of the exchange of goods on some means of transport, from it building a complex system of payment and exchange. We, too, have our peculiar interests in the subject and need find no excuses for concentrating on our narrower viewpoint in an article of this sort, leaving untouched the mechanical, economic and other considerations which are beyond our competence, as professionals, to assess. The technical accomplishments of to-day have been brought about by contributions of many and various skills. Ours is one of them, and it is instructive to examine the way in which it has been used in the development of structural and visual design in the transportation field. Most important, we should understand our relationship with the industrial designer in order that each may benefit from the other and that our present and future needs may best be served.

However interesting the archaeological study of vehicles may be it has little relation to the developments of the nineteenth and twentieth centuries even though the wheel, the sled and the dugout canoe are primitive forms of mechanical principles which still remain in use. From unknown dates in the prehistoric past until the end of the eighteenth century motive power was wind and the muscles of men and beasts. The sea, rivers, deserts and a few man-made roads were the only avenues of communication until very recent times. Except for a few bridges and aqueducts the architecture of transportation was almost non-existent. The invention of steam power increased the carrying capacity of vehicles beyond the point where the highway system could accommodate them and the railway was born; in a similar way the other means of transport evolved. Within a hundred years we have stepped from the ancient to the modern mechanical world which transportation, among other things, has made possible.

First let us examine the right-of-way. The sea, the air and the river are natural highways with access to areas of human habitation restricted to certain points on their periphery. On the other hand, railways and canals are engineering inventions whose uses are narrowly circumscribed by their design. Only the road has a multiplicity of uses such as long distance travel, access to buildings and a terrain for social intercourse, a versatility which is embarrassing because of the

Photograph by Trans-Canada Air Lines
T.C.A. North Star.

Heavy duty express passenger locomotive of the Canadian Pacific Railway Company, an outstanding example of modern design.

Photograph by the Canadian National Railways
Canadian National Railways car ferry to Prince Edward Island. A new Canadian industry comes of age. Designed by Messrs. Germain and Milne, Naval Architects, Montreal, and built in Canadian shipyards.

heavy demands which we have come to make of it. In most cases the design of railways and canals has been narrowly utilitarian with no concern for the deterioration in amenity which has resulted in densely populated areas. The street, too, has become a poor affair which has not kept pace with the demands being made of it; but the super highway demonstrates the benefits which may be obtained when skill and imagination are put to use in the design of an avenue of transportation. We should also remember some of the purely engineering devices, such as bridges and transmission lines which, by their audacity of construction, have captured popular imagination, and have contributed to the acceptance of a new aesthetic in architecture. The logic of Le Corbusier would hardly be accepted without the proof which good engineering provides.

The first vehicles in the age of mechanical transport were adaptations of the crafts of the carriage maker and shipwright. Early trains consisted of a few horseless carriages drawn by a fearsome looking oversize tea kettle, and marine engines were fitted as auxiliary propulsion in sailing ships. Engineering advances soon make the continuance of traditional forms impossible; new forms appeared and development continued uninterrupted until the present time in the ships and vehicles of the leading industrial nations. As would be expected, many of the finest examples were the products of designers in Great Britain, with the shipbuilding firms of Belfast, the Clyde and the Tyne achieving world pre-eminence. The superb equipment of the British railways, and the early achievements of British automobile makers are also worthy of mention. One glance at photographs of locomotives designed by J. F. Robinson, Sir Nigel Gresley and others is enough to expose the ugly sham which often passes for streamlining to-day. In America the refinement of design proceeded more slowly. Whereas Britain produced ocean-going steamships, America developed the river steamer whose tiers of decks, prosaic lines and gilded ornament were the pride of the Civil War era. The early American railway train, with its rectangular carpentry construction and its multiplicity of gadgets embellished in the worst contemporary architectural taste was truly a fearsome thing. Yet despite its looks it was an efficient machine which developed into the greatest transportation system in the world with interchangeability of units and parts over a whole continent. But whether we turn to Europe or America we see the architectural taste of the period imposed on those parts of the ship or vehicle where function was not considered to be of much importance. Ships and trains, unlike buildings, were never given a Gothic exterior to cover their steel frames but "Early Pullman" and "Late North Germain Lloyd" take their place beside "Strawberry Hill Gothic" and "Rococco" in the jargon of the architect. The foundry and fret saw became the slave owners of the blacksmith and carpenter.

In comparison with the revolutionary development of ships and vehicles the changes in the design of buildings serving transportation purposes were relatively small and closely followed the methods and fashions of contemporary building. As would be expected, the principal innovations in buildings were the increasing complexity of plan and section designed to meet the needs of a rapidly expanding and changing mode of travel. A simple train shed with a few platforms and a monumental entrance once sufficed for a great railway, whereas to-day even the smaller station requires more than one level and facilities for baggage handling, eating and a dozen other matters affecting the safety and convenience of travellers. Immense glass roofs were built to provide protection for the passenger while allowing enough free air above the trains for the dilution of smoke. A number of developments could be mentioned, each innovation tending towards a more complete solution of requirements and of these the introduction of electric locomotives is perhaps the most important. With the use of electricity and the consequent elimination of smoke, the planning of buildings was freed of many restrictions and the use of different levels, even for trackage, became possible immediately. In retrospect it would seem that the advantages of cleanliness gained public acceptance about the beginning of the twentieth century and that the desirability of building with high quality materials began to be understood at about the same time. Gradually, the old facilities were demolished when it was found that they would no longer serve their purpose. One early Canadian masterpiece, Bonaventure station in Montreal, survives to-day shorn of upper floors and all its former glory, even its bricks being hidden under many layers of tuck pointing and red paint. Its creaking floors and peculiar musty smell have local colour which its successor, the new Canadian National Railway Central Station will never acquire. Bonaventure is one of the last remaining examples of the "Saratoga School" which in time gave way to the great monumental buildings of which the Grand Central and Pennsylvania Stations in New York, the Leipzig Hauptbanhof and the Toronto Union Station are well known examples. Now all these buildings differ in plan, siting, materials and in almost every conceivable way but they have one thing in common: they reflect an attitude towards travel. They seem to say that no journey may be undertaken lightly or without traversing acres of architecture between the street and the train just as the railway and steamships companies required that no journey be undertaken without incredible complications in the buying of tickets and the checking of baggage. If to-day the architectural solution of the planning problems in these great buildings seems ponderous, mechanistic and un-

duly complicated, let us not forget that some of them have served their purpose for nearly half a century with ever increasing demands on their facilities and that we should be pulling them down were it not for the skill and vision of their designers.

In recent years the trend has been away from heavy, expensive and monumental architecture when serving the ordinary commercial needs of a community, so it is not surprising that transportation buildings should reflect the same trend. There are many examples of the new spirit in the design of airports, bus terminals and suburban railway stations throughout the United States and Canada, most of them having been built within the last twenty years. An early example of the new simplicity is the railway station of Stuttgart in Germany, a building with a simple efficient plan and excellent circulation. Despite its size, the building has an inviting character which even the heavy rock faced stone walls do not destroy. There are many recent examples of the same approach to the design problem, two of the best known buildings being the new station in Hamilton and the C.N.R. Central Station in Montreal. In both cases the facilities for the use of travellers are unpretentious and efficient while those for handling baggage and express have been carefully planned. The air and bus lines have set the example in simplicity. One buys a bus or airplane ticket from a man standing behind an open counter or from a girl sitting at a desk, whereas in most railway stations the ticket vendor is separated from the public by wood panelling, marble, glass and heavy bronze grilles. Only the railway and the steamship retain the white table cloth, the elaborate plate and the complicated table service of another age.

It would be erroneous to deduce, however, that the most advanced architectural examples would be found in the newer fields of transportation, most airports and bus terminals being of rather temporary and flimsy construction, in Canada at least. In the United States and South America a number of extremely fine airport buildings have been erected, of which the National Airport in Washington, the Wartime Air Transport Command Airport in Washington and the new Airport of Rio de Janeiro are notable examples. The age of the dingy Victorian railway station has all but passed while the era of the sunlit and landscaped airport has just begun. We hope that the comfortable dining car will not be entirely supplanted by the flying soda-fountain.

Let us return to the vehicles of transportation and examine the progress made in recent years. The airplane has set the standard for speed and simplicity of passenger carrying. Because of weight limitations it will probably continue to the minimum of seating space and incidental services for many years to come. It seems likely that the other forms of transport will emulate its technique while exploiting their ability to provide less cramped accommodation on long journeys. Ships will gradually be stripped of their "architecture" and genuine comfort will replace the overstuffed atmosphere of a nineteenth century hotel de luxe. Two notable examples are the new Canadian National Railways car ferry "Abegeweit" and the Danish motor ship "Kronprinz Frederik" which was illustrated in the February, 1947, issue of the Architectural Review. Radically new designs in private automobiles have already been enthusiastically accepted in North America while in England the refinement of more conventional designs has produced some vehicles of outstanding merit in the luxury field. From the Middle West comes the announcement that a super railway is now under construction, with minimum grades, curves of one mile radius and a replacement of all rolling stock, stations, shops and other equipment. Timetable freight service and telephone reservation of seats are new services already in operation. Perhaps the most ambitious experiment yet attempted is the "Train of Tomorrow" produced by the General Motors Corporation in conjunction with Pullman-Standard. Pulled by a General Electric diesel locomotive, the experimental train is touring the United States to demonstrate the attainable standards of speed, comfort and attractiveness in railway travel. It will be many years before equipment of this quality will appear on any but the finest trains; longer still before the branch line coach with its dirty green plush seats and soot covered windows has become only a memory.

Public imagination is captured by the so-called streamline. For a while it seemed possible that street cars and urban busses, which normally travel under thirty miles per hour, might escape being deformed into elongated tear drops with flowing reverse curves painted on their sides, particularly since use and structure favour a more rectangular shape. Imitation stressed skin construction and aviation contours have made these prosaic vehicles assume the appearance of ventilated sausages. Another favourite device is the slanting forward design which produces losenge shaped windows and other departures from the more simple forms which result from considerations of use and structure. The origin of this latest design motive can be found in the focal plane shutter of a high speed camera, a device which can take sharp pictures of objects moving with great angular velocity across the field of view. The shutter (photographers please excuse) is like a bottom hung roller blind wih a horizontal slit in it. When the shutter is released the blind flies down and a slit of light traverses the face of the film, recording an inverted image. By the time the slit has crossed the film the recorded object has moved forward a bit. A moving rectangle will appear as a trapezium in the finished picture and all other forms will be similarly distorted. A geometric aber-

ration has thus become the design source for motor busses and bent wood furniture. It is interesting to observe the changes in design of the automobile from the early days when each manufacturer held closely to his original design and proudly displayed his distinctive radiator, or lack of one, for all to see. This happy state of affairs lasted only until some manufacturers, despairing of their own original ideas, decided to copy the details of a successful competitor. A few years later most cars were fitted with European stone guards, even though American highways were usually paved and the cars were never used for road racing. The changes in design were unpredictable and often at the expense of accessibility and convenience in ordinary maintenance. It must be admitted that the general trend of design has not changed, that cars are becoming more bulky, bulbous and complicated, that visibility and accessibility have suffered and that ostentation and vulgarity are more apparent than ever. There is every reason to believe, however, that the successful innovations introduced by Studebaker will be followed by other manufacturers and that some excellent new designs will appear in time.

Transportation has become the blood stream of our civilization; without it the great cities and the industries of the Western World would wither and perish within a few days. Immense efforts have been made to increase the speed of transport through the air or across open country while the problems of urban traffic are virtually ignored except in after dinner speeches. If we are to make the best use of our existing vehicles and the new ones yet to come, the city and regional planner must be given the means to make the necessary improvements in our highways and streets. It is common knowledge that it takes as long to drive to the Montreal airport as it does to fly to Ottawa but the economic consequences of congested streets are rarely understood. The greatest need for original thinking and creative design within the field of transportation is in the solution of urban and regional traffic problems. Decentralization and satellite towns may be the answers under certain conditions although there is considerable doubt as to what measures are required.

The engineer and the industrial designer have given us glimpses into the future with the ships, strato-liners and automobiles of to-day. This part of transportation will progress in an orderly manner to greater and greater achievements. In the meantime, the provision of highways and space in which the vehicles can operate has been handled with procrastination, makeshifts and incompetence. How often we see a provincial highway dwindle to the dimensions of a side street where it passes through a city. In Montreal, there are fewer miles of private right-of-way for rapid transit vehicles than there were twenty-five years ago, despite the increases in population and street car travel. In the language of the automobile mechanic it is time we stopped gazing at the duco finish and looked under the bonnet. Until 1930, shipbuilding, car building and architecture went their separate ways with seldom a thought for the other except when one of the poorer sisters borrowed architecture's fancy clothes. Now all is changed and architecture, in her less sure moments, assumes the graces and mannerisms of the sister crafts. How this came about has been the subject of much writing by Le Corbusier and others but undoubtedly the first successful experimenting was carried out by E. G. Asplund in the Stockholm Exhibition of 1930, with the use of free forms and materials which had not been considered appropriate for "Architecture" hitherto. The techniques of factory assembly and building to predetermined dimensions have become more widely used in building construction, more and more supplanting the older methods of hand fitting at the site. Materials which are favoured in the construction of ships and vehicles, because of their light weight and low maintenance costs, are now being used in the construction of buildings. The exchange of skilled mechanics in the various trades, between building and transportation projects has been going on for a number of years. If greater progress has been made by the designers of transport than by the designers of buildings, let us remember that the architect has a greater range of proven traditional materials and methods with which to work. We can, however, follow the work of the transportation designer with a greater technical understanding and appreciation than would have been possible at any time in the past, for architecture and transport are now inseparably joined in a common approach to the solution of their respective problems.

RAPID TRANSIT IN TORONTO

By W. H. PATERSON

SUBWAYS have been proposed in Toronto from time to time since 1910, but it was in 1942 that the Toronto Transportation Commission submitted to the Mayor and Board of Control a proposal to build a system of rapid transit to relieve traffic congestion.

In 1943 a small staff, working under the direction of Mr. Norman D. Wilson, Toronto consulting engineer and international authority on transit planning, produced location plans for a system of rapid transit subways. The initial stage of this programme is the north-south subway on Yonge Street and the east-west subway on Queen Street, as shown on next page.

In 1944 the Commission set up a Rapid Transit Department, consisting of seven sections, whose responsibilities were as follows:

1. *Survey Section:* Field surveys for the control of design and construction.

2. *General Planning Section:* Location of track and structures; right of way; design of terminal facilities.

3. *Architectural Section:* Development of functional plans of all subway stations; determination of interior treatment of below ground stations; determination of interior and exterior treatment of above ground stations.

4. *Structural Section:* Design of subway structures.

5. *Mechanical Section:* Drainage, ventilation and heating of subway structures; equipment to control and move passengers, viz., turnstiles and escalators.

6. *Electrical Section:* Design of D.C. traction power, A.C. power for pumps, fans and illumination, emergency alarm, telephones and signal systems.

7. *Specifications and Estimates Section:* Preparation of estimates and written contract documents.

Mr. Norman D. Wilson continued to function as consultant on planning matters but De Leuw, Cather and Company of Chicago, designers of Chicago's State Street Subway, were retained to advise the department on the design of structures. Mr. A. S. Mathers, of the firm Mathers and Haldenby, and Mr. John B. Parkin, both well-known Toronto architects, were retained in connection with the design of stations. Mr. R. F. Legget, then with the University of Toronto, but now Director of the Division of Building Research, National Research Council, Ottawa, was retained to direct a programme of sub-soil investigation.

This organization functioned in 1944 to produce a set of general plans for the Yonge Street Subway and preliminary plans for the Queen Street Subway. These plans determined the general characteristics of subway and station structures, the location of stations, the alignment and grade of track, and the location and character of terminal facilities.

In 1945 the Commission authorized the preparation of contract plans and specifications for Yonge Street Subway structures. These *structure* contracts provide for the basic structure only—the concrete box it might be called—which will provide the track right of way and access to it.

Additional contracts will be required as follows: Architectural contracts for the finish of below ground stations; architectural contracts for the entire building, in the case of above ground stations; mechanical contracts for the installation of subway ventilation and drainage equipment; electrical contracts for the installation of A.C. and D.C. power facilities; electrical contracts for the installation of communications and supervisory control equipment; a contract for the installation of track; a contract for the installation of signals; a contract for terminal storage yard.

The development of structure contract drawings has continued with little change in staff, and this phase of the work will be terminated early in 1948. Architectural contracts, drawings and specifications will be the next phase of our design programme and, in anticipation of this work, we are enlarging our Architectural Section.

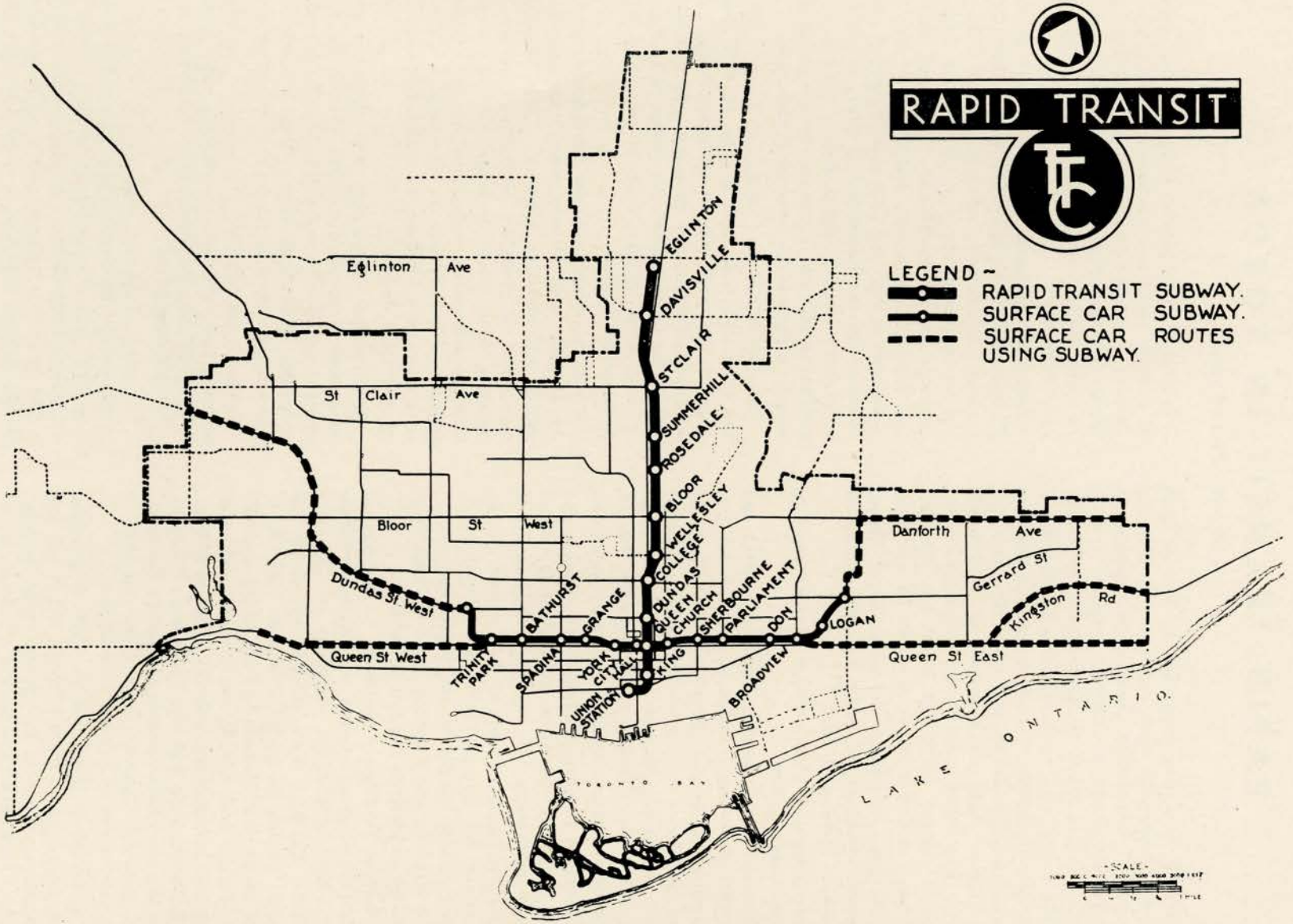
It will be appreciated that functional drawings for the stations have already been completed in connection with structure contracts. These plans, which are based on operating requirement as the prime requisite, have been developed by our architects, through co-operation with operating and engineering consultants and officials, to ultimately produce structures which will, I believe, be outstanding examples of transportation design.

Although the Commission has completed contract documents to permit the calling of bids for subway structures, it must be realized that this work cannot be undertaken until materials and labour are available in sufficient quantity to permit orderly scheduling of work.

Some of the material requirements for structure contracts only, are: Cement—1,000,000 bags; Structural Steel—8,700 tons; Reinforcing Steel—9,300 tons; Lumber —2,500,000 board feet.

To award a contract, requiring the ripping up of pavements and the disturbance of public utilities, before a constant flow of materials is assured, would result in chaos on Yonge Street. Although there is adversity in this delay, it is being turned to advantage by completing contract drawings at an orderly pace and rearranging public utilities in advance of construction. New track and switches, essential to temporary street

(Continued on page 393)


RAPID TRANSIT
TTC
LEGEND ~
RAPID TRANSIT SUBWAY.
SURFACE CAR SUBWAY.
SURFACE CAR ROUTES USING SUBWAY.
Eglinton Ave
St Clair Ave
Bloor St West
Dundas St West
Queen St West
Danforth Ave
Gerrard St
Kingston Rd
Queen St East
EGLINTON
DAVISVILLE
ST CLAIR
SUMMERHILL
ROSEDALE
BLOOR
WELLESLEY
COLLEGE
DUNDAS
QUEEN
CHURCH
SHERBOURNE
PARLIAMENT
DON
LOGAN
BATHURST
GRANGE
TRINITY PARK
SPADINA
YORK
CITY HALL
KING
UNION STATION
BROADVIEW
TORONTO BAY
LAKE ONTARIO
SCALE

RAPID TRANSIT IN TORONTO

By A. G. KEITH

THE Toronto Transportation Commission controls and operates an outstanding system of public transportation. The policy of the Commission is to strive constantly to improve its services. At the present time the Commission has a substantial number of patrons who use its services by choice and not from necessity. It can hold such patronage only by a definite improvement in the speed, comfort and convenience of the ride furnished, and this cannot be given upon thoroughfares crowded with other traffic.

In 1943 the Toronto City Planning Board prepared an extensive report, together with a proposed master plan which was received by the City Council and given qualified approval. The following excerpts from this report provide a general background to the transportation problem:

"The street system of the City of Toronto may best be described as an irregular gridiron pattern of 66 foot streets which are quite inadequate to handle normal traffic requirements and which will become more so as time goes on.

"The irregularity of the street pattern is without question a direct result of the lack of planning during the City's growing period and of the fundamental irregularities in the original survey of the Township of York, which laid out 200 acre farm lots lying both east and west and north and south. The effect of the latter is important because of its influence on the direction of streets in subsequent development. For instance, in the area south of Bloor Street, the streets generally run north and south following the original farm lots, while in North Toronto the reverse condition is found. In both cases the provision of cross streets has required Municipal action.

"Practically all of the main streets are required to carry street cars and, while certain of them have in the past been widened to increase their traffic capacity, to some extent easing the situation at critical locations, their frequent intersections and car stops militate against even reasonable speeds and are productive of most undesirable traffic congestion. In addition much of their limited effectiveness is destroyed by the parking of vehicles along the curb.

"Taking everything into consideration, intersections may be fairly characterized as the most important factor contributing to traffic delays, because firstly, taking a signal controlled intersection as an example, it is only open for traffic in any one direction for thirty seconds of each minute, and secondly because of the lag in stopping and starting. The net result of this is to reduce traffic values by about 60 per cent. giving a six-lane highway with frequent intersections about the same traffic carrying capacity as a two-lane highway free from intersections. When to this is added the delay in loading and unloading street car passengers the effect of intersections on the City's street system becomes doubly apparent.

"In searching for a solution to the problem the (City Planning) Board became convinced of two fundamental requirements for ideal mainline traffic routes, namely the separation of individual and mass forms of transportation and the elimination of intersectional interference, but that, as a matter of practicability, such requirements could not be recommended except in the case of such thoroughfares as could be fairly considered the backbone of the whole street layout providing the main connections between the City and Provincial Highway systems. These conclusions were confirmed by study on the ground of the super highway and rapid transit systems in Boston, New York, Philadelphia, Chicago and Detroit".

The restriction of free movement when private motor cars and street cars utilize the same traffic lanes is serious. It matters little whether the responsibility for the confusion is placed on the operators of the street cars or the private motor cars; the fact remains that while such confusion exists neither form of transportation can be utilized to full advantage.

The Yonge Street car line, which is the most heavily loaded line in the Toronto system, carries approximately 13,000 passengers northerly from the centre of the city during the peak hour of the evening rush. This is accomplished by means of street cars and trailers which average something less than 10 m.p.h. This problem cannot be solved by adding more street cars to the Yonge Street line or to parallel car lines for the saturation point was reached long ago. It has been suggested that the street cars be replaced by buses which would load at the curb and so reduce the conflict with private motor cars. However, such a solution is not feasible on a main car line with such a density of passenger traffic, as the street capacity is insufficient to accommodate the number of buses which would be necessary.

The only satisfactory solution to the problem is the provision of a private right-of-way for the mass transportation vehicles free from the interference of all other forms of traffic. Extensive research on the origin and destination of passengers confirmed the initial assumption that a special right of way should be provided to replace the Yonge Street car line and that provision should be made for the subsequent construction of an east-west line in the vicinity of Queen Street.

It was decided that the south terminal of the Yonge

Street Rapid Transit line should be located on Front Street in the vicinity of the Union Station and that the line should extend north to Eglinton Avenue. Analysis of the various means by which a private right-of-way could be provided indicated that a subway would be the most practical.

In determining the actual location of the subway many factors had to be considered. In order that the construction might be feasible economically it was essential to avoid destroying or disturbing expensive downtown properties as this area is built up almost solidly. It was then obvious that the subway would have to be located directly beneath Yonge Street from Front Street to a point a block or two north of College Street. North of this point the ground is mainly occupied by old brownstone houses in varying states of disrepair and it was found to be economically sound to purchase an off-the-street right-of-way through these properties some 200 feet east of Yonge Street. The alignment continues roughly parallel to Yonge Street to a point north of St. Clair Avenue where it passes under Yonge Street to the westerly side to avoid disturbing a cemetery, and continues to the northerly terminal at Eglinton Avenue. Provision has been made to permit the extension of this line north to the city limits when such an extension becomes necessary.

Before the structural frame of the subway could be designed certain basic data had to be established. The required capacity of the line was determined by making an allowance for the expected increase in traffic flow (as passengers normally using other lines take advantage of the better service) and by allowing an ample margin for future expansion. In consequence, it was decided to design for an ultimate capacity of 40,000 passengers per hour in each direction. Having established this figure the width and length of the cars, the maximum number of cars to a train, the frequency of service and the length and width of loading platforms were determined.

Because 75 per cent. of the traffic using the Yonge Street subway will transfer from cross-town lines it was decided to locate the subway as close to the surface as possible to facilitate this transfer.

Rapid Transit is not alone in using or desiring to use the area below the road surface. Already this space is filled with a network of sewers, water mains, high pressure fire mains, gas mains, telephone, telegraph and electrical ducts. A minimum clearance from the top of the subway structure to the existing road surface was agreed upon by representatives of the various utilities affected.

In the section of the subway from the southern terminal to the point north of College Street where the alignment swings to the east, it is proposed to use the "Cut and Cover" system of construction. This system will require the temporary closing of the street to all vehicular traffic one block at a time. During this phase the road surface will be removed, the existing utilities exposed and suspended from falsework spanning the excavation and a temporary timber roadway laid to carry both motor cars and street cars. The excavation will then be completed and the subway structure built inside temporary shoring. The temporary road surface will remain in use until the Rapid Transit system goes into operation. The various utilities will be placed in their final location and, after completion of the back-filling operation, the road surface will be replaced.

In the off-the-street portion of the project the procedure will be simplified because of the absence of utilities and vehicular traffic except where the alignment crosses east and west streets. During the construction of this section the width of the excavation will depend upon the required depth and the angle of repose of the material excavated. On completion of the structural frame the right-of-way will be backfilled and graded. A portion of the project will be of the open cut type. The sides of the cut will be planted suitably and maintained properly.

The Rapid Transit stations and control areas in the down town section (from Union Station to College Station inclusive) will be located below the road surface and accessible to the public by means of an open type of sidewalk entrance stairway or by off-the-street entrances located in suitable buildings reasonably adjacent to the subway structure. The width of stairways will not be standardized but will be a compromise between the desirable width for the location and the maximum amount of space available.

The control areas will be divided into "paid" and "unpaid" areas by means of turnstiles and barriers. Ticket booths will be designed for two cashiers. Telephones, lockers and concessions will be installed as a convenience to the public.

Vertical circulation to and from the Rapid Transit platforms will be provided by stairs and escalators respectively. In most cases they will be located about the mid-point of the 500-foot platforms. Twelve feet wide platforms will be on the same level as the floor of the Rapid Transit cars.

In the northern sector, where the alignment is off-the-street, all the control areas will be housed in above-ground structures (Wellesley Station to Eglinton Station inclusive). The same general requirements for access from the control area to the subway platforms have been satisfied and, in addition, facilities for transferring to surface types of transportation have been provided. Bus platforms and/or street car platforms and shelters will be located in "paid" areas to avoid the necessity of issuing and collecting paper

transfers and to reduce the loading and unloading time. At Eglinton Station, which will be the terminal for several suburban buses, extra control facilities will be installed for use during peak periods.

Since the Rapid Transit stations will be located some 2,000 feet apart, auxiliary local bus services will be established on Yonge Street. These bus services will act as feeder lines for the Rapid Transit system since the routes will terminate at various co-ordinated stations. There will, of course, be transfer privileges to and from the subway. The buses used on this service will be gasoline or diesel powered rather than the new electrically powered type so that all overhead wiring may be eliminated on the southern portion of Yonge Street.

With the exception of the Chicago installation it would appear that the expenditure for interior finishes in all North American subway systems has been kept to the minimum. Concrete floors and glazed tile walls are the accepted standard. However, the Chicago State Street subway, which was completed during the war years, ignored this precedent and used a variety of wall materials including ceramic tile, glazed terra cotta, marble and Glastone. The latter material, which has recently been introduced to the Canadian market, consists of a facing sheet of Vitrolite or Carrara bonded to a light weight concrete by means of copper edge clips and a layer of mastic. The floors in the Chicago subway are composed of a coloured cement with an abrasive mixed integrally with the finish. To this excellent foundation the subway patrons have added a wearing surface of discarded chewing gum.

While no decision has been made regarding the wall finish to be used in the T.T.C.'s project, it may be taken for granted that much stress will be laid on both general appearance and ease of maintenance. Provision will be made for a one-inch air space between the selected finish and all underground exterior concrete walls in order that condensation on the surface may be reduced.

The floor finish on all platforms, control areas and passageways will probably be terrazzo with an abrasive added. Some form of non-slip tile will be used as a stair and platform nosing.

The Toronto Transportation Commission intends to use continuous welded rail and modern, quiet, car equipment to effectively reduce subway noises. While several systems of rail mounting will be tested, for the most part the rail will be secured to half length wooden ties set in concrete ballast in tube sections and full ties with rock ballast at crossovers and in the open cut. It is expected that sound-absorbing materials will be mounted on the face of the platforms in the stations. The ceilings in the control areas will be suspended and will be acoustically treated. Ease of maintenance and resistance to moisture damage will be necessary characteristics of the materials selected for use in this location.

The subway system will be illuminated by fluorescent lamps installed in dust-tight fixtures. Toronto is in an area served by 25-cycle power and, while it is felt that there is much to be gained by converting the Hydro service to 60-cycle, it is not considered to be an economical proposition due to the expense of installing converter equipment. Consequently, the lighting fixtures will be the two-lamp type in order that the flicker may be kept under control. A minimum of 5 F.C. will be maintained in all public areas. The fluorescent installation will be supplemented by incandescent emergency lights which will be fed automatically by storage batteries in the event of an interruption in the Hydro service.

The control areas in the above-ground stations will be heated by hot water coils located in the floor. Where possible, the energy source will be off-peak electricity in which case hot water storage tanks will be installed to carry the heating load during the peak periods.

Vent shafts will be constructed at the ends of the station platforms to equalize the air pressure and so eliminate objectionable blasts of air caused by the piston action of the trains moving in the subway. The natural ventilation will be supplemented by the installation of exhaust fans located at strategic points. Pumping stations will be located at low points to prevent the possible flooding of the structure.

The Toronto Transportation Commission is of the opinion that the Yonge Street Rapid Transit line will form the nucleus of the most outstanding subway system in North America.

☆ ☆

RAPID TRANSIT IN TORONTO

(Continued from page 389)

car operation during construction, have been installed. Work has been started on a new sewer which must be completed before the subway can be built on Yonge Street. This new sewer, which is located on Front, Victoria and Gerrard Streets, will carry sewage now flowing through an old brick sewer on Yonge Street, from Gerrard Street down to Front Street. With the new sewer ready for service, the old sewer, which lies in the path of the subway, may be removed in advance of subway construction. Additional contracts to relocate sewers, gas mains and duct lines, will be awarded in 1948. As this work is all a part of the project, it may be said that subway construction is already in progress.

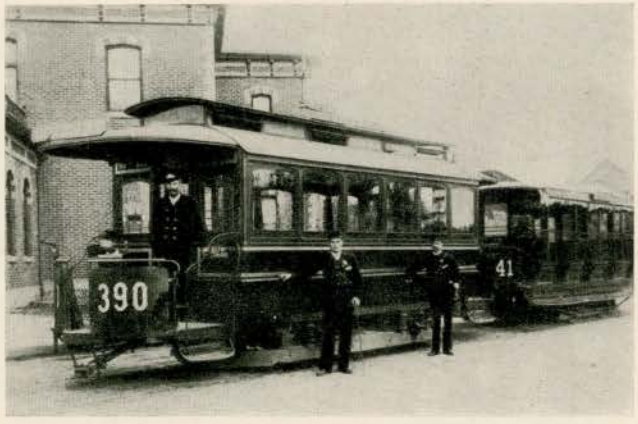
1

3

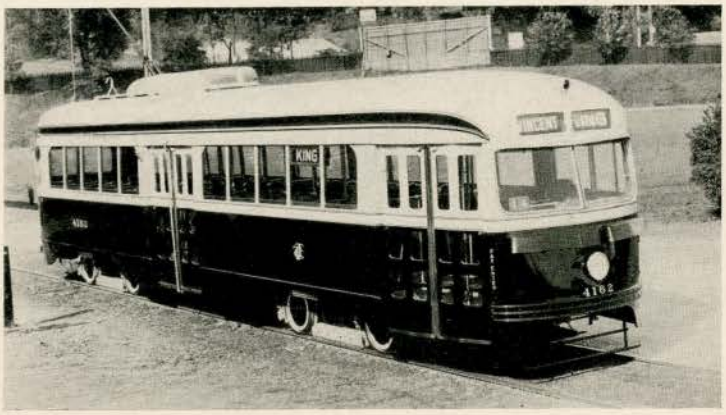
1. **HORSE POWER, 1879** — Straw was scattered on the floor to keep passengers' feet warm in winter.
2. **ELECTRIC POWER, 1899** — The train crew were exposed to the elements.
3. **INTERFERENCE** — Bay Street looking South from King Street.
4. **CONFUSION** — Intersection of Yonge and Front Streets.
5. **CONGESTION** — Yonge Street looking towards St. Clair.

4

2



5



MODERN ONE MAN P.C.C. TYPE STREET CAR

Recommended for use on routes with a peak passenger load of from 3,000 to 8,000 per hour.

MODERN TROLLEY COACH

Electrically powered and heated coach recommended for use on routes with a peak passenger load of from 1,000 to 4,000 per hour.

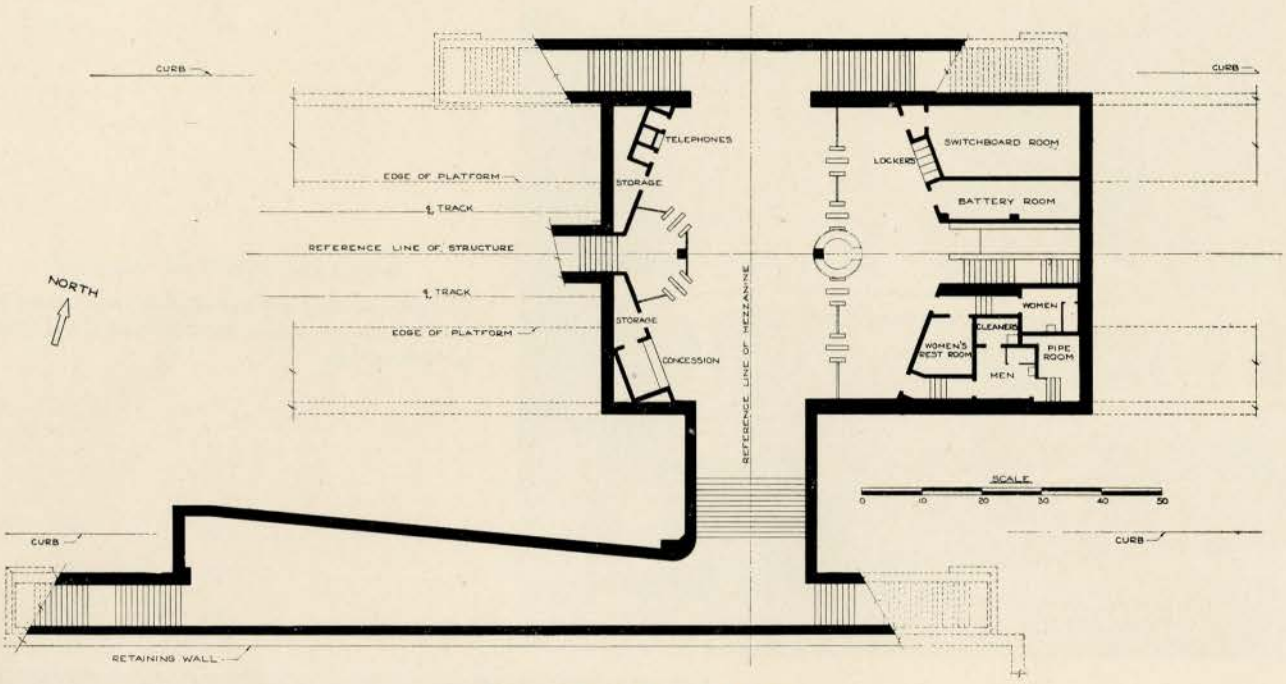
STREET CAR INTERIOR

48 Seats, stainless steel handrails and plastic fabrics.

Renderings by Sig. Serafin

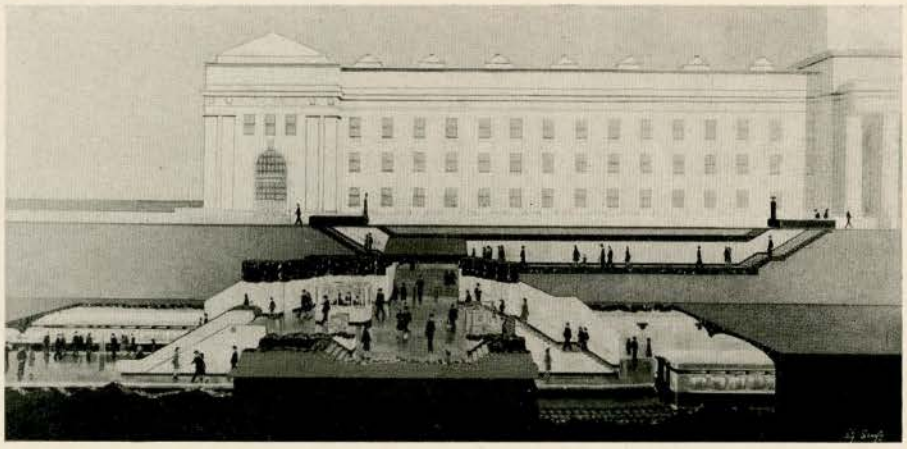
UNION STATION PLATFORM

Stair and escalator installation is centrally located on platform.



UNION STATION PLAN

Passenger control barriers are arranged to provide ample circulation space.



CUT-AWAY VIEW OF UNION STATION

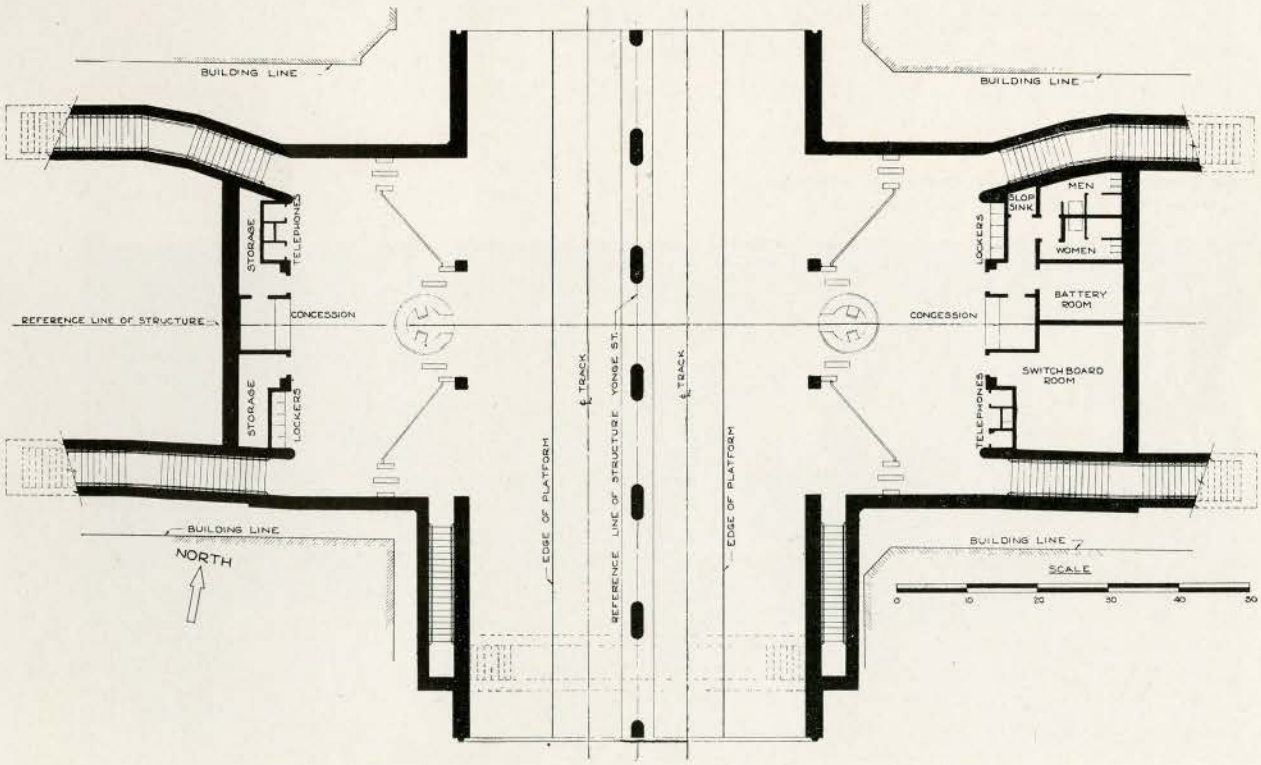
Sidewalk entrances provide access to mezzanine area which is connected to Rapid Transit Platform by stairs and escalators.

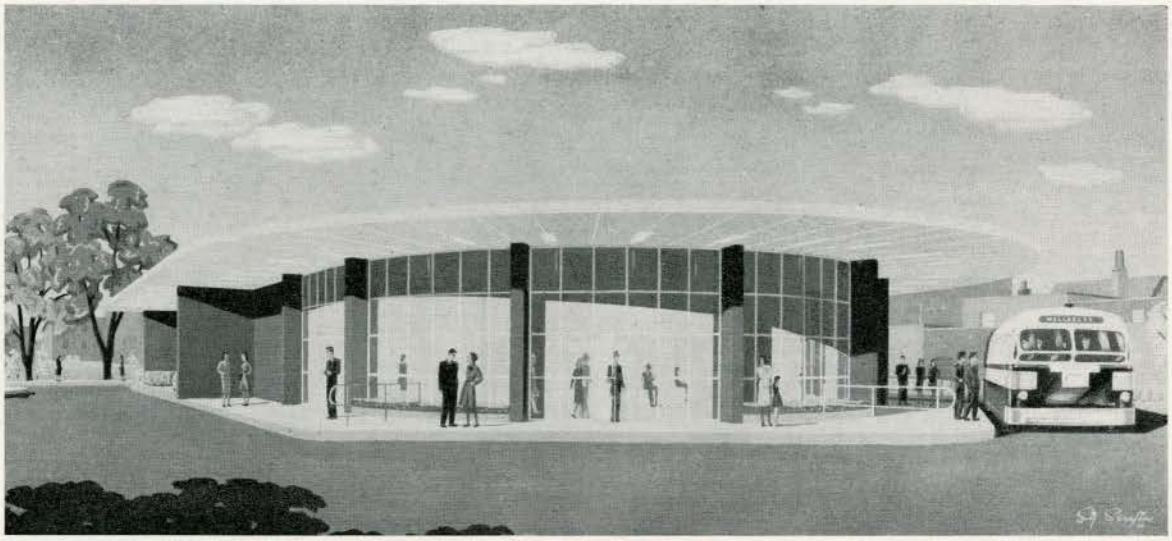
DUNDAS STATION

The suspended ceilings in the control areas are acoustically treated and will house flush mounted fluorescent lighting fixtures.

DUNDAS STATION PLAN

Duplicate controls are located on both north and southbound platform levels. Provision has been made for an underpass to connect the platforms.



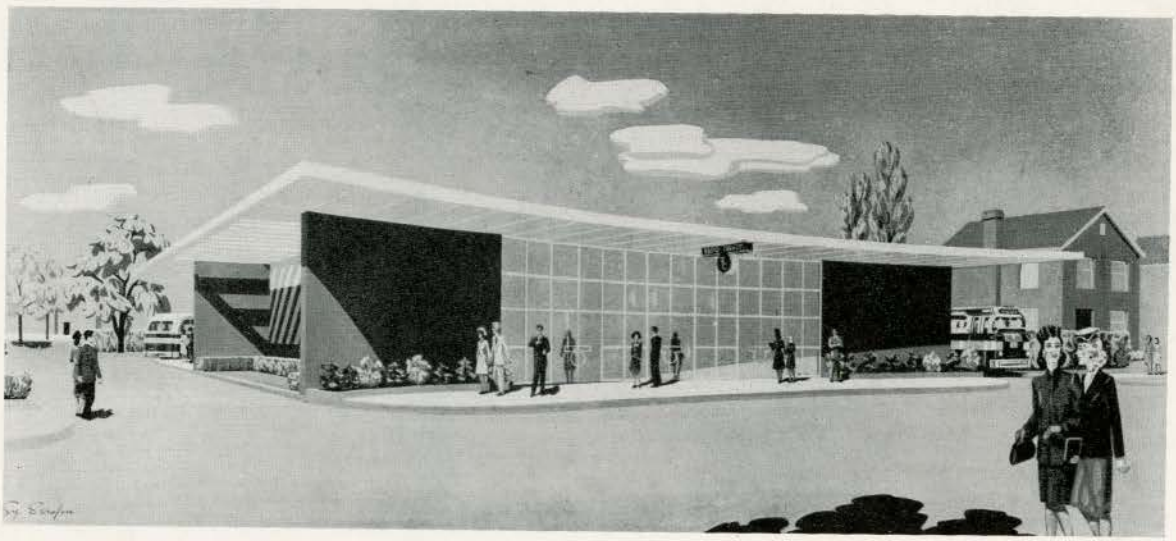


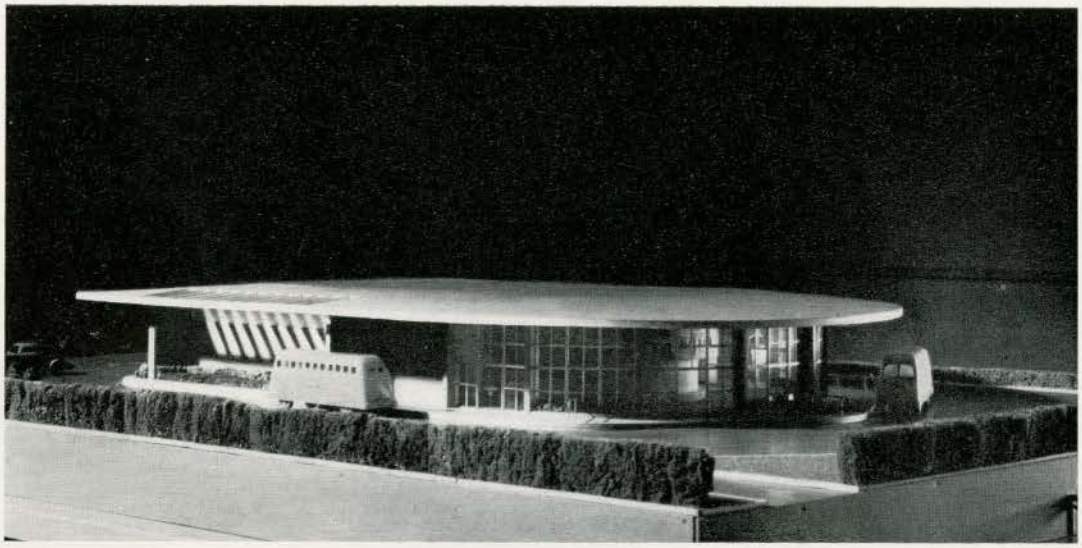
WELLESLEY STATION BUS PLATFORM

Converted platforms have been provided for four feeder bus lines.

WELLESLEY STATION FROM STREET

An extensive canopy has been cantilevered to provide protection for this open front type station.

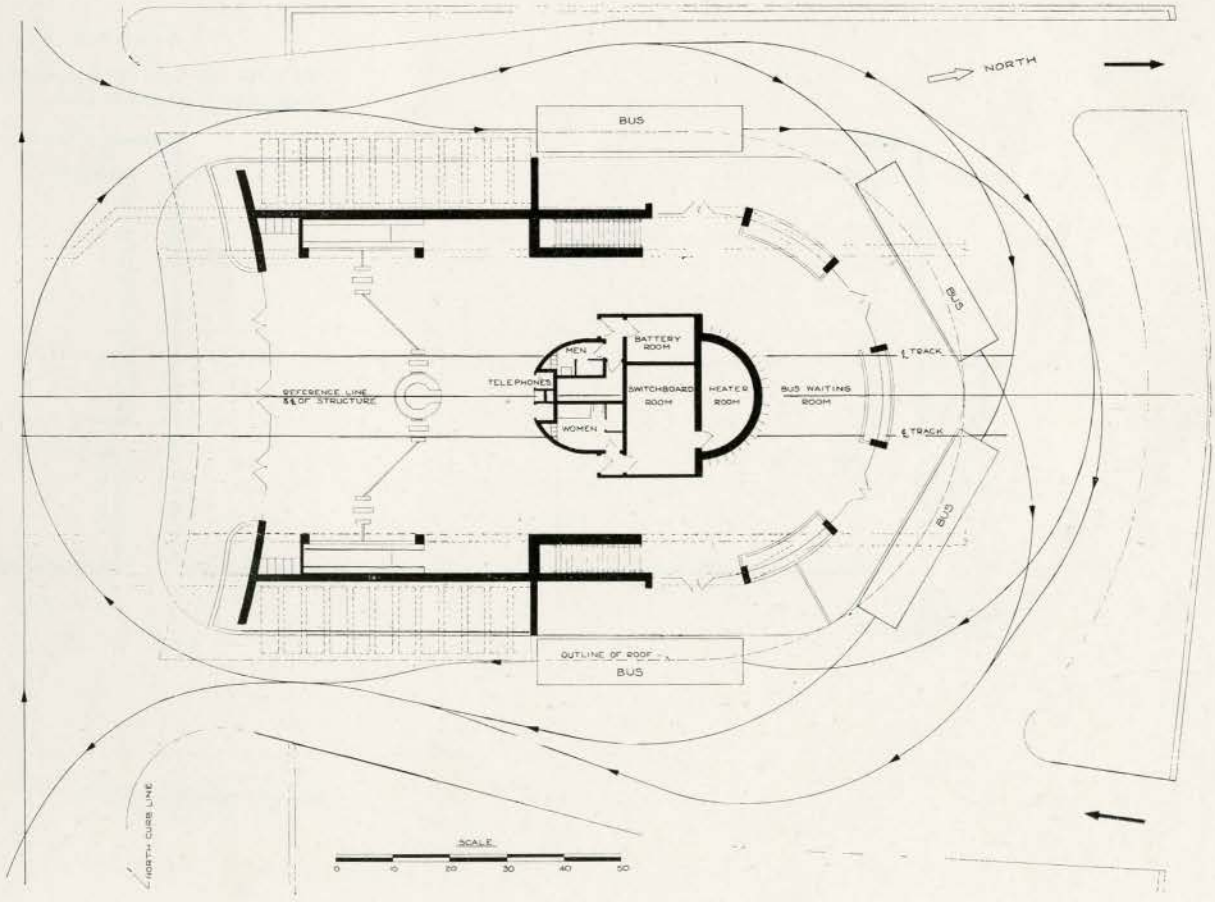


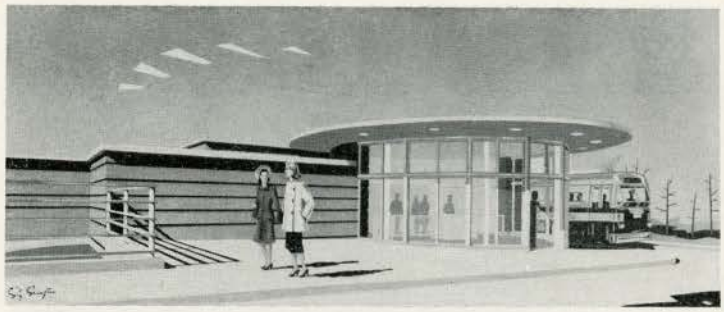


WELLESLEY STATION MODEL

WELLESLEY STATION PLAN

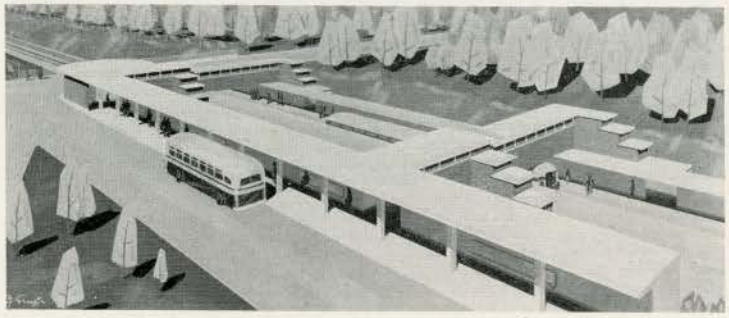
The dimensions of this structure were determined largely by the plan requirements of the rapid transit platforms and the provision of suitable vertical circulation.





ROSEDALE STATION FROM CRESCENT ROAD

The control area has large glass area protected by reinforced concrete canopy.

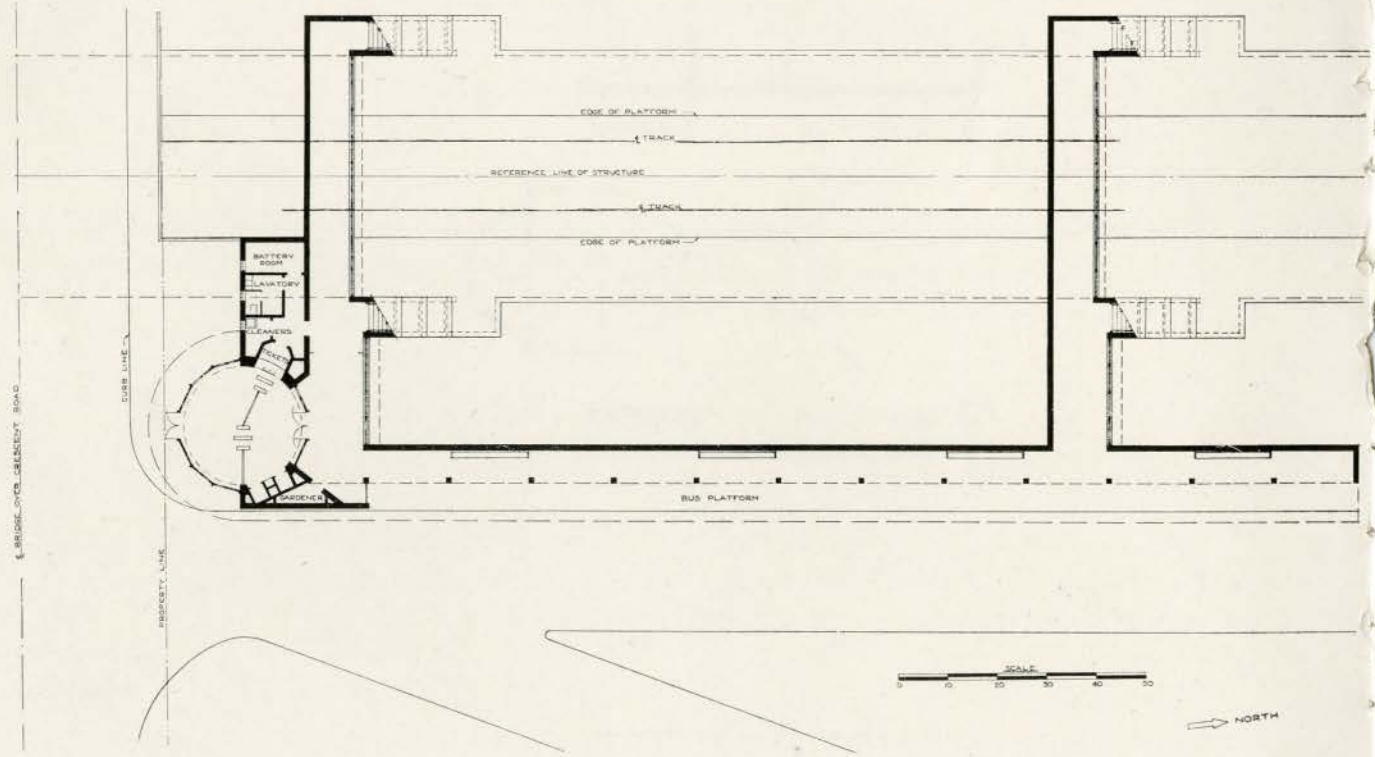


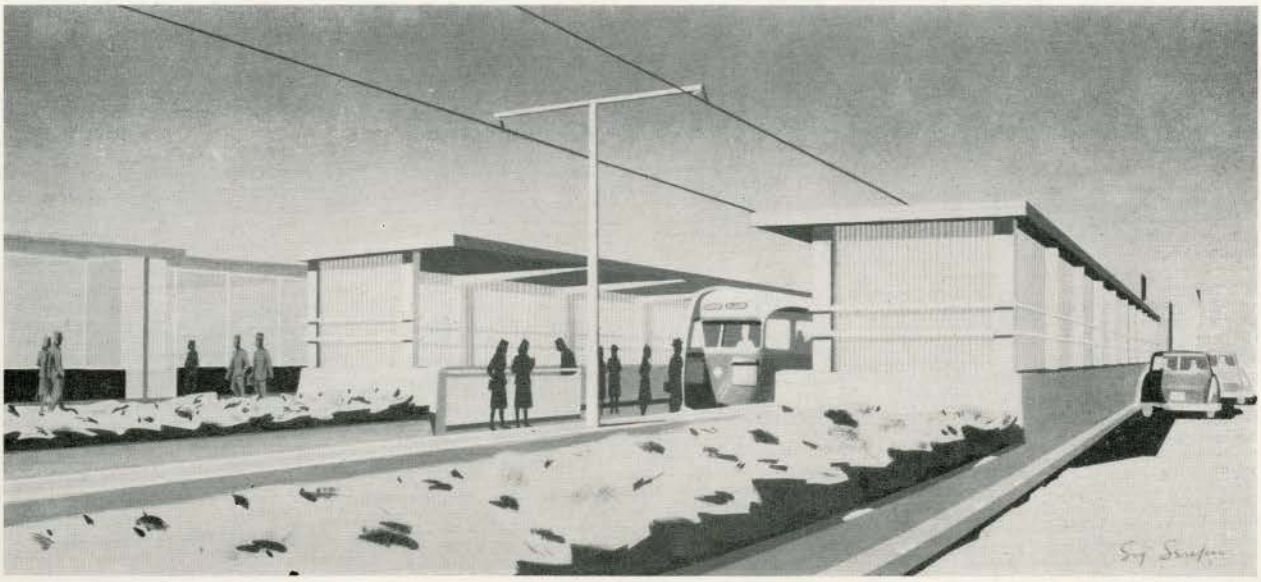
ROSEDALE STATION BIRDSEYE VIEW

This view illustrates the coordination beween the rapid transit and the feeder bus lines.

ROSEDALE STATION PLAN

This is the only open cut type station planned for the Yonge Street rapid transit line.



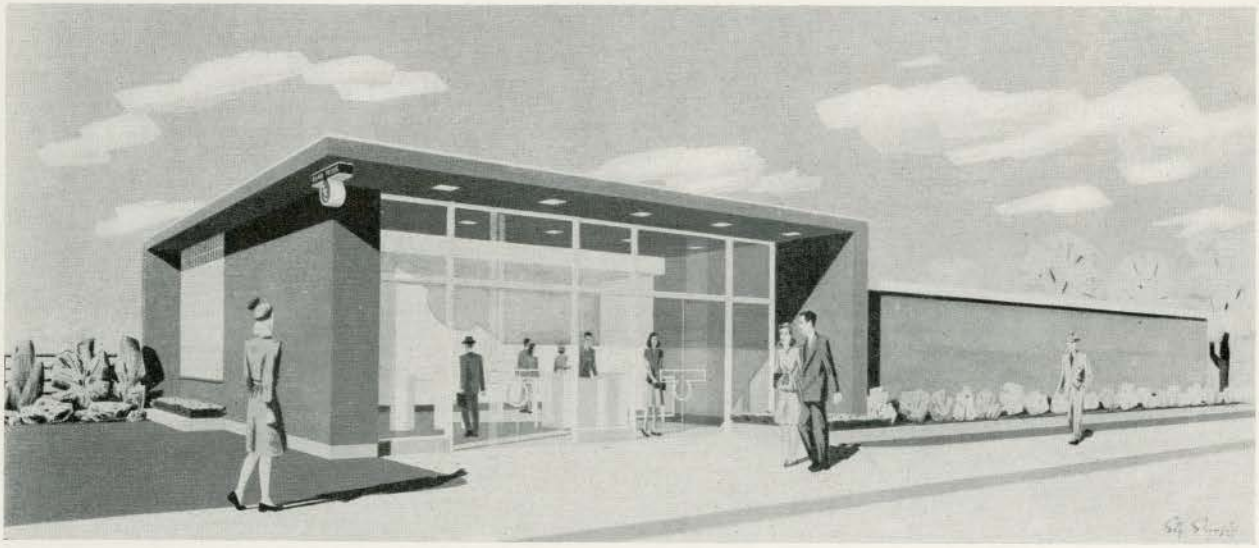


BLOOR TRANSFER SHELTER

This shelter is to be located in the centre of Bloor Street and will be connected by stairways to the rapid transit platforms.

SUMMERHILL STATION

A reinforced brick canopy is suggested.



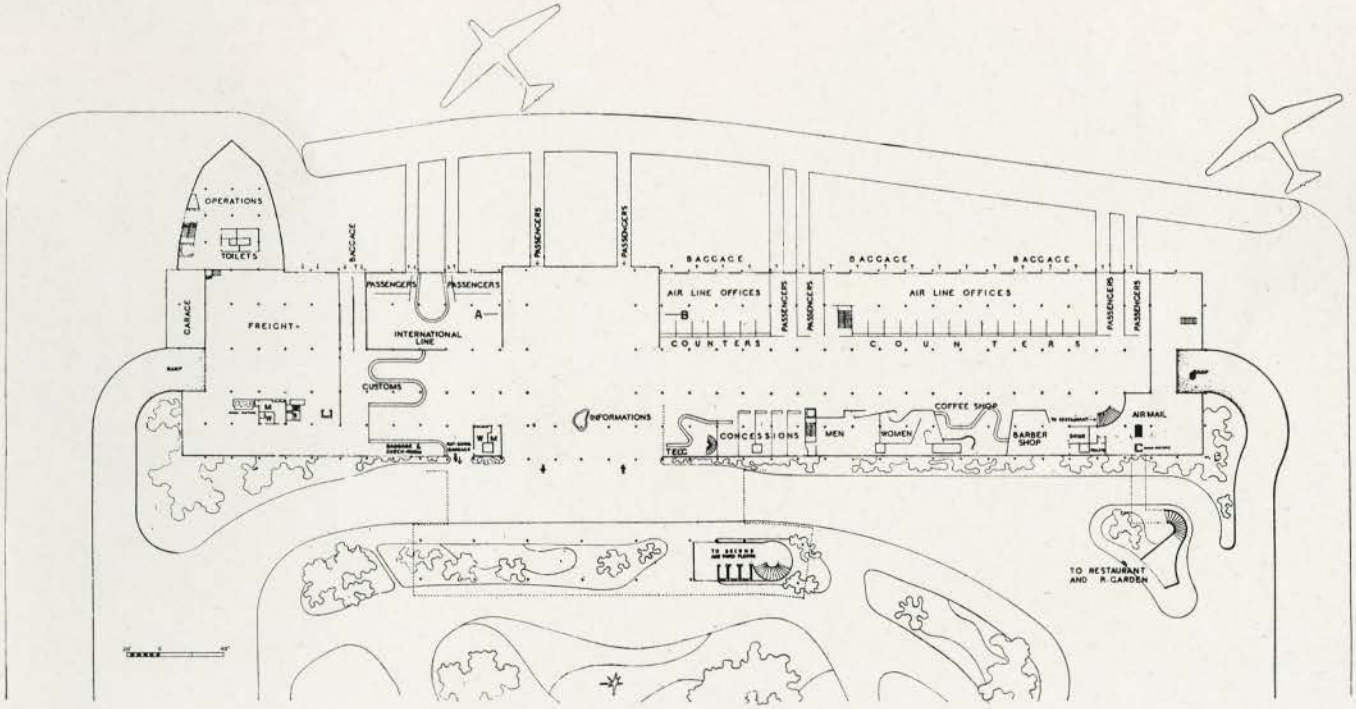
RIO DE JANEIRO AIRPORT, RIO DE JANEIRO, BRAZIL

MARCELO, MILTON, MAURICIO ROBERTO, ARCHITECTS

Entrance front of main building, which faces west. Above the ground floor this façade is protected by brise-soleil; behind is a timber frame, still under construction, into which the sash windows and wall panels will be fitted.

Photographs by Marcel

The northern façade with the completed brise-soleil.



GROUND PLAN

THE GENERAL MOTORS TRAIN OF TOMORROW

Photographs by General Motors Photographic Section

The cocktail lounge, located on the lowest level of the observation car, provides an atmosphere of enclosure and intimacy by the use of attractive fabrics, veneers and coverings.

The dining car where increased spaciousness, both real and apparent, is achieved through the use of split level planning within the rigid restrictions of railway clearances.

In the Astra Dome the architectural design of the interior is reduced to the minimum required for construction. Ever changing landscape and sky form the scheme of decoration.

RAILWAY STATIONS IN ITALY

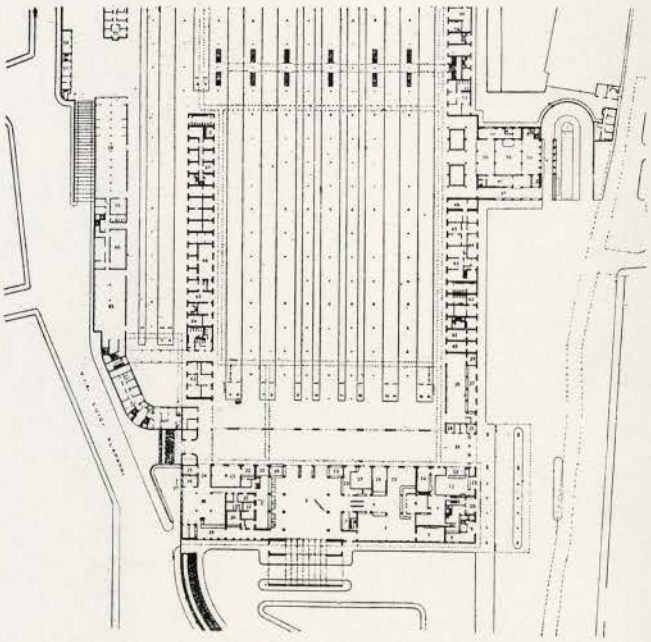
By E. G. FALUDI

THE RAILWAY TERMINAL AT FLORENCE
Designed by a croup of six Tuscan architects: G. Michelucci, N. Baroni, P. N. Berardi, I. Gamberini, S. Guarnieri, L. Lusanna. Competition held 1932. Building completed 1936.

DURING the past three decades urban development in Italy has been greatly influenced by the evolution of modern transportation. The competition of road, rail and air transportation, the building of express highways between large urban centres, and the establishment of airports in many communities were among those factors which necessitated the urgent revision of antiquated Master Plans in various towns and cities.

In a period of 15 years, more than forty communities each with a population of 50,000 or over, amended and implemented many items of their Master Plans. The greatest barriers to sound development of most of these cities were railway lines built a century ago and now surrounded by declining residential areas.

A complete rearrangement of the railway network was necessary in some of the large urban centres. Such projects were effectively implemented in Milan, Rome and Florence. In other cities the removal of obsolete railway stations and the location of more modern structures on new sites was carried out in accordance with long-range improvement and development programmes. In addition, the Italian State Railway Company undertook the building of new railway stations along the major railway lines in all parts of the country. Outstanding among these were: Albenga,



Florence: Plan of the terminal building. Note the widened access street on the right and the ramps for motor vehicles at the front entrance.

Loano, Alessandria, Bologna, Viareggio, Montecatini, Siena and Reggio Emilia in northern Italy; Ostia in central Italy; and Messina and Reggio Calabria in southern Italy.

The policy for planning and building these stations was established by the Italian Ministry of Transportation. The actual plans, except in a few cases, were drawn up by the architectural departments of the Communication Division of the Ministry. These exceptions were the stations at Milan, Venice and Florence, the designs for which were the result of national competitions, open to all architects and engineers.

It is remarkable that in this period a conservative public agency such as the State Railway Company was one of the first to realize the importance of providing railway stations with up-to-date installations and equipment if the railways were to compete successfully with the other modes of transportation.

This policy resulted in the complete elimination of the classical and monumental types of stations. These were replaced by functional and utilitarian types. The former symbolised a period when efficiency, economy, and the comfort of the passengers were secondary considerations. The latter, in contrast, were designed with the physical and psychological well-being of the passengers in mind.

To carry out this policy, it was necessary to engage men with a new conception of railway station design. The obsolete planning and drafting offices of the State Railway Company were restaffed with technicians of the younger generation, who were well trained to tackle the problems at hand. Evidence of this fact was provided when a group of young architectural graduates won first prize in a national competition for their designs of one of the most imposing new railway stations in Italy, that of Florence. In this competition, the principle of functional design defeated the historical styles to which the older generation adhered. The last station built in academic style was that of Milan which was begun in 1911 and completed in 1931.

This change in planning directives, first evident in the policy of the Ministry of Transportation, greatly influenced all public agencies. It affected the design and building of all types of structures and the provision of facilities and services in both urban and rural communities. The lead was given by a group of young architects and town planners, "Gruppo Urbanisti Romani", which prepared Master Plans for the cities of Brescia and Padua in 1929.

In the period following, the City of Rome may be cited for the implementation of many of the major projects of its Master Plan prepared in 1930. A group of planners were specially trained for this purpose, as part of their education at the Schools of Architecture and Engineering, and after graduation, at the Town Planning School of Rome. One of the most important of these projects was the provision of a new main railway terminal which would form an integral part of the railway network and the major street plan. The area surrounding the proposed terminal was completely replanned to facilitate access to and from the station, and to provide parking space for the increasing number of vehicles.

The new railway terminal at Rome was planned to meet the needs of a metropolis that is at the same time a world-famous tourist centre. The size of the U-shaped building was determined by taking into consideration the increased railway traffic anticipated for a 30-year period, and by the size of the site which would be available after the surrounding area was reorganized.

The main entrance opens onto the terminal plaza, the Piazza Cinquecento, which is 280 yards square, and faces the magnificent Roman Thermae of Diocletian of which one section was restored by Michelangelo. The station is composed of the following sections:

(i) Central building (250 yards long) for arriving passengers;

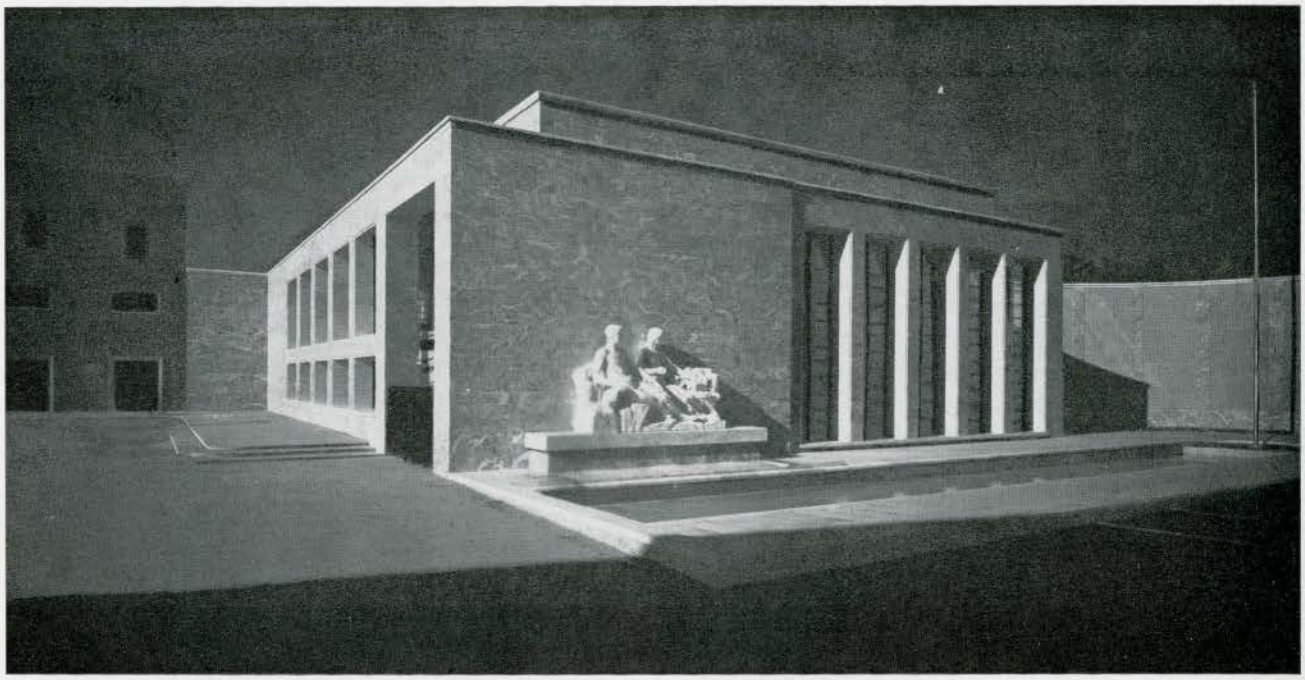
(ii) West wing (530 yards long) for departing passengers;

(iii) East wing (760 yards long), providing postal, banking, luggage storage and dispatch and similar facilities.

On the upper floors of the three sections are the business offices of the railways. In addition, there are three basement floors. On the first of these are rest rooms with bathing and day sleeping accommodation. The second basement floor contains mechanical equipment. The third contains conduits for heating, power and sewer purposes. A church is located below the central building. The architecture of the buildings was designed to fit in with the existing environment – a compromise between traditional and functional design.

One of the most modern stations in Italy is the Terminal at Florence, adjacent to Santa Maria Novella Church. It is divided into three main sections. The central building provides passenger services, and the left wing contains offices. The right wing was used by passengers of distinction such as members of the Royal Family, government and officials of the church, etc. With the establishment of the Italian Republic, it is very probable that the use of this section has changed. The structure of the main building is of welded steel with a span of 102 feet. The exterior is covered with slabs of Carrara marble and glass.

The design of the new Station of Florence provoked a widespread controversy. The opposition argued that there was no need to build it, that its architecture was foreign to the Florentine tradition and not in harmony with that of the surrounding buildings. Those in favour of the building stated that the old station was obsolete (it was nearly a century old), its size insufficient for the increased railway traffic, and its facilities inadequate. Their answer with respect to the architecture was a



FLORENCE RAILWAY TERMINAL

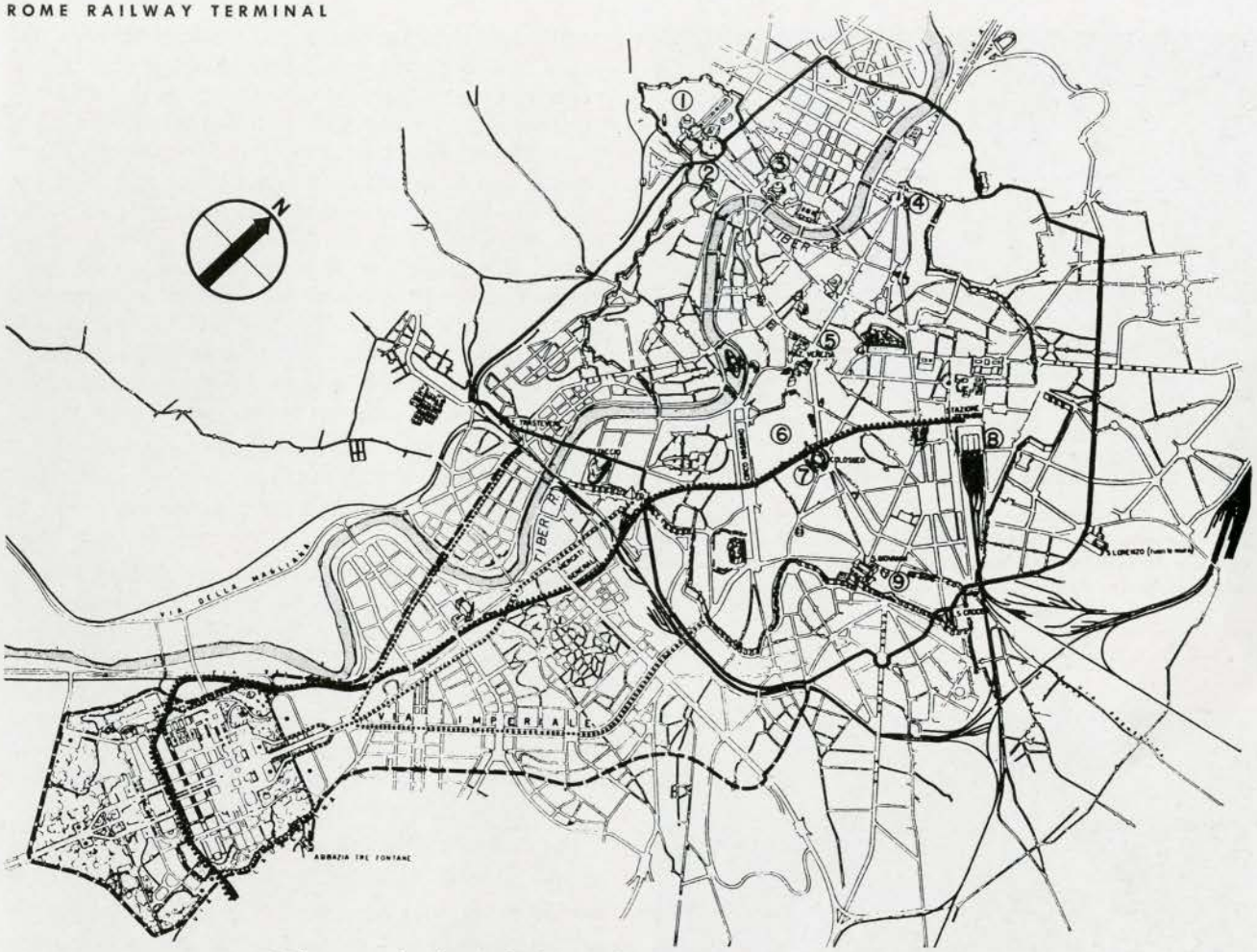
Right wing of the terminal building for passengers of "distinction". Since the establishment of the Italian Republic this wing has probably been put to a more democratic use.

Main entrance: A band of glass slabs runs over the car canopy up the wall and over the roof to light the main lobby.

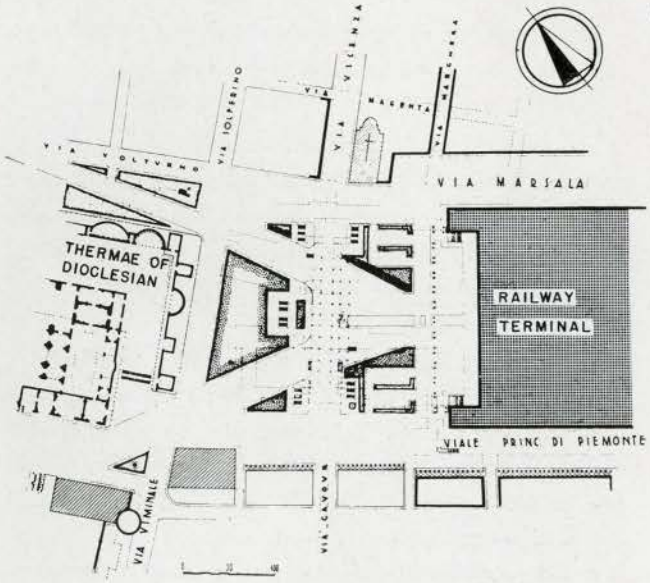
View of the platforms: The boldly cantilevered canopy is composed of reinforced concrete with a soffit of coloured marble mosaic.

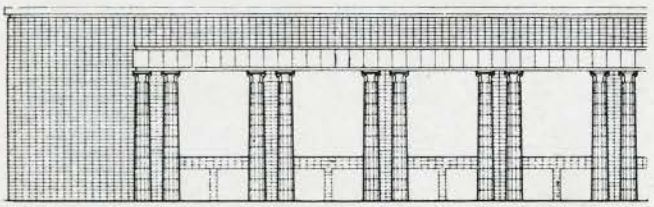
Main lobby: The entrance from the car canopy are to the left. The guards to the ticket wickets may be seen in the left foreground.

Hall leading to platforms: The band of glass slabs in the ceiling of the lobby is continued over this hall. The hall is open without doors to the platforms on the left.



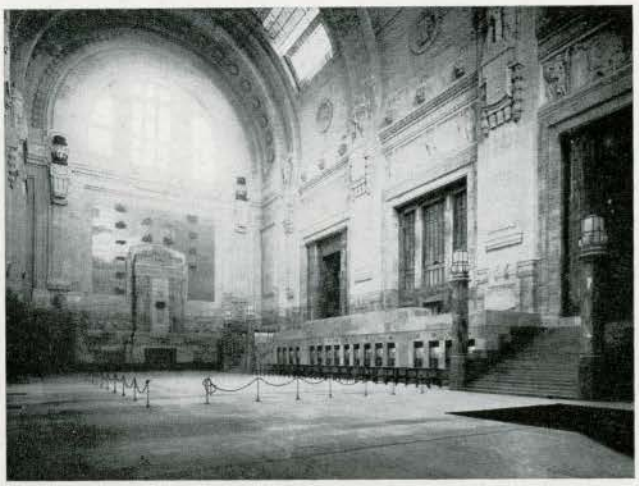
Railway network and major focal points of Rome. 1—Vatican City and railway station; 2—Piazza St. Pietro; 3—Castello St. Angelo; 4—Piazza del Popolo; 5—Piazza Venezia; 6—Foro Romano; 7—Colosseo; 8—RAILWAY TERMINAL; 9—St. Giovanni al Laterano.





Detail of the main elevation of the new terminal: Designed by A. Mazzoni, chief architect of the Department of Architecture of the Ministry of Transportation. The monumental colonnade at the main entrance is of Roman travertine. Its design, reminiscent of the classical spirit, is a compromise between traditional and contemporary conceptions, to fit in with the existing environment.

The new terminal plaza at Rome, Piazza Cinquecento: The original station built in the 19th century was located more to the west and nearer to the 3rd century Thermae of Diocletian. In accordance with the new Master Plan of Rome the station was relocated providing space for a series of carefully screened and landscaped traffic and parking islands on new and important access roads.



Main lobby of the railway terminal building at Milan: On the right are ticket windows and the steps to the railway platforms. In the background is the elevator used by third-class passengers. Note ornamenation, particularly sculpture in relief. Architect U. Stacchini. Competition 1911. Building completed 1931.

View of the platforms of the Milan terminal. An immense steel structure composed of three vaults covers the platforms. The span of the central vault is 79 yards, that of each of the side vaults 55 yards. The length of the vaults is 370 yards. This was the last station to have the complete enclosure of the platforms. Its fine engineering work fulfills at great cost a purpose which is met to-day by simple cantilevered canopies.

surprisingly simple one—since the surrounding historical buildings were of different styles, each representative of a certain period, the addition of a building representing contemporary architecture would only complete the sequence of styles. The use of Carrara marble, similar to that used in the Dome and Baptistry, would, in time, become patinated and be in harmony with the dark stone of the adjacent church. They stated, moreover, that the architecture of the new station was not alien to Italian traditions, as contemporary Italian architecture of any period had always fulfilled the needs and aims of the times. The design of this new building was as they stated as functional for this age as Michelangelo's buildings were for his.

In contrast with the station of Florence, the terminal at Milan glorifies a period when elaborately ornate and ostentatious buildings dominated the urban scene in Italy.

This new railway terminal was completed twenty years after it was planned. By the time it was finished it had become obsolete. The site of the previous station near the centre of the city was cleared and a large area in the surrounding district was replanned and built as a modern residential and commercial neighbourhood. The new terminal was built ¾ mile east of this, and its construction involved the relocation of a large part of the railway network.

The design of the station itself provides an example of architectural exhibitionism with complete disregard for the purpose to be served. The railway tracks are 24 feet above street level, and can be reached by steps and elevators. The distance between the main entrance and the tracks is more than 350 yards. The interior of the building resembles a cathedral with an abundance of marble of all kinds and colours, of metal and hardwood, and rich mosaics on floor, walls and ceilings.

The enormous expense involved in the Milan terminal, with little resulting efficiency, brought about the complete reorientation of design of smaller stations.

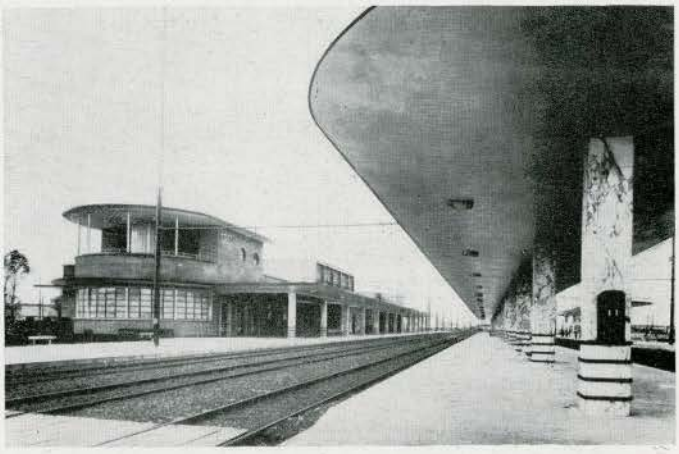
In Viareggio on the Tyrrhenian seashore; in Albenga on the Italian Riveria; in Ostia, Rome's port, and in many other cities, new stations sprang up. These were designed by the chief designers of the Department of Architecture of the Ministry of Transportation, *Angiolo Mazzoni* and *Roberto Narducci*.

War damage has given new incentive to rebuild a number of stations, making use of experience gained in the pre-war period. It is interesting to note that 54% of the damaged railway stations are already rebuilt on the most up-to-date principles. It is very probable that Italian architectural and engineering skill will further the progress in the design of railway stations.

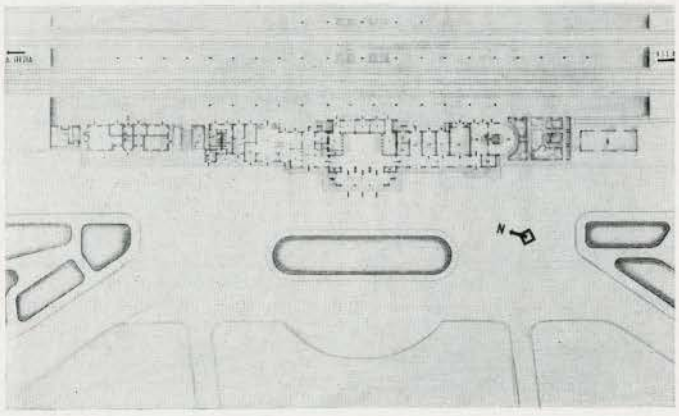
VIAREGGIO RAILWAY STATION
DR. R. NARDUCCI, ARCHITECT

General view of the station: Viareggio is the most popular resort town on the shores of the Tyrrhenian Sea and is close to the marble quarries of Carrara. The station was designed by Dr. R. Narducci one of the architects of the Ministry of Transportation. On the left is the railway offices building.

Main entrance: Carrara marble covers the main façade of the station. Immediately inside the entrance is the lobby. To the left is the station restaurant accessible from both the street and the lobby.

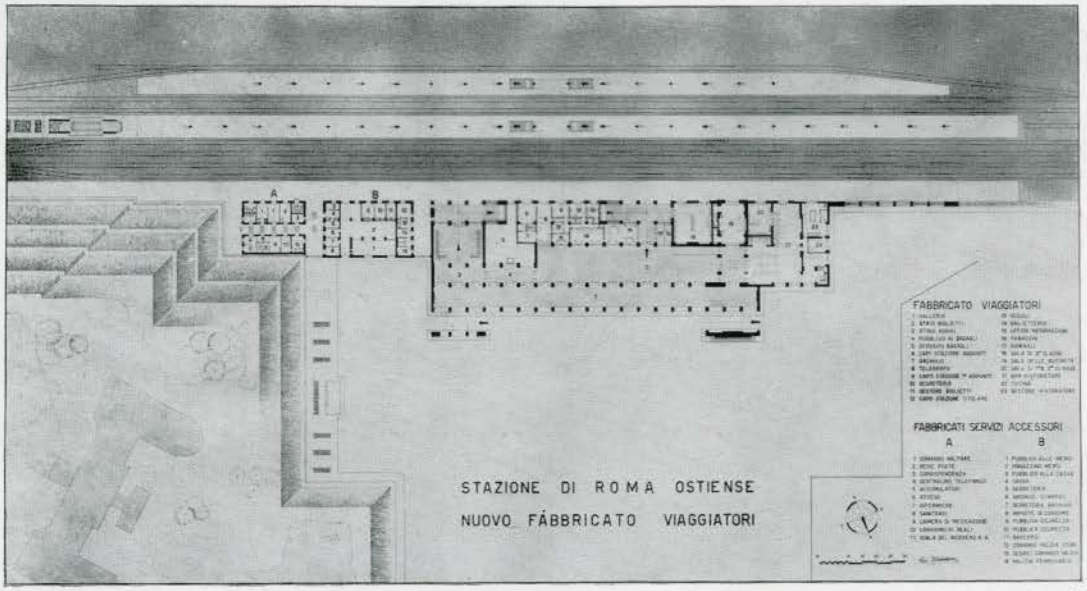


Railway platform: In the background is the station as seen from the central platform. The switchman's observation room may be seen in the upper storey of the building above the waiting room. The cantilevered canopy over the platform is of concrete and is supported by concrete piers surfaced with marble.



Plan of the station and plaza: In contrast to the terminal stations this is a through station. Its location and that of the plaza were carefully considered in conjunction with the Master Plan. The plaza is the focus of six main access routes.

1



2

3

OSTIA RAILWAY STATION
DR. R. NARDUCCI, ARCHITECT

1. Main entrance: The colonnade and walls of the main building are of travertine. Note the fountain and sculpture in relief on the wall in the foreground. Vast opportunities were given to sculptors and mural painters by the architects concerned, for the decoration of this and many other railway stations.

2. Plan of the station: Buildings and platforms "A" and "B" are service buildings connected with the main building by a screen wall. The large open plaza in front of this station will ultimately be provided with access roads for pedestrians and facilities for the parking of cars.

3. Part of the colonnade of the main entrance. Note mosaic design of Roman chariot on pavement and in the background the statue.

LATINA RAILWAY STATION
A. MAZZONI, ARCHITECT AND ENGINEER

Main entrance: This station is a typical new small town station. Inexpensive materials have been used throughout and the plan is of great simplicity. The bricks, reddish in colour, are long and narrow and are laid in Flemish bond with raked joints. The external trim is travertine.

Entrance to station restaurant: The importance of the Italian station restaurant to the life of the town is demonstrated here in the special emphasis given to its entrance from the street. The interplay of architectural solutions and the arrangement of spaces are very striking.

View of the platform: An extremely simple and bold cantilever, the underside of which is marble mosaic, covers the platform and the open waiting area seen in the foreground. On the left is a decorative pool and grass plot.

ROYAL ARCHITECTURAL INSTITUTE OF CANADA

OFFICERS

PRESIDENT . . . . . CHARLES DAVID (F)

FIRST VICE-PRESIDENT . . J. ROXBURGH SMITH (F) SECOND VICE-PRESIDENT . . . JOHN S. PORTER

HONORARY SECRETARY . . . MURRAY BROWN (F) HONORARY TREASURER . . A. J. HAZELGROVE (F)

PAST-PRESIDENT . . . . . FORSEY PAGE (F)

SECRETARY . . . . . MISS ANNE CORY
74 King Street East, Toronto

COUNCIL

P. L. JAMES (F), JOHN S. PORTER, P. C. UNDERWOOD . . . . . British Columbia

M. C. DEWAR, G. K. WYNN . . . . . Alberta

E. J. GILBERT (F), FRANK J. MARTIN . . . . . Saskatchewan

NEIL K. BROWN, H. H. G. MOODY, J. A. RUSSELL . . . . . Manitoba

Ontario

W. J. ABRA (F), MURRAY BROWN (F), JAS. H. CRAIG (F), A. J. HAZELGROVE (F),
A. S. MATHERS (F), R. S. MORRIS (F), FORSEY PAGE (F) P.P., W. BRUCE RIDDELL (F)

Quebec

OSCAR BEAULE (F), CHARLES DAVID (F), EUGENE LAROSE (F), HAROLD LAWSON (F),
MAURICE PAYETTE (F), GORDON McL. PITTS (F) P.P., J. ROXBURGH SMITH (F)

H. CLAIRE MOTT (F), G. W. WILSON . . . . . New Brunswick

C. A. FOWLER, A. E. PRIEST . . . . . Nova Scotia

EDITORIAL BOARD REPRESENTATIVES

British Columbia: R. A. D. BERWICK, Chairman; WILLIAM FREDK. GARDINER, H. C. PERRAM, JOS. F. WATSON

Alberta: C. S. BURGESS (F), Chairman; M. C. DEWAR, PETER L. RULE

Saskatchewan: E. J. GILBERT (F), Chairman; H. K. BLACK, F. J. MARTIN, F. H. PORTNALL (F)

Manitoba: J. A. RUSSELL, Chairman; NEIL K. BROWN, H. H. G. MOODY

Ontario: JAS. A. MURRAY, Chairman; WATSON BALHARRIE, L. Y. McINTOSH, ALVIN R. PRACK, HARRY P. SMITH, J. B. SUTTON, A. B. SCOTT

Quebec: RICHARD E. BOLTON, Chairman; O. BEAULE (F), JOHN BLAND, P. H. LAPOINTE, HAROLD LAWSON (F), J. CAMPBELL MERRETT, PIERRE MORENCY, LUCIEN PARENT (F), J. ROXBURGH SMITH (F)

New Brunswick: H. CLAIRE MOTT (F), Chairman; W. W. ALWARD, J. K. GILLIES

Nova Scotia: LESLIE R. FAIRN (F), Chairman; A. E. PRIEST, J. H. WHITFORD

INCORPORATED BY THE DOMINION PARLIAMENT 16th JUNE, 1908, 1st APRIL, 1912, AND 14th JUNE, 1929

NEWS FROM THE INSTITUTE

BRITISH ARCHITECTS CONFERENCE

The Secretary of the Royal Institute of British Architects has advised the R.A.I.C. that arrangements have been made to hold the Annual Conference of British Architects in Liverpool, from the 27th to the 30th of May, 1948. A very interesting programme is being arranged for this meeting, and the R.I.B.A. have extended an invitation to any visitors from overseas to attend the sessions. It is hoped that any members who are likely to be in England at that time will communicate with Mr. C. D. Spragg, Executive Secretary of the R.I.B.A., so that he may send them copies of the programme.

UNITED NATIONS' PERMANENT HEADQUARTERS

The Director of Planning and the Board of Design Consultants have prepared a Report to the General Assembly of the UNO on the Permanent Headquarters of the United Nations, and this Report is now available in printed form in Canada. It includes ninety-six pages of text and illustrations, and presents by means of architects' drawings and sketches the details of the plan for the permanent home for the United Nations. Interested members can obtain copies of the Report from the Canadian agents—The Ryerson Press, 299 Queen Street West, Toronto—at a cost of $2.50, and the Report is available in both French and English editions.

NATIONAL FILM BOARD LIBRARY

The August Issue of the *Journal* carried an article concerning the organization of the Central Library of Architectural Photographs at the National Film Board in Ottawa. This article outlined the purpose of the Library, the benefit of such an organization to the architects, the scope of the plan, and the procedure to be followed in submitting photographs for inclusion in the records. At that time, all architects were urged to support the Library by forwarding sets of photographs of their work, and by arranging to have extra sets supplied to the Library each time they photographed buildings in the future.

To date, the response to this appeal has been sadly lacking. Now, more than ever before, there is an urgent need for a central source of material for architectural exhibitions. Constant requests are being received to send such exhibits to foreign countries, and it is becoming increasingly difficult to collect suitable material to answer these requests, often because of the lack of time and suitable facilities for the procurement of representative photographs. A central library, where prints of all outstanding work would be available, would solve these difficulties, and would enable Canada to prepare architectural exhibits which would be truly representative of architecture in Canada to-day.

Once again, the Institute urges its members to co-operate in the formation and maintenance of this service. There is no need to repeat the strong arguments in favour of the establishment of this Library—they are self-evident. Also self-evident is the fact that the Library relies completely on the individual architects for its existence, and without their support, it must fail. The R.A.I.C. is confident that this support will be forthcoming, and that architects will supply the Library with the records which will eventually form a national archive of Canadian architecture.

THE ARCHITECTURAL ASSOCIATION

The following letter from Mr. Howard Robertson, President of the Architectural Association, London, England, has been forwarded to the Institute by the High Commissioner for Canada, and is quoted here for the information of Canadian members:

> "In December of the present year, the 100th Anniversary of the foundation of the A.A. is to be celebrated.
>
> "My Association wishes to mark the occasion by gathering together in London representatives from this and many countries who are leaders in the field of architectural education or prominent in practice. Many Canadian students have passed through the school, and there are also Canadian members of the Association. In order that the delegates should be truly representative, and that there should not necessarily be a bias towards our own members, we wish to forward an invitation through your Government to the appropriate architectural organizations concerned.
>
> "The celebrations are to be held on December 17th, 18th and 19th, and will take the form of various receptions, dinners and tours to places and schemes of interest. It is hoped that with the ample opportunity provided, it will be possible for our guests to hold informal discussions amongst themselves and to meet and talk with the men in Britain responsible for carrying out the task of Post-war Reconstruction."

ALBERTA

Representatives of Service Clubs here are discussing what project they could undertake with a view to improving the appearance of the town as well as providing

some substantial benefits. Of the various objects considered none seems preferable to that of improving school playgrounds. It is desirable that these places which form a necessary part of the children's surroundings during a considerable part of their day must have a considerable influence upon their minds and characters. Too frequently they present a deplorable appearance. There is sometimes, it is true, a small portion in front of the school hedged off and laid out in grass and occasionally some flowers or flowering bushes. School trustees are, no doubt, pushed to the limit financially to furnish even this amenity. They would surely welcome any assistance in carrying it further if they could obtain voluntary help from any source.

The pleas in favour of such a project are many and cogent. In my own experience I have seen many school playgrounds the general surface of which is eloquent of neglect – no attempt at grading, no fencing or hedging, and consequently untidiness all around. Not infrequently a janitor may be seen spreading cinders from the school furnace in the laudable but vain attempt to improve this desolate surface. Tidiness is a fundamental virtue that has little appeal to the general Canadian mind. We do not like its hampering effect. So far as the little children are concerned, that is all right with them By preference they choose out the dirtiest spots whereon to disport themselves. But as the human creature has through geologic ages gradually evolved out of primeval slime so it will be well that the "kiddies" should be more rapidly weaned from it and become adapted to more wholesome delights.

Any improvements cost work and work generally has to be paid for in cash. Perhaps the most expensive improvement that may be essential in this case is the fencing in of playgrounds or in some way defining clearly their limits and preventing the bad effects of casual border trespass. Without this there can generally be no maintenance of tidiness. A very efficient fencing is the chain link wire on pipe posts and rails. This is fairly unclimbable, presents little obstruction to vision and may be a support for vines of various sorts. It is strong and durable. It is also fairly high in cost. If such fence is intended to act as protection to a belt of young trees or other "boulevarding" it should be on the playground side of such plantings. In some cases this may imply rather severely limiting the extent of playground.

In the case of elementary schools, little children should surely play upon grass rather than upon dirty cinders or mud. There is no physical difficulty in providing this. Horticultural skill has come to our aid. Many types of grasses are now discriminated and employed for various purposes such as golfing fareways and putting greens, bowling greens, etc. The care required for continued maintenance has been investigated. Elimination of weeds from lawns has now become a matter of comparative ease. Varieties are now known suited to different conditions of soil, climate and purpose. There is no valid reason apart from expense why even high school playgrounds should not be laid out in grass which can be grown to resist pretty rough usage. The rougher games do not entail more than a few well-defined spots where grass may be destroyed and these can be kept to a minimum by a yearly change of place. It may be that consolidation of turf would require disuse for a season. This could be secured by the half-at-a-time method.

Service clubs have already given appreciable benefits to our towns. This project of the improvement of children's playgrounds would be widely appreciated. A beginning should be made with the poorest examples of public school grounds. A beginning would make a strong appeal and there is little doubt that financial support would be supplemented by many of the parents in the localities where these improvements were undertaken and not only by parents but by others interested in improving a town's appearance. If the children themselves could be so enthused by the results as to put in their aid that would be the attainment of a most desirable end.

Cecil S. Burgess

MANITOBA

With the continued feverish activity to take advantage of the almost unprecedented Indian summer Winnipeg has been enjoying we are soon to see the culmination of a large building programme whose major items have been sponsored by the medical and educational professions.

A two hundred bed maternity hospital is being built as the first unit in the greatly expanded Medical Centre at the Winnipeg General Hospital. A large operating wing was recently completed at Grace Hospital and the new City of Winnipeg Hospital for the Infirm is well under way.

In addition there has been a veritable epidemic of clinics. Besides the large additions to the Medical Arts Building and to the Winnipeg Clinic, both of which opened the past summer, two new clinics are now under construction and a large office building is being revamped for a third one.

Even greater activity is to be seen in the educational field. The by-law passed by the city in 1945 is providing for a $1,500,000 programme which includes substantial additions to three existing schools and the erection of three new elementary ten-room schools. The three latter are being built on sites proposed by the Metropolitan Plan of Greater Winnipeg to fit into its scheme for neighbourhood school and recreation centres. In addition to ten classrooms, each school will include auxiliary instruction rooms, a library, a kindergarten a large combination auditorium and gymnasium. Asphalt floors, acoustically treated ceilings, glazed

brick corridors, wardrobe type coat storage, an elaborate sound system tying all parts of the building together and efficient air conditioning and heating systems will characterize these structures.

Another $1,500,000 has been authorized by a recently-passed by-law for the erection of a large vocational school which is described as a unique departure in the technical school field. With a thirty-two acre site at its disposal, the school, which is to be coeducational, will include twenty-two classrooms, an auditorium, a cafeteria, a gymnasium, plus four or five wings with shops which will provide ten different kinds of practical and technical work.

Then, of course, there is the first stage of the University building programme which has been authorized by the Government.

The additions to the Engineering Building include a new testing materials laboratory, now under construction, and a large three-storey classroom and drafting room wing which will more than double the present accommodation. Plans for this new building are now out for tender. Although the design for a new central library building has now reached an advanced stage there is indication that a reconstruction of its site may necessitate a completely new series of studies. Doubtless, construction will not begin until late in 1948.

From the above survey it would seem that Winnipegers will be well cared for both in mind and body.

John A. Russell

ONTARIO

One would probably be justified in saying that there are more younger members of the profession endeavouring to establish themselves in practice to-day than there have ever been in any past period in this province. As one of these newer enthusiasts in the "practising" field it is with embarrassment that one reflects on his unvoiced criticisms of the "Association" during the first years of membership.

Not until the younger member hits and bounces off the stone wall surrounding the tough old business world does he realize the tremendous benefits and guidance of the Association and Institute. The sound foundation of these governing bodies of ours did not "just grow" but are the result of many years of personal endeavour on the part of our older and more established members in the profession. It is fortunate that these men still contribute effort and time to occupy the leading offices of our organizations, benefiting only the accompanying honour. Younger members should make a more serious effort to improve these bodies by offering constructive criticism and helping to carry the load.

Though our annual meetings are still some distance away, it is not too early for every member to start planning for his attendance. Every "younger member" of the Association should make a special effort to be present and show appreciation of things done and contribute something towards the goal of perfection in our Association regulations and activities. Unfortunately, it is generally those who contribute the least who criticize the most.

Endeavours to provide broader training for experienced architectural draftsmen in the Toronto area are taking a very concrete form, and should be of great benefit to the architects in general, and draftsmen ambitious enough to avail themselves, in particular. Under the guidance of Mr. D. E. Kertland and Mr. D. G. W. McRae this course should produce real results.

This more than ideal autumn weather is permitting us to catch up on some of the structures delayed by the myriad of obstacles prohibiting the normal progress of construction and flow of materials. Keep at it Mr. Architect (Expeditor) and they'll all be roofed in before the snow flies.

W. E. Barnett

REPORT OF THE FIRST NATIONAL CONFERENCE OF THE COMMUNITY PLANNING ASSOCIATION OF CANADA

Two members of the Planning Committee of the R.A.I.C. attended the National Conference of the C.P.A., which was held in Montreal from October 2nd to 4th. These observers were Mr. P. A. Deacon, Chairman of the R.A.I.C. Housing and Planning Committee, and Mr. Anthony Adamson, a member of that Committee.

THE Community Planning Association was formed last year for the purpose of supplying information and the means for exchange of views to those interested in community planning, housing and allied problems. It is financed chiefly by a grant from the Central Housing and Mortgage Corporation. Membership fees are $3.00 a year for active membership, and $25.00 a year for sustaining membership. Provincial C.P.A. organizations exist in every province except Prince Edward Island. An interesting well-illustrated and concise little information sheet called "Layout for Living" is published monthly for members' use from the head office of the Association, 56 Lyon Street, Ottawa.

Some 225 Members registered for the first conference. Many came from the coasts and the prairie provinces to Montreal to make the conference fully representative of Canadian views. Messrs. F. J. Osborne, Chairman, Town and Country Planning Association of Great Britain, Hugh Pomeroy, Director Westchester County Planning Department, J. Tollamy, New York State Public Works Department, Leslie Williams, Secretary, American Tourist Association City Planning Department, were guest speakers at luncheon and dinner meetings. One Canadian and one English planning film were shown.

A well-organized trip around Montreal was arranged, which ended in a delightful reception by Mayor Camilien Houde at the City Hall, who supplied an orchestra, light refreshments and cocktails, prior to a visit to the City Planning Department's Office under the personal direction of Mr. Aime Cousineau, Director.

The Conference meetings at the Mount Royal Hotel were arranged in conjunction with the Engineering Institute of Canada. This joint sponsorship led to some cross purposes and confusions becoming apparent. Panels of speakers were unnecessarily large and too well equipped with set speeches of too broad a nature, leaving little time at meetings for an exchange of views. The result was that at least one of the meetings was tiresome and profitless.

Nine resolutions were passed. The content of these resolutions may be expressed as recommendations: (1) that the C.P.A. encourage the modernization of building codes; (2) that the C.P.A. co-operate with and support the National Film Board in the production of planning films; (3) that the C.H.M.C. be asked to make research into and bring down a report on community planning costs and savings; (4) that the incoming council of the C.P.A. explore, in co-operation with the C.H.M.C., the desirability of establishing C.P.A. Limited Dividend Housing Societies; (5) that the incoming council of the C.P.A. prepare proposals to the proper authorities for the construction of ten demonstration neighbourhoods for five hundred families each in the ten capital cities; (6) that the C.P.A. publication be published in French and English as resources become available from increased memberships; (7) that the Federal Government be asked to start the construction of a comprehensive subsidized low rental housing programme; (8) that "the key to avoid mass wastage of new housing" is the planning of such housing on a neighbourhood basis; (9) that thanks be expressed to authorities in the City of Montreal for the hospitality extended the C.P.A.

Mr. P. A. Deacon, M.R.A.I.C., was elected to the C.P.A. Council. He was also Chairman of the Resolution Committee of the Conference. Among other members of the profession taking part in discussion were noticed Messrs. David, Pitts, Nobbs, and Fairfield.

The R.A.I.C. observers are of the opinion that the C.P.A. is an organization doing a worth-while job, that architects will benefit from membership in it, and that the profession in its own and national interests should support its further development by joining provincial chapters. The R.A.I.C. observers are of the further opinion that members of the profession, as a whole, are insufficiently informed on community planning matters, and cannot, therefore, assume leadership in the rectifications of urban conditions vitally affecting the buildings they design.

Anthony Adamson

LETTER TO THE EDITOR:

Your editorial in the September issue of the *Journal* discusses the question of the large number of students now attending the Schools of Architecture in Canada. I am sure this situation has not gone unnoticed by those interested in architectural education and, as you suggest, it should be studied by the R.A.I.C. That body is in the best position to consider it on a Dominion wide basis. All the factors must of course be taken into account. It will be remembered that during the depression and during the war years most office staffs were reduced to skeleton staffs and the number attending the Schools of Architecture was very small. There is, therefore, an age group in the profession that exists in abnormally small numbers both as architects and as assistants.

A recent bulletin of the Bureau of Technical Personnel shows the following age groups in the profession in 1947 in Canada:

57 years and up	540
47 years to 56 years	269
37 years to 46 years	288
27 years to 36 years	236
26 years and under	21
Total	1354

In other words, in about ten years' time about one-half the present architects will have reached the age of 65 or over.

The same bulletin gives the universities' estimates of the number graduating in architecture from 1947-51 as follows:

1947	1948	1949	1950	1951	Total
41	43	73	211	206	254

If a figure in the neighbourhood of 200 is maintained in 1952 and 1953, the numbers will no more than replace the age group of 65 and up referred to above. After 1953, the number graduating will be back to normal.

There is an increasing demand for the services of an architect on the part of the building public. The demand for those with architectural training is also increasing in such fields as community planning, industrial design and as executives of commercial concerns, especially those manufacturing and selling building materials and equipment.

If we also take into account the fact that of the students who enter the first year, probably 60% will graduate in the fifth year, and if the above estimates prove to be approximately accurate, there will be no serious problem as indicated in your editorial.

H. H. Madill,
Head, School of Architecture
University of Toronto.

BOOK REVIEW

TREES FOR TOWN AND COUNTRY
By S. R. Badmin

Published by Percy Lund Humphries & Company Limited, 12 Bedford Square, London, W.C.1, England. Price 25/ nett.

This is a book, which I should like to own, and which I have looked at already for many hours with much pleasure. It is incomparably better done than any similar book on trees on this continent. I studied it as many others would, who have always been interested in trees. I am also one of those who have acquired a place in the country where annually they plant a few dozen or a few thousand trees. For those this is an absorbing book. I think two omissions are the absence of photographs of bark for each specimen (the importance of which can be guessed by the beautiful picture on the boards under the dust wrapper), and a paragraph describing commercial uses, if any, of timber. I should like to think that this book will inspire a publisher to do something similar for Canada.

E. R. Arthur

THE NEIGHBOURHOOD UNIT PLAN
By James Gahir

Published by The Russell Sage Foundation, New York, N.Y. Price $1.00

The Russell Sage Foundation submits "a selected bibliography with interpretive comments" on one of the most basic and important concepts in the field of town and community planning—the neighbourhood unit. The bibliography is organized to consider first the ills of the city, then proceeds, in list and comments, to outline significant thinking on the neighbourhood unit beginning with Clarence Perry's complete study "The Neighbourhood Unit, a School of Arrangement for the Family Life Community". (Vol. 7, Regional Survey of New York and its environs 1929). The bibliography explores social and organizational problems of the neighbourhood unit; assesses opposition and endorsation of the theory and views the neighbourhood in the U.S.A. and abroad. Commenting on Canadian activity, the bibliography quotes from Town Planning and Community Centres Bulletin No. 19, Citizens Forum, 5 pp. Canadian Association for Adult Education, and among other Canadian schemes noted, the bibliography mentions Thorncrest Village, Islington, Ontario. (Architectural Forum, November, 1945) an excellent choice but rather inaccurately says "organized as a co-operative".

A most useful, well-organized and thoughtful bibliography of two hundred and twenty-nine selected references, and some eighty-three pages of commentary on perhaps planning's most significant problem – the social, physical and economic organization of the cellular city.

Jas. A. Murray

☆ ☆

By an oversight, the members of the committee responsible for the October issue on Schools were omitted. They were Mr. Burwell Coon, Mr. James Craig and Mr. Forsey Page. The Editorial Board greatly appreciates the excellent job done by them.

Editor

CONTRIBUTORS TO THIS ISSUE

Richard Ernest Bolton was born in Montreal in 1907, and was educated in the public and high schools of Westmount, Quebec. He attended McGill University for three years and then spent two years at the Massachusetts Institute of Technology, graduating in 1929 with the degree of B.Sc. (Arch.). After travelling in Europe and working in Montreal, he entered private practice in Montreal during 1933.

In 1941 he joined the Royal Canadian Navy as Sub-Lieutenant, R.C.N.V.R., serving in a technical and non-operational capacity until demobilized in 1945 with the rank of Lieutenant-Commander (SB) (E), R.C.N.V.R. He joined the firm of Fetherstonhaugh and Durnford, Architects, of Montreal, and became a partner in the new firm of Fetherstonhaugh, Durnford, Bolton and Chadwick, which was formed in January, 1946.

A. G. Keith. In 1937, after graduating from the University of Toronto with the degree of B.Arch., A. G. Keith was employed in the office of Saunders and Ryrie, Toronto. Later that year he moved to Bermuda, where for two years, he was associated with L. H. Smart, L.R.I.B.A. In 1939 he joined the Royal Engineers, subsequently transferred to the Royal Canadian Engineers, and was in the European Theatre of Operations for five years. After being discharged in 1945, he joined the staff of the Toronto Transportation Commission's Rapid Transit Department and, six months later, was appointed staff architect.

W. H. Paterson is a Canadian engineer who was born in Owen Sound, Ontario, where he received his preliminary education. After graduating from Queen's University in 1934 he worked on Municipal and Highway engineering projects in southern Ontario. Starting in 1937, he spent five years in South America with the Tropical Oil Company designing and building oil field structures. In 1942 he returned to Canada and after being rejected for service with the Armed Forces he was employed by the Toronto Transportation Commission. Since his employment with the Commission Mr. Paterson's full time has been devoted to Rapid Transit.

☆ ☆

The Editorial Board is greatly indebted to Mr. **Richard Bolton** for the time and trouble he has taken in organizing and securing material for this Transportation Issue. The Board is also obliged to the **Toronto Transportation Commission** for giving the Board access to and the use of material, which the Commission has prepared for its Rapid Transit project. Only a fraction of the many beautiful maps, diagrams, perspectives and models, which were made available to us, have been used. We are also indebted to **Dr. E. G. Faludi** for the interesting article on the Railway Stations of Italy, which involved considerable study and correspondence with architects in Italy.

TO OUR ADVERTISERS:

- Every ARCHITECT in Canada subscribes to the JOURNAL of the Royal Architectural Institute of Canada.
- ARCHITECTS, through their selection and specification of materials, equipment and furnishings used in buildings, form one of the largest purchasing groups in the Dominion.
- The presentation to the ARCHITECTS, of your product through the pages of their official publication, impresses them favourably and familiarizes them with it.
- Thus, the JOURNAL is the outstanding means of advertising for the building industry in Canada.

TO THE ARCHITECTS:

- Study carefully the advertising pages of your JOURNAL.
- Make yourself familiar with the products offered by our advertisers by writing for their catalogues and literature, always referring to their advertisement in the JOURNAL.
- In so far as practicable, in the interests of your clients, specify and purchase the products of our advertisers.