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# NEWS FROM THE INSTITUTE

## INAUGURAL CEREMONY OF THE NEWFOUNDLAND ASSOCIATION OF ARCHITECTS

At the November Meeting of the Executive Committee of the Institute, notification was received of the formation of the Newfoundland Association of Architects, and the Association was accepted as a component society of the Royal Architectural Institute of Canada.

Arrangements were made for the President, the Honorary Treasurer and the Immediate Past President to fly to St. John's to attend a special ceremony of inauguration of the new Association. This ceremony took place on Saturday, December 10th, 1949 at which time the President conveyed a message of good will on behalf of the Institute and welcomed the newly formed Newfoundland Association as a component society.

## 43RD ANNUAL ASSEMBLY

Again, the members are reminded that the 43rd Annual Assembly of the R.A.I.C. will be held at The Fort Garry, Winnipeg, on Thursday, Friday and Saturday, February 23rd, 24th and 25th, 1950.

Some of the highlights in the plans for this Assembly are — a report from Professor Robert F. Legget on his work in the Building Research Division of the National Research Council, a technical seminar lead by Professor Hoogstraten of the University of Manitoba, a cultural seminar, an Exhibition of Building Materials, an interesting School Display from the British Ministry of Information, and an invitation to the Annual Beaux-Arts Ball of the School of Architecture, University of Manitoba, extended by a quartette of hosts, the Students' Architectural Society, The Manitoba Association of Architects, The Alberta Association of Architects and The Saskatchewan Association of Architects. The theme of the Ball is "Neath the Northern Lights" and rumour has it that the Winnipeg Ballet will be on hand to enhance this luminous affair.

It is planned to forward to each member three weeks before the date of the Annual Assembly, a copy of the Annual Report of the Standing Committees of the Institute, a copy of the Programme for the Assembly, together with a final circular letter on the subject of the Assembly.

**Advance Registration Forms:** Members have by now received their advance notices of the Annual Assembly, with the Registration Form enclosed, and are reminded that the completed Form must be returned to the Institute Office by January 31st. Members who have not sent in their Registration Form are urged to do so immediately.

It is hoped that many members from all parts of Canada will find it possible to attend the Annual Assembly in Winnipeg which will be a particularly outstanding occasion in the history of the Institute.

## TRAVELLING ARCHITECTURAL EXHIBIT

Members will be interested to hear that the travelling Architectural Exhibit, originally started as a project of the Toronto Chapter of the Ontario Association of Architects, and displayed at the Canadian National Exhibition under the sponsorship of this Institute and the National Gallery has been in demand as a travelling exhibit for which the National Gallery is arranging the itinerary. After display at the National Gallery early in the Fall, it was forwarded to Windsor, and it is planned to show it in Edmonton in January, and possibly in the Maritimes in May to coincide with the Annual Meeting of the Nova Scotia Association of Architects. The Architectural Institute of British Columbia and the newly formed Newfoundland Association of Architects have also expressed an interest in displaying this exhibit. Requests for this travelling exhibit may be made through the local art galleries or direct to the National Gallery at Ottawa, from which the exhibit is being circulated.

## RESIGNATION OF THE INSTITUTE SECRETARY

Members will be sorry to hear of the resignation of Mrs. Anne M. Barstow as Secretary of the Royal Architectural Institute, whose extremely loyal and capable handling of the Institute Office affairs, and whose outstanding personality, have had a far reaching effect in Institute matters in recent years. Mrs. Barstow finds it necessary at this time to relinquish a large part of the responsibility which this position entails, but the members need not say a complete farewell as she will find it possible to devote part of her time to some of the Institute business over the next few months.

Mrs. Barstow's resignation as Secretary of the Institute was effective the 31st of December, 1949 and Miss Mary L. Bilton was appointed as the new Secretary as of the 1st of January, 1950.

## THE A.I.A. GOLD MEDALLIST

Sir Patrick Abercrombie, M.A., Fellow of the Royal Institute of British Architects, and internationally known British architect and town planner, is to be awarded the Gold Medal of the American Institute of Architects.

Ralph Walker, New York, President of the A.I.A., announced today that Sir Patrick was selected to receive the Gold Medal by unanimous vote of the Board of



Directors at its November meeting recently concluded. The Gold Medal, highest honor the Institute can bestow, will be presented at a ceremony following the annual dinner held in connection with the 82nd A.I.A. Convention in Washington, D.C., next May 10-13.

"The award to Sir Patrick Abercrombie was made in recognition of his distinguished contribution to the profession of architecture and regional planning," said Mr. Walker in announcing the decision of the Institute's Board of Directors. Sir Patrick, who is the sixth foreign architect to receive the Gold Medal of the A.I.A. since it was established in 1906, is an outstanding architect, town planner, writer, and teacher. He is internationally known for his leadership in civic design and urban planning in England. He was the Royal Gold Medallist in 1946.

"By his teaching and the publication of numerous books on city and urban planning, Sir Patrick has exerted an influence far beyond the confines of the British Isles. His plans for replanning Dublin, Bath, and Greater London have especially been noteworthy for their understanding and development of human scale in relation to life in great cities," declared Mr. Walker.

Born Leslie Patrick Abercrombie in Ashley-upon-Mersey, he was professor of civic design for twenty years at Liverpool University and for the past eleven years has been professor of town planning at the Bartlett School of Architecture, University College, London. He was knighted on January 1, 1945.

Sir Patrick Abercrombie has been honored by various organizations connected with architecture and planning. He has been a vice-president of the Royal Institute of British Architects, president of the Town Planning Institute, a member of the Royal Fine Art Commission, chairman of the Council for the Preservation of Rural England, chairman of the Housing Centre, and president of the International Union of Architects.

Some of his publications are "Replanning the County of London," "Lidice," "Town and Country Planning," "A Plan for Plymouth," "A Plan for Bath," and many other notable books.

The Gold Medal, awarded in recognition of most distinguished service to the profession or to the American Institute of Architects, has been awarded in the past to the following: Sir Aston Webb, R.A., London, 1906; Charles Follen McKim, New York, 1909; George B. Post, New York, 1911; Jean Louis Pascal, Paris, 1913; Victor Laloux, Paris, 1921; Henry Bacon, New York, 1922; Sir Edwin Landseer Lutyens, London, 1924; Bertram Grosvenor Goodhue, New York, 1925; Howard Van Doren Shaw, Chicago, 1927; Milton Bennett Medary, Philadelphia, 1929; Ragnar Ostberg, Stockholm, 1933; Paul Philippe Cret, Philadelphia, 1938; Louis Henri Sullivan (posthumous), Chicago, 1943; Eliel Saarinen, Bloomfield Hills, Michigan, 1946; Charles D. Maginnis, Boston, 1947; Frank Lloyd Wright, Spring Green, Wisconsin, 1948.

## ALBERTA

Some years ago I was invited to visit a little town some sixty or eighty miles away according as one might go by air or by road. It does not matter what town it was; a similar experience would apply to many. It was a prospering little place rapidly increasing in population, the people full of energy and ambition. I had been asked to give a talk in the town hall on "Town Beautification". I naturally took a good look at this town hall. It was a decently simple frame building suited to the purpose to which it was put; somewhat old and, since the time of its building, it had obviously never been repainted, consequently it had a somewhat discouraged appearance. It was set back about twenty feet from the street line thus affording the opportunity, somewhat sparingly taken advantage of, for the growth of dandelions, pigweed and a small sprinkling of wild grasses. This subject alone might well have furnished a text for the expected talk. These good people had asked an allegedly learned person to come eighty miles to tell them how to make their town more beautiful. Naturally other features of the place proclaimed the same lesson. A number of new and smart stores had been built recently, some of them rather oddly placed. A new creamery and a new sawmill stood on spacious grounds with many wheel tracks cutting up the areas in a promiscuous way. There had been recent rain. High rubber boots were in style. In these, active men were happily ploitering around. Sidewalks of plank were getting seriously out of repair. Street crossings having specially suffered from the turning around of many vehicles had to be circumvented by circuitous routes. No doubt I did not see the place at its best. With the sun shining, the roads dried up and the dandelions blooming their best the whole place would probably have had an air of considerable animation. The obvious fact is that the individual inhabitants were so much pre-occupied each in pushing his own business and in making money out of it that no thought had occurred to them of expending anything on general and mutual benefit.

It ought further to be mentioned that in what with some courtesy may be called the residential districts quite a number of the rear yards were occupied by what at first seemed to be chicken-houses but were in fact occupied by young people with numbers of very lively children. At one place a tractor was employed in making extensions to the dirt roads by which all residences are approached. It is fairly easy to bulldoze that luscious black soil into the customary dirt road and when the weather is fine these miraculously flatten themselves out into tolerable driveways, but, in wet weather, they may resolutely hold up a car, though small children may still find in them some sources of joy.

I paid this visit some years ago. If I should return to the place I quite expect that I should find it greatly improved, not, certainly, on account of anything that I could have said, but simply because the inconven-



iences that inevitably arise from want of reasonable care must at last receive some attention in the interests of growing business. The same influences are always at work all around us in our cities. Those streets in which retail trade is just beginning to gain a hold are at first shoddy and shabby. Each store makes a strident call for attention bedazzening itself with flagrant and generally offensive advertisement. With increase of competition some kind of self-respect must be imposed otherwise that offensive advertisement will tell heavily against it. It never did genuinely recommend it. A little appropriate humble charm would have served its purpose better and maintained itself longer.

The tiresome virtue of Tidiness in appearances and in methods of work which keeps nagging at us like a little sister of conscience is indeed a tap-root of those good qualities which go to the creation of architecture and all the arts. A wider popular recognition of this humble sister of the arts would greatly forward the cause of architecture and speed up the general ideal of "Town Beautification" towards which there is a universal and inextinguishable if ill-directed ambition.

*Cecil S. Burgess*

## ONTARIO

The year before last a discussion group was sponsored by the Toronto Chapter of the Ontario Association. Membership was extended to graduates of Schools of Architecture, students in the O.A.A. registration course, and Chapter members. There was a five-dollar fee for non-chapter members.

Apart from the general benefits of healthy discussion, there were a number of particular reasons for the formation of the group. Foremost of these was the newly-instituted two-year gap between graduation and application for registration in this Province. It was felt that the graduates should have the opportunity of a link with the Association that they would (must) join in the future.

Practising architects in the Chapter thought that by discussing the technical and material aspects of practice they could give the graduate the opportunity of a more valuable "experience period" than the employer-employee relationship or the restricted atmosphere of the draughting room could afford.

We held six meetings during last year, attended by an average of thirty — made up of about sixty per cent students and forty per cent architects. We discussed the qualifications of the architect, the organizing of a nice office — large and small, preparation of drawings and contract documents, and for our final meeting we dis-

cussed our Provincial Association under the heading "There is nothing wrong with the O.A.A.!" having been forbidden to use and publish the title "What is wrong with the O.A.A.?"

Last year's meetings, with the exception of the last, were held in a University Common room; usually the room was too hot and the coffee afterwards was not. This year we meet at a military mess, the room is still usually too hot but we have the compensation of an open bar. We have had two meetings in this new environment, and a noticeably livelier discussion at each.

My purpose in recording these statistics and comments under the heading of Provincial News is to encourage others, who have not already, to organize similar groups. If they only provided a training in the art of informal debate and an opportunity for hairletting and bloodletting. I think a series of these in the various Provinces would be definite assets to the Institute.

*Norman H. McMurrich*

## CONTRIBUTORS TO THIS ISSUE

**Lawrence Counsell Martin Baldwin, B.A.Sc.**

*See Journal, February, 1949.*

**Kent Barker**

Assistant Professor of Architecture, University of Toronto. Architect and Planning Consultant.

Graduated from the School of Architecture in 1936, and spent the following year studying town planning under Eliel Saarinen at Cranbrook.

In 1940, Mr. Barker left the Canadian Broadcasting Corporation to join the architectural staff of the Department of National Defence in Ottawa. He later accepted a commission in the R.C.N.V.R. and spent 2½ years in the Directorate of Plans, Naval Service Headquarters.

Mr. Barker had further planning experience with the Ontario Department of Planning and Development, Wartime Housing Limited, and Central Mortgage and Housing Corporation. He is planning consultant for the Ajax Development Project.

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The Editorial Board wishes to express its appreciation of the part that **Mr. Fiset** played in the organization of the December issue. Members will realize that this was no ordinary task, but the dummy prepared by **Mr. Fiset** was so perfect that changes were reduced to a minimum. The publisher and the editor would like to add their special thanks to **Mr. Fiset**.



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# JOURNAL

## R. A. I. C.

FEBRUARY 1950

WE make no apology for eulogizing the recent efforts of the O. A. A. in Annual Convention because the papers that came out of it are of national interest. We doubt whether any architect attended a more stimulating meeting, and that very critical audience, the students who were present, seemed to be satisfied that their professional organization was at the forefront in matters of social and public significance. To organize a two-day meeting in which dignity and hilarity combine with meetings on a high intellectual level — all in their proper place and proportion — is no easy task. Where it failed in a very minor degree will be recorded in the minutes and in the minds of those present, and will be a lesson for next year. It would appear that three speakers per seminar is too many. At least three speakers would have been worth listening to for a whole seminar, and members had a feeling of frustration at the shortness of the period allotted them. One of these was the address of Mr. Mansur, the President of Central Mortgage and Housing, who endeared himself to all by his frankness on the subject of subsidized low rental housing. Mr. Mansur had no paper, and by a gross error on the part of the management, no record of his address was kept for the *Journal*. Our sorrow, and Mr. Mansur's relief, can be imagined. To publish all the papers would make a large issue of the *Journal*, which would break the carefully planned sequence for the year. Instead, a paper or papers will be published as space permits during the next few months.

WE are always acutely aware in the *Journal*, and in Hamilton, that Toronto is not Ontario, but the early years of the O. A. A. were spent in the capital city. It therefore seemed appropriate, on this 60th Anniversary Year, that we should publish Mr. T. A. Reed's story of 19th century architects in Toronto. Our personal hope is that historians in other Canadian cities will be inspired to do a similar piece of research. In these boom days of street widening and new building, landmarks are falling around us, and, in many cases, no record by word or photograph remains. Mr. Reed has a unique collection of several hundred photographs to supplement his text.

ONLY the other day, we received a publication of the City of Montreal in which appeared a fire hall of considerable architectural interest. We showed it to several friends and their guesses as to the architect included Frank Lloyd Wright, Louis Sullivan, and several Art Nouveau architects in Europe. We would gladly publish it in the *Journal* if some architect who shares our antiquarian tastes would send us a photograph. Having said as much, it would be appalling if it turned out to be of recent vintage.

ONE of the sobering thoughts that one gets with age, is that it is not the buildings we once admired that leave their mark on the architecture of a city. Looking back over a hundred years of building in Toronto, the Roman *thermae*, the Romanesque skyscrapers and the Beaux Arts Banks appear merely as reminders of a hypocritical age, which glorified shams and applauded shamsters. They contribute nothing to the sometimes muddy stream that meandered through the flats of Victorian, Edwardian and Georgian tastes. The responsibility of great opportunity is immeasurably greater in architecture than in any other profession, but the well-known names of an earlier age in every North American city are, in most cases, forgotten. It is often on the back streets that one finds the office building or the warehouse that contributed something to the evolution of building as we understand it today. The architect may be anonymous, or painstaking research may reveal his name. A hundred years from now an historian will sift the gold from the dross of our contemporary architecture. It will be hard on our uneasy shades if he finds the back alleys more profitable than the thoroughfares.

Editor



# THE SOCIAL ASPECTS OF HOUSING

By HUMPHREY CARVER

A Paper read at the Seminar on Canadian Housing Needs at the Diamond Jubilee Convention of the O.A.A.

I AM to discuss here the Social Aspects of Housing. I am afraid that in doing this I will inevitably trespass upon other aspects of the subject which are to be discussed in later periods of this Conference. For, after all, every operation concerned with housing has meaning only insofar as it leads towards the achievement of a social purpose. This is the warp of the cloth into which all other aspects of housing must be woven. I hope, therefore, you will accept these remarks simply as a broad statement of social philosophy to serve as a background to the more technical material that will follow.

At the outset it is certainly useful to affirm the primarily social purpose of housing because usually in the course of discussions on this subject a good many red herrings are drawn across the trail. There are those who urge you, for instance, to be interested in housing because big construction projects can be used to maintain full employment or because they salvage real-estate values. Or housing may be used as a key piece in a political game of chess between two levels of government or between the rival forces of free enterprise and the welfare state. Housing has also been used as the private battleground of rival schools of architectural thought, the followers of one school claiming that everybody ought to live in a skyscraper while others believe that no one can be happy without an acre of land and a cow.

Our judgments on what constitutes good housing should be formed by an understanding of the people who are going to live in it and not by the secondary considerations of economic, political and architectural special interests. We must continually affirm the main purpose of our housing endeavours which should be to provide a setting within which every Canadian can enjoy the most healthy and stimulating life and so contribute most effectively to the development of his family, his community and his nation.

I think a concern for the social aspects of housing usually starts with the thought that there is a reasonable standard of accommodation, below which no one should be expected to live. This leads to an attempt to set minimum standards of shelter, space, privacy and hygiene. Surveys are then used to identify the location of sub-standard housing and of overcrowding. Reports are then published, garnished with frightening statistics about juvenile delinquency, T.B., V.D. and other horrid social phenomena. Proposals are finally made for demolition and rebuilding in the form of low-rental housing projects.

This has been the classic approach to the social objectives of Housing. Such a concentration of attention upon

the minimum standards does have an effect of which we should beware. It tends to attach a certain patronising satisfaction and sanctity to the achievement of minimum standards. I want to suggest to you that even in housing modest people in a modest way at modest cost there is always the opportunity to produce work which is distinguished, sensitive and delightful. I think we should recognize as our social objective not the conformity with minimum adequate standards but the constant striving to express, in architecture and community planning, the individual dignity of each family and the rich variety of character out of which society is composed. To accomplish this we must endeavour to design with economy and grace, playing upon a wide variety of spaces, masses, materials and textures of building and landscape.

As our understanding of housing problems has widened, as we have learned the difficulties of achieving our social objectives, as we have come to appreciate the many other aspects of Housing which must be taken into account—so the administrative, legislative and financial apparatus associated with housing has become more complicated. This has undoubtedly led to difficulties when many vital decisions about housing have had to be made by people who are far removed from those who are going to live in the houses. Any effort to place administrative and design decisions closer to the people themselves is therefore beneficial. From a social point of view this is the virtue of the present policy for placing more housing responsibilities upon the provinces and the municipalities.

The social aspects of Housing are seen somewhat differently from a national, a provincial or a local point of view. From the national point of view one can dimly discern the broad outlines and generalities; statistics of population, of numbers of housing units and of economic changes reveal the forces of supply and demand. From the provincial point of view one can see the physical distribution of the people and the houses on the land and the shape of the administrative organizations which the people have set up to conduct their affairs; the problems are essentially those of planning and administration. It is only from the local point of view that one can see actual people, hear voices, catch the humour and the humiliation and understand the personal stresses of Canadians trying to make the best of the rather inadequate housing that has been provided for them.

In considering the social aspects of Housing let us then proceed from the general to the particular, from



the nation to the community, to the people as families and individuals.

Let us consider, first of all, that as a nation we have inherited from past generations about three million houses, many of them now half a century old. These provide the stage on which Canadians play the drama of their lives in space, time and architecture. Our society is alive, fluid, forever changing its social and economic patterns as endless successions of families have their exits and their entrances. A family comes together and occupies a house for a few years, either as owner or tenant, and then moves on to another kind of dwelling as household circumstances and economic pressures compel them. Boy meets girl, a new family is formed, it expands, grows up and then dissolves as boy meets girl. We multiply; at the end of this year there will be 80,000 more families than there were at the beginning of the year. There will be a larger proportion of old couples. There will be a different distribution of the national income so that there will be different people having different ideas about housing and different needs. More houses will have reached the end of their normal expectancy of useful service.

As a nation, then, we can take stock of the housing that has been handed down to us and we can try to understand that the ever-changing nature of our population makes our housing anachronistic as fast as we build it. We can then provide ourselves with legislative and financial arrangements which will enable us to provide the necessary additions to the stock, to make the most useful adaptations of what we have already got and to effect the necessary replacements. Later in the afternoon I think another speaker will point out that in Canada we are now fortunate in possessing a National Housing Act which is a most adaptable instrument and which now enables us to deal with all social aspects of the housing situation, from home-ownership to slum-clearance and low-rental housing. In 1950 it is for the first time possible to conceive a comprehensive design for our future stock of housing.

At the national scale the design for housing is concerned with the broad social justices and with the relationship of housing to the health and economy of the country as a whole. It is when we move to the community scale that the design for housing in a physical sense becomes more apparent. We are not yet, however, concerned with the design of individual houses in an architectural sense, but with the organization of the whole stock of housing in a community. To most people this is still undoubtedly a new concept. Urban areas have grown gradually and fitfully in response to economic forces and each period of activity has deposited its characteristic forms of housing on the land around us. It has not been anybody's business to look at this whole accumulated stock of housing and appraise it systematically; there has not been any particular reason for doing this because the community as a whole has not been pressed to form any opinions on the sub-

ject or to take any corporate action. It seems to me that we are now, however, entering a period when it is necessary, for various reasons, that a community should be aware of the evolving design of its own stock of housing. To this end it is necessary to do three things:

- (1) To examine exactly what is already in stock;
- (2) To form some judgments on the further social needs of the community for housing;
- (3) To introduce executive methods for filling these needs as additions, adaptations and replacements are made to the housing stock.

If you ask why it is necessary to introduce, at this stage, any community action in the planning of housing, rather than letting residential development take its own fitful course as it has done in the past, I can give you at least one good reason. More and more it is the community's—the taxpayer's—own money which is being used to finance residential construction and to pay for schools, streets and all the other services required by the expanding urban area. It is therefore in the interests of the whole community to be assured that its housing fits the whole pattern of social requirements in an economical and rational way. I might mention that through their federal housing agency alone the Canadian taxpayers have already spent about \$280 million in rental housing and through National Housing Act loans there is an outstanding investment of \$76 million. If we are to embark upon further government-aided housing it is certainly necessary therefore to take stock and calculate our further needs.

A community then might start by examining in detail its present housing accommodation, recording the quantity, location and condition of various types of accommodation; together with information on rental levels, overcrowding and obsolescence. A good many Canadian cities from St. John's, Newfoundland, to Vancouver have already done this with varying degrees of accuracy. It seems to me that we must now establish uniform methods of survey and classification so that the results will be comparable from one urban area to another. Both in the United States and Canada there are methodological studies in progress in this field. We may eventually come to regard it as a normal function of a local planning body to maintain such records, without which intelligent planning decisions cannot be made.

We then seem to be faced with the problem of trying to appraise the community's total needs for housing. This is obviously a much more difficult task because it involves not only an enumeration and analysis of the individuals, families and households of which the population is composed and an estimate of their economic capacity but also some judgments as to the kind of housing which would best meet the variety of their needs. The task seems to be one of almost insuperable difficulty and one is at first inclined to abandon it as a matter of only academic interest.



In default of any such comprehensive approach to local housing policy what actually happens in practice? Builders and other housing developers offer various "lines" of housing, they continue to produce those types which find a ready sale and withdraw production of those that do not sell quickly. A social concern for housing then leads the community to attack the worst residual housing conditions which are inevitably found to be amongst people of low income; logically the first operation is to draw off the overcrowding by moving families into low-rental housing projects usually in the suburban areas after which the sub-standard housing can be successively cleared and replaced with more low-rental projects in central areas. This is the historic chain of events which we have observed in the great industrial cities of Britain and the United States. We are already familiar with the free-enterprise element in this process; it has deposited whole districts of bungalows with two bedrooms, blocks of 1½-storey houses with three bedrooms and is now beginning to deposit blocks of duplexes and apartments. We are now on the threshold of the second or public enterprise element in the process which may as in other countries now deposit large public housing projects in the suburbs and low-rental institutions on slum-clearance areas.

In following this chain of events are we embarked upon a course which will fulfill the best social objectives? This is not a very easy question to attack with a flexible mind because we tend to accept, though perhaps grudgingly, what has become familiar around us. The suburbs of a Canadian city have, in their present form, a homely familiarity and even their plain ugliness is somehow endearing. And now even the idea of a public housing project has begun to acquire familiarity in the mind of the public and one can almost hear the local booster claiming that "we have the largest, shiniest, and most expensive public housing project in the country". This is surely a perversion of a social objective and yet although there has been much fine talk about the social aspects of housing and community planning, it is extraordinary how vague have been the conclusions and how ineffective has been the machinery for creating the kind of residential area we would really like to see.

At this point I think we must pocket our pride and without apology turn to those who have devoted their lives to a consideration of these problems, particularly in their social implications. What guidance can we find from the great masters — from Unwin, Lewis Mumford, Clarence Stein, Wright and even the prophet Ebenezer Howard? It seems to me that perhaps the common element, the central kernel, in the teaching of the masters is the idea of diversification within the unit of residential planning. Whether the unit of planning is called a satellite town, a new town, a neighbourhood or just a suburb, it is suggested that it should provide those varieties of accommodation which correspond with the social and economic varieties which actually exist within any community. In other words it should not be our purpose

to fragmentise society and segregate people of different kinds into separate districts and projects. We should be extending our communities in the form of organized diversified neighbourhoods, each containing a due proportion of different kinds of people in different kinds of housing.

I am not saying anything new here but simply restating in your Jubilee Year a proposition first announced in 1898, in relation with which our recent efforts at city building are distinctly "corny". What I mean, more specifically, is that Ontario communities should now sharpen up the instruments of planning offered to them by the Provincial Planning Act, and should learn to use the instruments of land assembly offered by the new Section 35 of the National Housing Act for the purpose of developing diversified neighbourhoods to contain housing built by both public and private enterprise, with single-family houses for sale and for rent, row housing, apartments and the whole vocabulary of residential design, including an appropriate proportion of low-rental housing. This would, I think, be the most realistic approach towards the social objectives of housing in an effort to avoid on one hand the endless stereotyped subdivisions of bungalows and on the other hand the threat of institutionalized projects of public housing. I think that the variation of architectural forms and spaces which could thus be introduced would incidentally give new vitality and interest to our residential areas at present so desperately monotonous.

If we recognize the opportunity before us and the social objectives to be achieved there will be an important planning and designing function to be performed locally. It will be a more detailed planning operation than has usually been performed by local planning board staffs and it involves a far more sophisticated design skill than has been required for the ordinary process of land subdivision. It would place heavy demands upon the available people who have had any experience in this kind of planning work.

In attempting to put together the design of a residential area which would contain a proportion of home-ownership, economic-rental housing and low-rental housing there must be some rational basis for determining the proportions of various sizes and types of housing. I said just now that as a basis for future housing policy we must determine the nature of the whole community's needs and that this was an extremely difficult task and might seem to be of only academic interest. I think you will appreciate, however, that unless we are to design these extensions to our stock entirely by the intuition or the whims of planners, administrators or architects it is necessary to have a greater knowledge of the composition of the community and the economic and sociological changes that are in progress. For instance, how important is it to provide housing for old people without families? How serious is the overproduction of two-bedroom houses? What proportions of the need for rental housing

*(Continued on page 75)*



# TORONTO'S EARLY ARCHITECTS

## Many Fine Buildings Still Standing

By T. A. REED

THE building of the town of York may be said to have commenced in 1794. The site, while commending itself to Governor Simcoe as the most suitable one for the capital of the new Province of Upper Canada, had then all the disadvantages of an unhealthy locality. The low lying land in the vicinity of the Don made it malarial, and more than one writer has referred to the site in uncomplimentary terms such as being "better fitted for a frog pond or a beaver meadow than for the residence of human beings" and "when drained it may be habitable", and again "the streets are straggling and irregular." The first houses were undoubtedly of logs and frame construction. In 1807 Henri Quetton St. George established a residence and place of business on the north-east corner of King and Frederick Streets. This was the first brick house in York.

With the possible exception of a few earthworks at the old Fort, now restored, few traces of its first buildings remain. The remains of John Small's house, Berkeley House, at the south-west corner of King and Berkeley Streets, demolished in 1925, the centre portion of which was built of hewn logs about 1795, was an interesting example of Toronto's early structures. At a later date east and west wings were added and the whole structure raised. John Scadding's house, built about 1794 on the east bank of the Don at the Kingston Road (now Queen Street) Bridge was pulled down in 1879 and re-erected in the Exhibition Grounds by the York Pioneers, where it now stands.

The first brick house in York built of bricks of local manufacture, was Archdeacon Strachan's residence, built in 1818 on the north side of Front Street in the block bounded by York and Simcoe Streets. Dr. Strachan was Rector of St. James' Church, and when, in 1839, he was consecrated the first Bishop of Toronto, his house came to be named "The Palace". It has long since disappeared; University Avenue now runs through the property. About the same time, D'Arcy Boulton built the Grange, which still stands at the head of John Street, forming the centre front part of the Art Gallery, and undoubtedly the oldest brick building in the city.

Throughout the city may be found here and there many old landmarks, well-nigh a century old. For instance, there is a fine brick house of the colonial style on Duke Street at the head of Frederick Street, facing King Street, built about 1822 for Chief Justice Sir William

Campbell. Other buildings of the early days may be seen at the south-east corner of Queen and Simcoe Streets, the north-west corner of Adelaide and Church Streets and the stone malt house of one of the first breweries in York on the south-east corner of Sherbourne and Duchess Streets. However, these places have merely an antiquarian interest, and are of little value except as a reminder of our humble beginnings. But in 1834 the town of York was given the status of a City, with its ancient name of Toronto restored to it. Within the next quarter of a century it expanded by leaps and bounds, not only in extent, but in the character of its buildings. In 1834 the northern boundary did not extend much beyond Queen Street, by 1842 it was approximately the line of the present Dundas Street (i.e. originally Crookshank, Agnes, St. Patrick, Arthur and Beech Streets, etc.). By 1855 it had reached Bloor Street. At the time of its corporation in 1834, its population was 9,254; in 1860, nearly 45,000.

In that quarter of a century, i.e., between 1834 and 1860, there were erected a greater number of fine buildings in proportion to the city's size than in any similar period since. It will be interesting to note briefly the buildings erected during that period, the majority of which are still standing, and to recall the names of the architects who contributed to the adornment of the city. Many of these buildings are churches, the architecture in nearly every case is good, true to type, and far in advance of much of the work of later years.

The first to be considered are Trinity Church on King Street East, opposite Power Street, opened in 1844, St. George's Church near the head of John Street on the east side (1845) and the Church of the Holy Trinity in Trinity Square (1847). They were all designed by Henry Bowyer Lane, — St. George's in perpendicular Gothic and the two Trinities in Elizabethan Gothic. Mr. Lane was a friend of Mr. Boulton of the Grange and through his influence and that of Bishop Strachan, he was also the architect of Toronto's first City Hall (1844-1899) which stood on Front Street (where the southern end of the market is today) and an extension to Osgoode Hall. He left Toronto in 1847.

In 1845 John G. Howard (1803-90), the donor to the City of High Park and at one time City Architect, City Engineer and City Surveyor, designed a handsome stone building for the Bank of British North America on the



north-east corner of Yonge and Wellington Streets. In 1871 this was torn down to make way for the present building (now a branch of the Imperial Bank) but the Royal Coat of Arms over the main entrance was retained in the new building, and may still be seen over the Yonge Street entrance, a fine specimen of the stonemason's art.

Other buildings by Mr. Howard, who must have been an architect of no mean ability, are the Provincial Lunatic Asylum on Queen Street West (1846), and the older portion of the House of Industry on Elm Street (1848). In 1845 he also surveyed and laid out the grounds for St. James' Cemetery, then recently set apart for its sacred uses.

Another architect of the 'forties was William Thomas (1800-1860) whose work is characterized by dignity and breadth. He came to Canada in 1842 and died in 1860. His earliest work standing today is the building at 15 Wellington Street West, originally built in 1842 for the Commercial Bank, afterwards absorbed by the Merchants' Bank of Canada, and now occupied by the Toronto offices of Messrs. Clarkson, Gordon and Company. "Oakham House", a fine Gothic house on the south-west corner of Church and Gould Streets was built in 1848 and occupied by him until shortly before his death, when he sold it to John McGee, iron founder. It is now the Working Boys' Home. According to "The Patriot" of 1853 Mr. Thomas had his office there. On this building will be seen some excellent stone carving. In 1845 Mr. Thomas designed St. Michael's Cathedral in the Gothic style. It was opened in 1848.

In 1850, after the disastrous fire of 1849, he designed the St. Lawrence Hall Buildings on King Street East, for many years Toronto's principal Concert Hall. St. Lawrence Hall and the office building at 15 Wellington Street West represent Thomas at his classical best. Happily, these two buildings still stand. The present building on the south-east corner of Yonge and Colborne Streets, used successively by Ross, Marshall & Co., dry goods, in 1857, the Bank of Upper Canada, 1860, the first office of the Canadian Bank of Commerce, 1867-1890, the Toronto General Trusts Corporation, 1891 and now by the Crown Life Insurance Co., was built in 1857 from his design. So, too, was the Gaol on Gerrard Street East, designed in 1858, burned in 1863 before completion, rebuilt and finally opened in 1865.

In the 'fifties we come across the name of William Hay (1818-1888) who was an architect of repute, and many buildings of that date were entrusted to him. He was a Scottish architect sent out from England in 1847 to erect Government buildings in St. John's, Newfoundland and Halifax, Nova Scotia. The simple Gothic Church, now, alas! shorn of its graceful steeple, erected for the "Second United Presbyterian" congregation (an off-shoot from the United Presbyterian Church of Dr. Jenningson Bay Street) on the south-east corner of Victoria and Gould Streets in 1854, now the home of the Catholic Apostolic body, or Irvingites; the House of

Providence on Power Street (1854), St. Michael's College (centre part) and the older portion of St. Basil's Church on St. Joseph Street, (1856); the central and original portion of the old General Hospital on Gerrard Street, north side between Pine (now Sackville) and Sumach Streets (1854), demolished some years ago, and the "School" buildings adjoining the Church of the Holy Trinity in Trinity Square (1858) and the parsonage of the same church (1860) were all built under his direction. He was a member of Holy Trinity Church during his residence in Toronto and gave liberally of his means and ability. One other building of his once worthy of more than passing interest, viz., the old Yorkville Town Hall was destroyed by fire in November 1941. It stood on Yonge Street, a short distance north of Bloor Street. Yorkville was incorporated a village in 1853 and the Town Hall was completed in 1860. Dr. Scadding, the early historian of Toronto, whose "Toronto of Old", published in 1873, still remains the best and most accurate history of our early days, says of it, "The singular *Hotel de Ville*, which in modern times distinguished Yorkville, has a Flemish look. It might have strayed hither from Ghent. The shield of arms sculptured in stone and set in the wall above the circular window in the front gable presents the following 'Charges' arranged 'quarterly'; a beer-barrel with an S below; an anvil with a W below, a brick mould with an A below, and a jack-plane with a D below. In the centre, in a shield of pretence, is a sheep's head, with an H below. These symbols — the 'coat-of-arms' of the village — commemorate the first five councillors or aldermen of Yorkville at its incorporation and their trades or callings, viz., John Severn, the brewer; Thomas Atkinson, the brick-maker; James Wallis, the blacksmith; James Dobson, the carpenter; and Peter Hutty, the butcher." After his wife's death in 1860 Wm. Hay returned to Scotland. His great work was the restoration of St. Giles, Edinburgh 1872-1883, made possible through a gift of £30,000 by William Chambers, the publisher. In 1884 he went to Bermuda to plan and build Trinity Parish Church, now the Cathedral. He died in Edinburgh in 1888. Henry Langley father of Charles Langley was a pupil of Hay from 1853 to 1860 and with Thomas Grundy took over his business when he returned to Scotland.

Another architect of the 'fifties was Kivas Tully (1820-1905) who, in 1852, built the original and admirable Trinity College on Queen Street West, founded by Bishop Strachan after the secularization of the University of Toronto in 1850, and the first Bank of Montreal (1845) building at the corner of Front and Yonge Streets.

Kivas Tully was a councillor of the City of Toronto, 1852, alderman 1859. In 1854 he made a report on the Harbour and in 1885 on the sewage system. In 1855 he was President of the Toronto Cricket Club. In 1867 he was appointed Architect and Engineer of Public Works for the Province of Ontario and as such designed many public buildings in the province.

Two architects who worked conjointly and whose



names will long endure, were Frederick William Cumberland (1821-1881) and William G. Storm (1826-1892). Perhaps more than any others were they responsible for beautifying the city with dignified buildings, at a time when the city's population was barely 50,000. It has been said by an ardent admirer that "their buildings are original in plan, copies of none, but faithful and true to type". The first and undoubtedly their finest work is, of course, the handsome stone structure, in the Norman style, of the University of Toronto, sometimes known as the Main Building, but more correctly, University College. It was commenced in 1856 and opened in October 1859. Other buildings designed by these men are the old Post Office (the seventh), now the Bank of Canada, on the west side of Toronto Street, north of King, a chaste example of the Greek Ionic (1852); the Court House on the south side of Adelaide Street between Church and Toronto Streets, (1852); the first Mechanics' Institute (1854), afterwards the Public Library building, on the north-east corner of Church and Adelaide Streets and recently demolished, additions and alterations to Osgoode Hall (1857); the beautiful early English Chapel of St. James-the-Less, in St. James' Cemetery (1858), and many other structures. St. James' Cathedral (1853) on King Street, in perpendicular Gothic, and the Normal School Buildings (1852) on Gould Street, both imposing pieces of architecture were also by F. W. Cumberland with Mr. T. Ridout as associate architect.

In the University grounds, although not in its original position will be found the "Royal Magnetical Observatory", completed in 1855 by Cumberland and Storm. It succeeded an earlier building, the first Meteorological Office to be established by the British Government outside of the United Kingdom, in 1840. It originally stood near Convocation Hall, and was pulled down and rebuilt, stone for stone, on its present site east of University College in 1907.

A few buildings erected prior to 1860 and still standing were designed by William Kauffman, viz. the old Rossin House, now part of the Prince George Hotel (1855) at the south-east corner of King and York Streets; the Masonic Hall, (the former Canada Permanent Building), on Toronto Street opposite Court Street, completed in 1857; the original Royal Insurance Company building (1858), on the south-east corner of Yonge and Wellington, and the Bank of Toronto buildings on the north-west corner of Church and Wellington Streets (1863).

The older St. Paul's Church, a beautiful stone edifice immediately west of the present cathedral-like structure on Bloor Street, and in no particular surpassed by it, was built between 1857 and 1860 from the plans of Geo. K. and E. Radford, one of whom was said to have been a pupil of Pugin, the Gothic revivalist. Subsequent alterations and additions by local architects have spoiled its beautiful proportions. The old Cawthra house on the north-east corner of Bay and King Streets, at one time the head office of the Sterling Bank (demolished in November 1946), a fine specimen of Greek revival architecture,

built about 1852, Joseph Sheard (mayor 1871-72) being the architect, was worthy of a better fate. He also built in 1862 the Ontario Bank building at the north-east corner of Wellington and Scott Streets. It is still standing, a striking example of Italian architecture in which the stone work is highly ornamental and worthy of more than passing notice.

Other interesting, although less important buildings of Toronto's "medieval" period from the plans of Joseph Sheard are the Romain Buildings (Nos. 81 to 91 King Street West), built in 1856 for C. E. Romain at a cost of \$44,000, and at that time considered the most handsome business block in the City; a portion of the Queen's Hotel on Front Street, originally built in 1838 for private houses, then occupied by Knox College and successively known as Sword's and Riley's Hotel until acquired by the late Captain Dick in 1862. It was demolished in 1927 to make way for the Royal York Hotel.

It is said that a young Englishman, William Irving by name, who came to Toronto in the late 'fifties was associated with Mr. Sheard, and whose daughter he married, was responsible for much of the fine work in buildings attributed to Mr. Sheard. Mr. Irving was the architect of the former Dominion Bank Building (1878-1913) and the British America Assurance Co. at Front and Scott streets, now demolished.

The Old Great Western Railway Station at the foot of Yonge Street, (1866), designed by William G. Storm, and now used as a fruit market, is another link with the past, considered at the time of its erection to be a remarkable structure containing, as it did, the maximum of utility with a minimum of cost.

In addition to the residences mentioned in the foregoing paragraph, there are a few worthy of more than passing notice. Mr. F. W. Cumberland built for himself adjoining the University grounds a residence long known as "Pendarvis". After his death it was occupied successively by Major A. M. Cosby, Mr. W. D. Beardmore and, for a time (1912-15) used as the official residence of Ontario's Lieutenant-Governor, before eventually passing into the possession of the University and renamed Baldwin House. Another house built by him about the same time (1860) for his brother-in-law, Thomas Gibbs Ridout, cashier of the Bank of Upper Canada, was subsequently the residence of H. S. Howland, then of Senator Geo. A. Cox and is now a residence for the women employees of the Robert Simpson Co., with its original name, Sherbourne House (from the birthplace of the first Ridout in Sherborne, Dorset, England) restored to it.

No doubt there are many other buildings of interest to a greater or less degree, but enough instances have been given to show that the early residents of the city had visions of the future and endeavoured to the best of their means and ability to construct buildings of fitting dignity for the capital of Upper Canada.



## TORONTO BUILDINGS AND THEIR ARCHITECTS WITH DATES OF OPENING

- 1829—Parliament Buildings, Front Street West (vacated in 1893)—J. Young and J. G. Chewett, Architects.
- 1843—Trinity Church, King Street East (opened February 14, 1844)—Henry Bowyer Lane, Architect.
- 1843—Commercial Bank, 15 Wellington Street West (now Clarkson, Gordon and Company)—William Thomas, Architect.
- 1844—St. John's, York Mills (opened June 11, 1844)—John G. Howard, Architect.
- 1844—St. George's Church, John Street (opened November 9, 1845)—Henry Bowyer Lane, Architect.
- 1844—City Hall, Front Street East (demolished circa 1901)—Henry Bowyer Lane.
- 1846-9—Lunatic Asylum, Queen Street West—John G. Howard, Architect.  
Asylum Brick Fence—F. W. Cumberland, Architect.
- 1847—Church of the Holy Trinity, Trinity Square (opened October 27, 1847)—Henry Bowyer Lane, Architect.
- 1857—Church of the Holy Trinity, School Buildings at south-east corner of the church—William Hay, Architect.
- 1861—Church of the Holy Trinity Parsonage—William Hay, Architect.
- 1848—Knox's Church, Queen Street West, opposite James Street (demolished in 1906)—William Thomas, Architect.
- 1848—Oakham House, south-west corner Church and Gould Streets—William Thomas, Architect.
- 1848—House of Industry, Elm Street—J. G. Howard, Architect.
- 1848—United Presbyterian Church, south-east corner Bay and Richmond Streets (demolished 1886)—William Thomas, Architect.
- 1848—St. Michael's Cathedral and Palace, Bond and Church Streets (begun 1845—opened September 27, 1848)—William Thomas, Architect.  
Spire, 1866—Gundry and Langley, Architects.
- 1850—St. Lawrence Hall, King Street East—William Thomas, Architect.
- 1851—Normal and Model Schools, Gould Street (opened November 24, 1852)—F. W. Cumberland and Thomas Ridout, Architects.
- 1852—Court House, Adelaide Street East, east of Toronto Street—Cumberland and Storm, Architects.
- 1852—Trinity College, Queen Street West (opened January 15, 1852)—Kivas Tully, Architect.
- 1852—Cawthra House, north-east corner King and Bay Streets (demolished in 1946)—Joseph Sheard, Architect.
- 1853—St. James' Cathedral, King and Church Streets (cornerstone, November, 1850; opened June 19, 1853)—F. W. Cumberland and Thomas Ridout, Architects.  
Lower part of tower, 1865; steeple, 1874—Henry Langley, Architect.  
Interior alterations, removal of galleries, etc., 1889—Frank Darling, Architect.  
Chimes, December 24, 1865; clock, December 24, 1875.
- 1853—Seventh Post Office (now Bank of Canada), Toronto Street, west side—Cumberland and Storm, Architects.
- 1854—Unitarian Church, Jarvis Street—William Hay, Architect; burned, 1865; rebuilt, Gundry and Langley, Architects.
- 1854—Mechanics' Institute (old Public Library), north-east corner Church and Adelaide Streets (demolished 1949)—Cumberland and Storm, Architects.
- 1855—Toronto Exchange (now Imperial Bank), Wellington Street and Leader Lane (burned 1939 or 1940)—James Grand, Architect.
- 1854—House of Providence, Power Street—William Hay, Architect.
- 1854—General Hospital, Gerrard Street East (demolished 1920)—William Hay, Architect.
- 1855—Rossin House (Prince George Hotel), King and York Streets—William Kauffman, Architect.
- 1855—Catholic Apostolic Church (formerly Gould Street Presbyterian Church)—William Hay, Architect.  
Chancel added, 1900—Eden Smith, Architect.
- 1856—St. Michael's College and St. Basil's Church, St. Joseph Street—William Hay, Architect.  
South part of church and tower, 1887; spire, 1888.
- 1859—University of Toronto (begun 1856—opened October 4, 1859)—Cumberland and Storm, Architects.
- 1857—St. Stephen's Church, College Street (opened November 28, 1858; burnt 1865 and rebuilt)—Thomas Fuller, Architect; rebuilt by Gundry and Langley.
- 1865—St. Stephen's Rectory, Bellevue Avenue—Gundry and Langley, Architects.
- 1857—Osgoode Hall, central part and additions (east wing, 1827; west wing, 1840)—Cumberland and Storm, Architects.
- 1857—Masonic Hall, Toronto Street (old Canada Permanent Building)—William Kauffman, Architect.

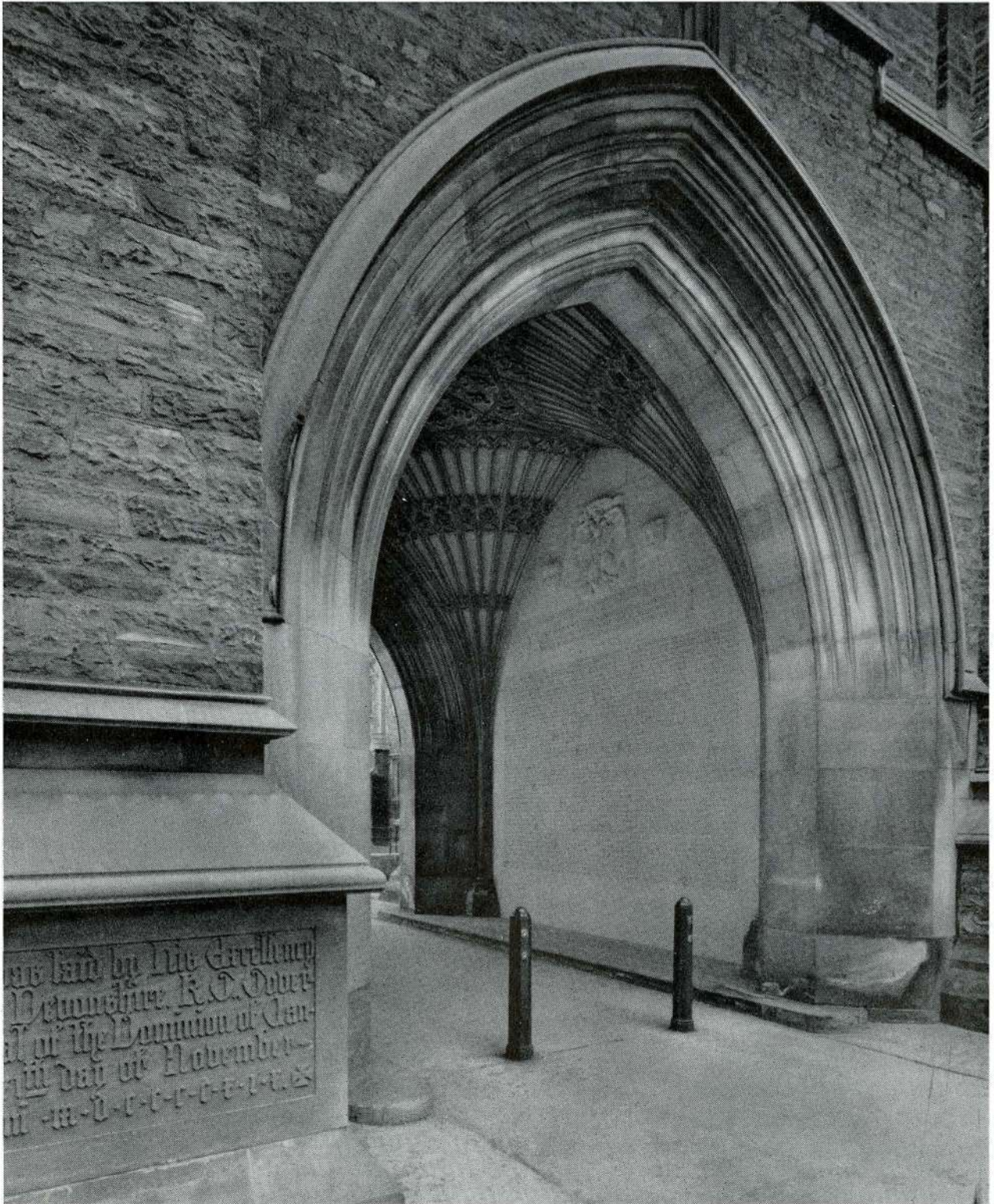


- 1857—Romain Building, King Street West — Joseph Sheard, Architect.
- 1857—Bank of Upper Canada, 1865-7, south-east corner Yonge and Colborne Streets (built for Ross Mitchell and Company, dry goods; now Crown Life Insurance Company)—William Thomas, Architect.
- 1858—Chapel of St. James-the-Less, St. James' Cemetery —Cumberland and Storm, Architects.  
(Grounds laid out by John G. Howard in 1845.)
- 1863—The Gaol, Gerrard Street East (begun 1858) — William Thomas, Architect.
- 1860—Yorkville Town Hall, Yonge Street, opposite Collier Street (burned November, 1941; demolished 1942)—William Hay, Architect.
- 1860—Sherbourne House, 439 Sherbourne Street (old part)—F. W. Cumberland, Architect.
- 1860—Baldwin House, formerly Cumberland House (Pendarvis), north-east corner College and St. George Streets—F. W. Cumberland, Architect.
- 1861—Royal Insurance Company Building, south-east corner Yonge and Wellington Streets — William Kauffman, Architect.
- 1862—Ontario Bank, north-east corner Scott and Wellington Streets — Joseph Sheard and William Irving, Architects.
- 1863—Bank of Toronto, north-west corner Church and Wellington Streets—William Kauffman, Architect.
- 1866—Great Western Railway Station, Yonge Street and Esplanade (Fruit Market)—W. G. Storm, Architect.
- 1866—Northern Railway Station, West Market Street and Esplanade—Gundry and Langley, Architects. Demolished.
- 1868—Government House, south-west corner King and Simcoe Streets—Gundry and Langley, Architects.
- 1860—St. Paul's, Bloor Street East (the small building) —G. K. and E. Radford.  
Additions and alterations in 1900—G. M. Miller, Architect.
- 1862—Elm Street Methodist Church (now vacated) — James Smith, Architect.  
Enlarged—Langley, Langley and Burke, Architects.
- 1865—St. Peter's Church, Carlton Street (opened June 10, 1866)—Gundry and Langley, Architects.
- 1866—Baptist Church, Alexander Street (now vacated) —Gundry and Langley, Architects.
- 1869—St. Patrick's Church (R.C.), William Street—Gundry and Langley, Architects.
- 1871—Berkeley Street Methodist Church — Smith and Gemmell, Architects.
- 1872—Metropolitan Church (burned 1928)—Henry Langley, Architect.  
Rebuilt and altered (re-opened December 15, 1929) —J. Gibb Morton, Architect.
- 1872—Sherbourne Street Methodist Church — Langley and Burke, Architects.  
Altered 1929—Wickson and Gregg, Architects.
- 1874—Jarvis Street Baptist, Jarvis and Gerrard Streets (opened December 2, 1875—burned 1938)—Gundry and Langley, Architects.
- 1874—Carlton Street Methodist Church, south side, near Yonge Street—W. G. Storm, Architect.
- 1874—All Saints' Church, Sherbourne and Dundas Streets (opened November 29, 1874)—R. C. Windeyer and Falloon, Architects.
- 1874—St. Matthias' Church, Bellwoods Avenue (opened January 4, 1874)—Frank Darling.
- 1875—(New) St. Andrew's Presbyterian Church, south-east corner King and Simcoe Streets (opened February 15, 1876)—William G. Storm, Architect.
- 1878-9—Church of the Redeemer, Bloor Street and Avenue Road (opened June 15, 1879)—James Smith and John Gemmell, Architects.
- 1878—St. James' Square Presbyterian Church, Gerrard Street East, north side, between Yonge and Church Streets—Smith and Gemmell, Architects.
- 1878—(Old) St. Andrew's Presbyterian Church, Carlton and Jarvis Streets—Langley, Langley and Burke, Architects.
- 1879—Erskine Presbyterian Church, Caer Howell Street (Elm Street, head of Simcoe Street)—E. J. Lennox, Architect. Demolished, 1949.
- 1879—Bond Street Congregational Church, Dundas Street East and Bond Street—E. J. Lennox, Architect.
- 1882—Zion Congregational Church, College and Elizabeth Streets—Smith and Gemmell, Architects.
- 1884—St. Andrew's Church (Anglican), Island — A. R. Denison, Architect.
- 1884—Our Lady of Lourdes (R.C.), Sherbourne Street (addition 1910)—F. C. Law, Architect.
- 1885-6—Bank of Montreal, Front and Yonge Streets—Frank Darling and S. G. Curry, Architects.
- 1886—St. Alban's Cathedral (Anglican), commenced — R. C. Windeyer and J. Falloon, Architects.  
1913—Plans revised by Ralph Adams Cram of New York; foundations of Nave commenced but never finished.
- 1887—St. Paul's Methodist Church (United), Avenue Road —Smith and Gemmell, Architects.
- 1888—St. Simon's Church (Anglican), Howard Street — Strickland and Symons, Architects.
- 1888—St. Mary Magdalene's Church (Anglican), corner Ulster Street and Manning Avenue, commenced —finished 1909—Frank Darling, Architect.
- 1889—St. Paul's Church (R.C.), Queen and Power Streets —Joseph Connolly, R.C.A., Architect.



- 1888—St. Augustine's Church (Anglican), Parliament and Spruce Streets (burned 1931)—R. C. Windeyer and John Falloon, Architects.
- 1889—St. Mary's Church (R.C.), Bathurst Street (spire by A. W. Holmes)—Joseph Connolly, Architect.
- 1889—Immanuel Baptist Church, Wellesley and Jarvis Streets—Smith and Gemmell, Architects.
- 1889—College Street Baptist Church, corner Palmerston Avenue—Langley and Burke, Architects.
- 1890—Church of the Messiah (Anglican), Avenue Road—Gordon and Helliwell, Architects.
- 1890—St. Matthew's Church, First Avenue—Strickland and Symons, Architects.
- 1891—Cooke's Church, Queen and Mutual Streets—Henry Simpson, Architect.
- 1891—Westminster Presbyterian Church, Bloor Street East (burned)—W. J. Gregg, Architect.  
Rebuilt 1922, altered by Sproatt and Rolph, Architects.
- 1892—St. John's Church (Anglican), Portland Street—Eden Smith, Architect.
- 1892—St. Thomas' Church (Anglican), Huron Street (opened January 19, 1893)—Eden Smith, Architect.
- 1893—Fred Victor Mission, south-east corner Jarvis and Queen Streets—E. J. Lennox.
- 1897—Holy Blossom Synagogue, Bond Street (now Greek Orthodox Church)—Benjamin Siddall, Architect.
- 1899—Avenue Road Presbyterian Church, corner Roxborough Street—Gordon and Helliwell, Architects.
- 1902—Church of the Holy Family, King Street and Close Avenue—A. W. Holmes, Architects.
- 1913—St. Paul's Church (Anglican), Bloor Street—E. J. Lennox, Architect.
- 1863—The Boys' Home, east side George Street—Gundry and Langley, Architects.
- 1871—National Life Assurance Company, south-east corner Adelaide and Toronto Streets, (erected for the Trust and Loan Company)—McDougall and (Frank) Darling, Architects.
- 1872-3—Old Post Office, Adelaide Street, head of Toronto Street—R. C. Windeyer, Architect.
- 1872—Grand Opera House, Adelaide St. W. (demolished)—Lalor and Martin, Architects.
- 1872—Armory and Drill Shed, West Market Street—Smith and Gemmell, Architects. (Demolished.)
- 1874—Consumers' Gas Company, Toronto Street—D. B. Dick, Architect.
- 1875—Knox College (old), Spadina Crescent (now Connaught Laboratories, University of Toronto)—Smith and Gemmell, Architects.
- 1876—Old Custom House, Front and Yonge Streets (demolished 1919)—R. C. Windeyer, Architect.
- 1878—Dominion Bank Building, King and Yonge Streets (demolished 1913)—William Irving, Architect.
- 1878—(cir.) Horticultural Pavilion, Allan Gardens, burned 1902)—Langley, Langley and Burke, Architects.
- 1881—McMaster College, Bloor Street West (now Economics Building, University of Toronto)—Langley, Langley and Burke, Architects.  
1900—Castle Memorial Hall added—Edmund Burke, Architect.
- 1883—Western Assurance Company, Wellington and Scott Streets—R. A. Waite, Architect, Buffalo.
- 1879—Home for Incurables, Dunn Avenue—Frank Darling, Architect.
- 1884—Manning Arcade, King Street—E. J. Lennox, Architect.
- 1883—Yonge Street Arcade—Charles A. Walton, Architect.
- 1885—Bank of British North America (now Imperial Bank), north-east corner Yonge and Wellington Streets—Henry Langley, Architect.
- 1886—Victoria Orange Hall, Queen Street East and Berti Street—E. J. Lennox, Architect.
- 1893—Parliament Buildings (commenced 1886—opened April 4, 1893)—R. A. Waite, Architect, Buffalo.
- 1890—Board of Trade Building (now T.T.C. Building), Front and Yonge Streets—James and James, Architects, New York.
- 1890—York Club (George Gooderham residence), Bloor and St. George Streets—David Roberts, Architect.
- 1892—Victoria College (main building)—William Storm, Architect.
- 1892—University of Toronto Library—D. B. Dick, Architect.
- 1893—Toronto Athletic Club (now Police Building), College Street—E. J. Lennox, Architect.
- 1895-7—Independent Order of Foresters Building, Bay and Richmond Streets—George W. Gouinlock, Architect.
- 1899—City Hall, Queen Street (commenced 1890)—E. J. Lennox, Architect.





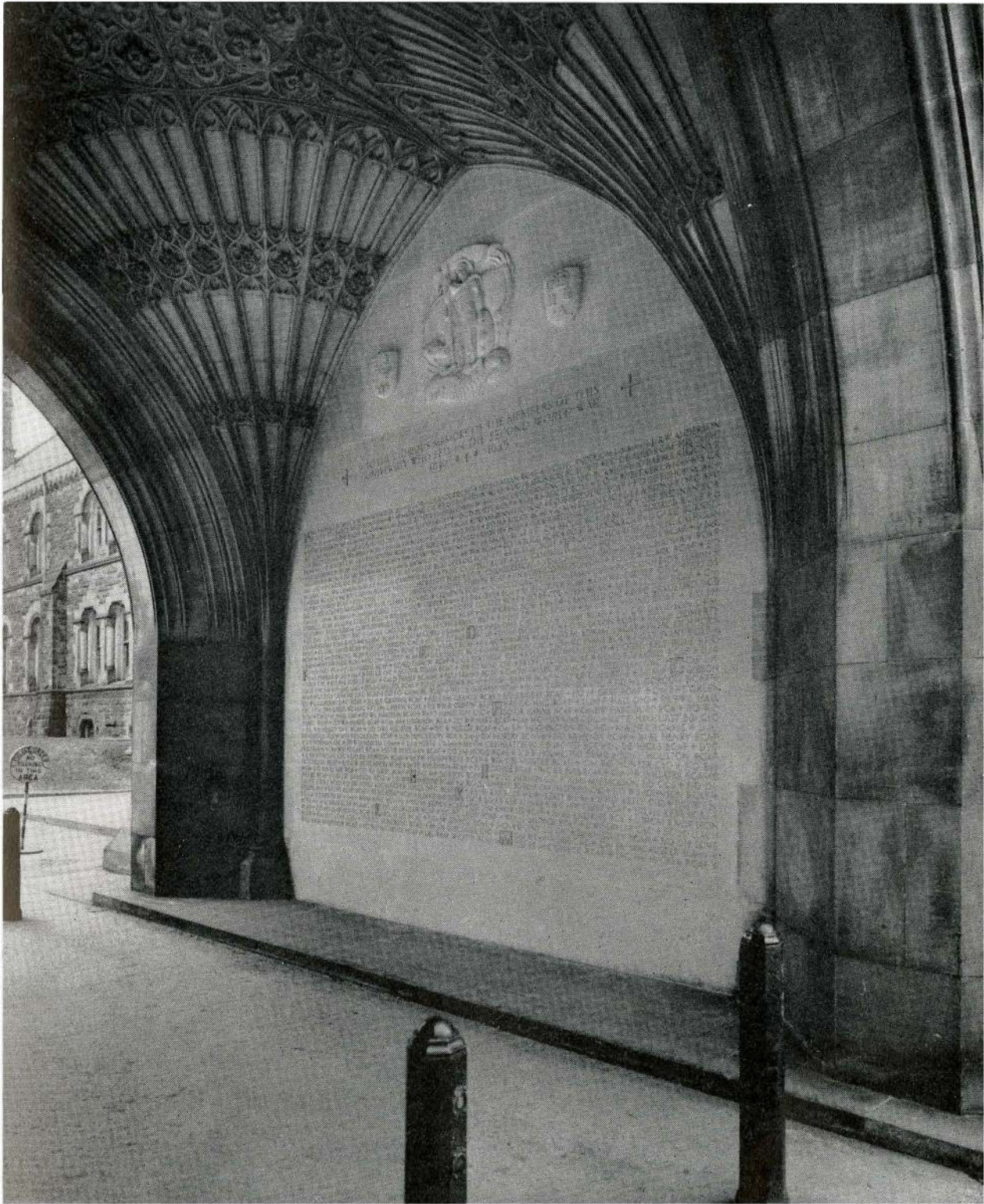
EAST PANEL

UNIVERSITY OF TORONTO MEMORIAL PANEL, SECOND WORLD WAR

MATHERS AND HALDENBY, ARCHITECTS

JACOBINE JONES, SCULPTRESS FOR MODELS





Photographs by Panda

WEST PANEL



THE BANK OF NOVA SCOTIA, WINDSOR, ONTARIO  
MATHERS AND HALDENBY, ARCHITECTS



Main Entrance — Emerald Pearl Granite and Stainless Steel



The Ouellette Avenue Facade at Night





**Counter and Book Lift. The Manager's Private Office is at the left of this view. All panelling is limed oak. The exhaust duct runs under the floor beneath the counter.**



**View taken at night looking towards the East Front on Ouellette Avenue.**





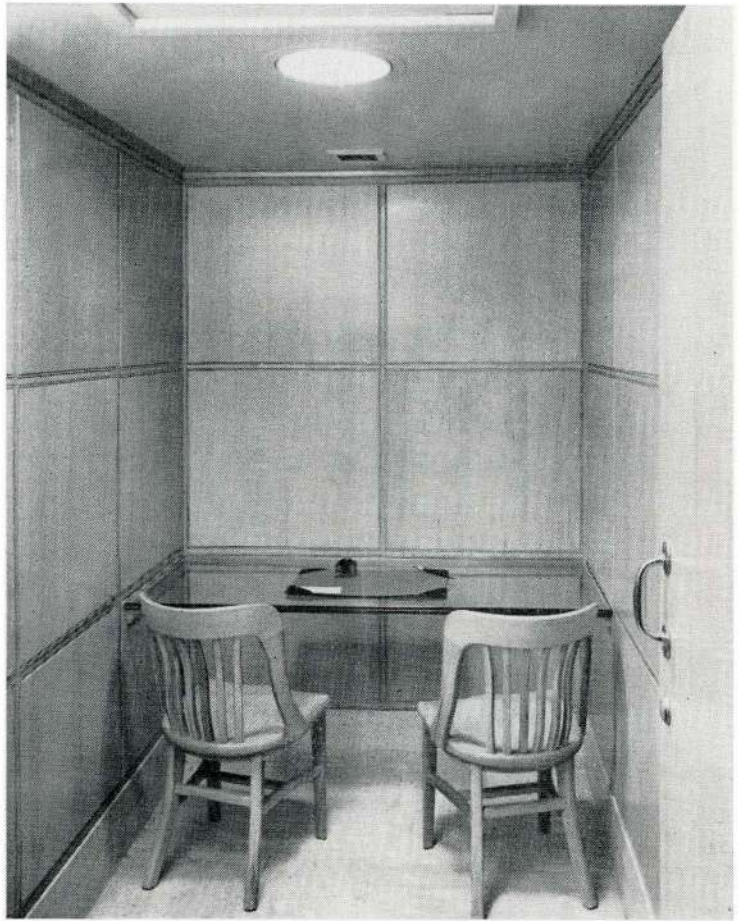
Detail of stair to Safety Deposit Department. Marble treads and risers. Stainless steel balustrade.

Photographs by Barney Gloster Studios

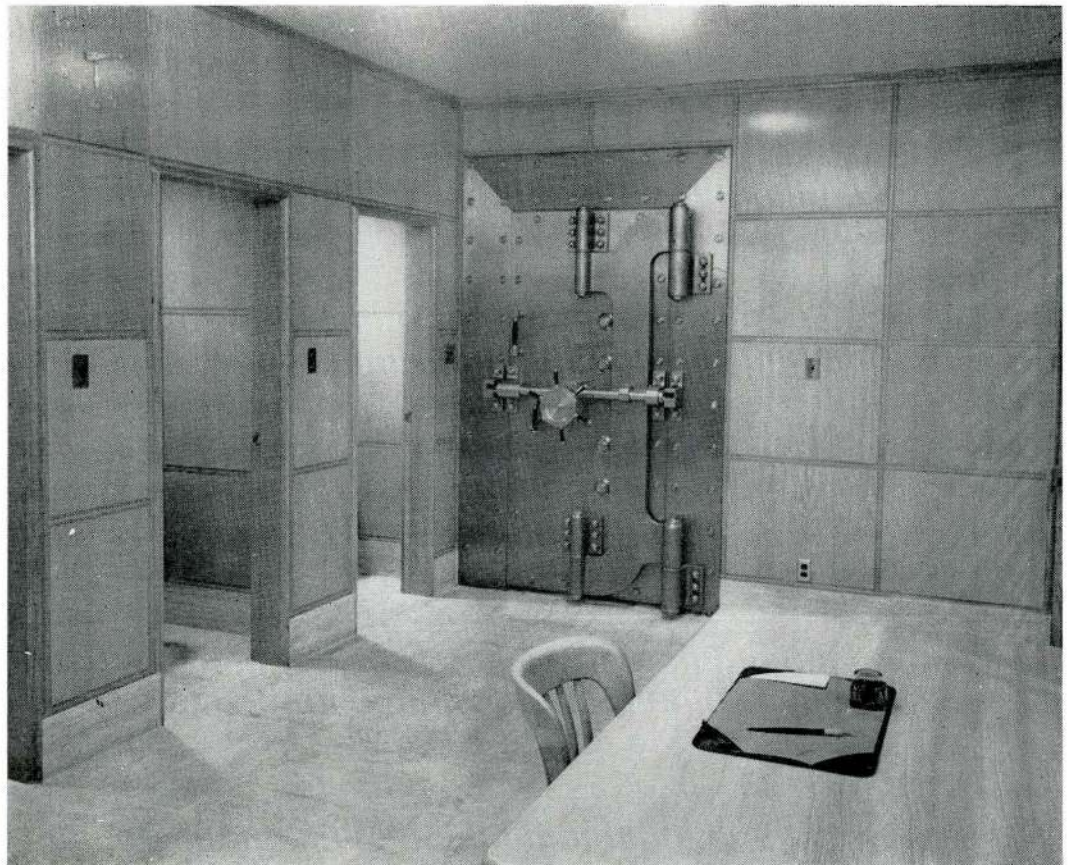


View showing Safety Deposit Grille and Coupon Booths.





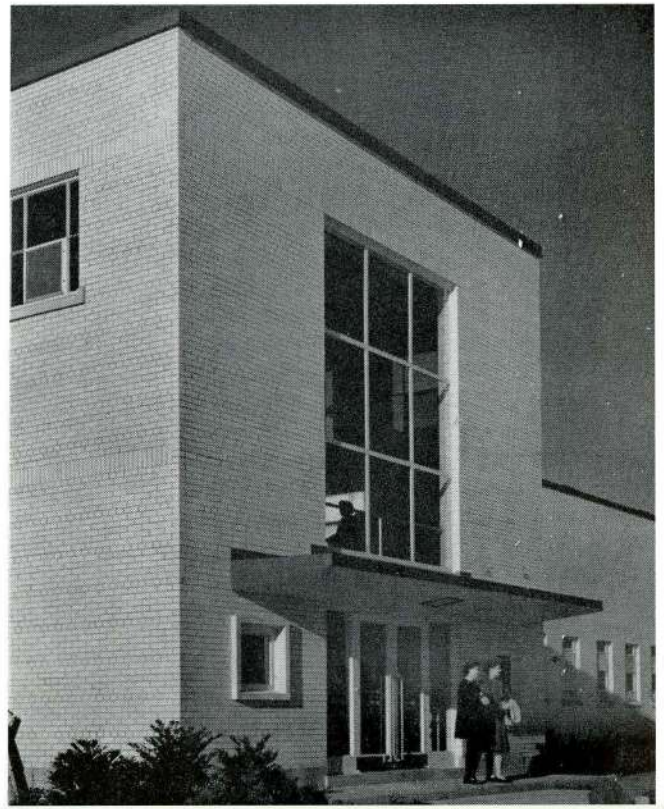
Coupon Booth



View of Safety Deposit Department showing vault door and coupon booths.



CHRISTIE BROWN AND COMPANY LIMITED  
NEW BAKERY, TORONTO  
MATHERS AND HALDENBY, ARCHITECTS



EMPLOYEES' ENTRANCE

VIEW LOOKING NORTH-WEST AT 1,500 FEET ELEVATION



Photograph  
by The  
Photographic  
Survey  
Corporation  
Limited





VIEW OF ROOF LOOKING EAST

VIEW LOOKING EAST, CEILING OF OVEN AREA





CHRISTIE BROWN AND COMPANY LIMITED  
NEW BAKERY, TORONTO



MAIN ENTRANCE STAIRWAY



EMPLOYEES' ENTRANCE STAIRWAY





ENTRANCE DETAIL

IMPERIAL OIL LIMITED, MONTREAL, QUEBEC

ROSS, PATTERSON, TOWNSEND AND HEUGHAN, ARCHITECTS AND ENGINEERS

Photographs by Fraser Films Limited





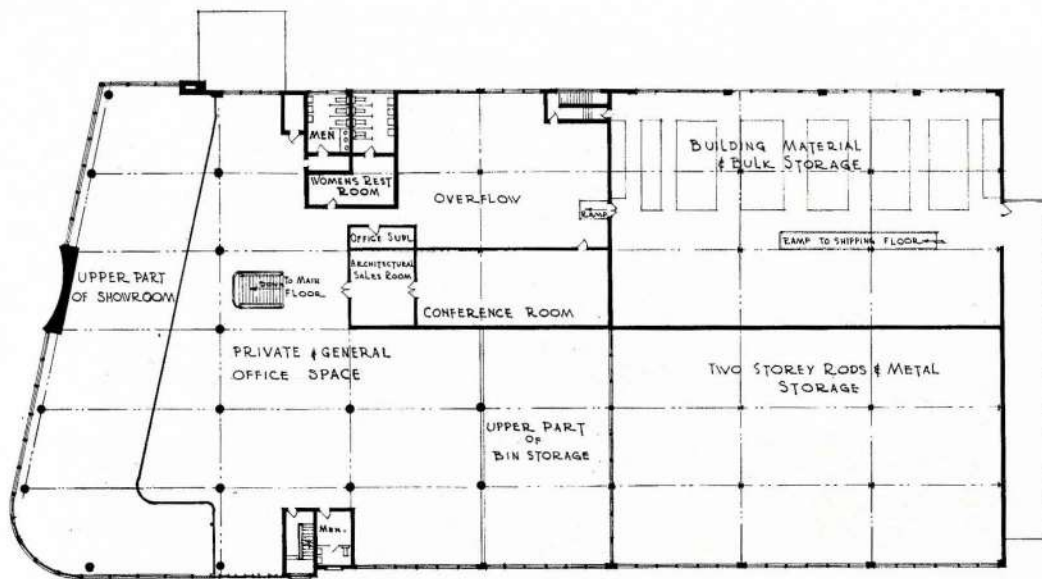


Photograph by Belair

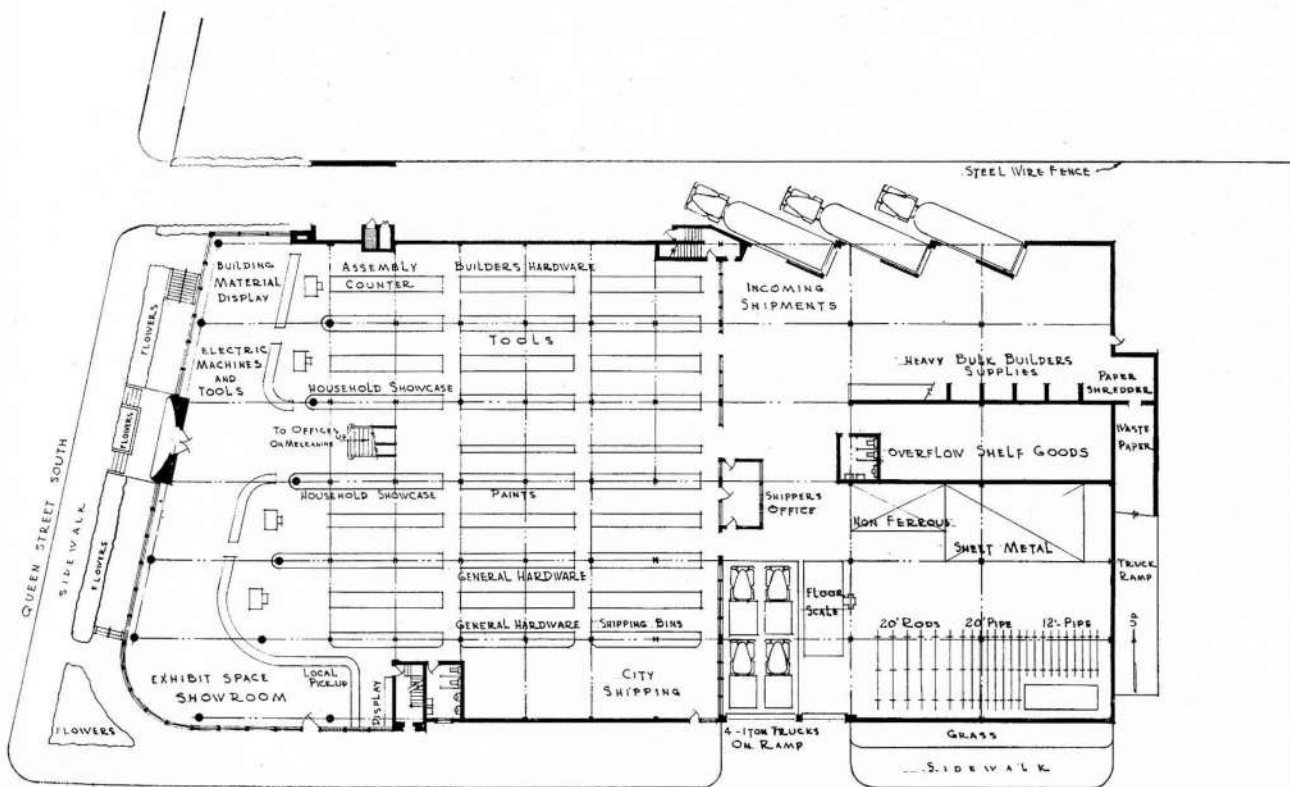
WEBER HARDWARE COMPANY LIMITED, KITCHENER, ONTARIO

JENKINS AND WRIGHT, ARCHITECTS





MEZZANINE FLOOR PLAN



SCALE: 1/16" = 1'-0"

GROUND FLOOR PLAN

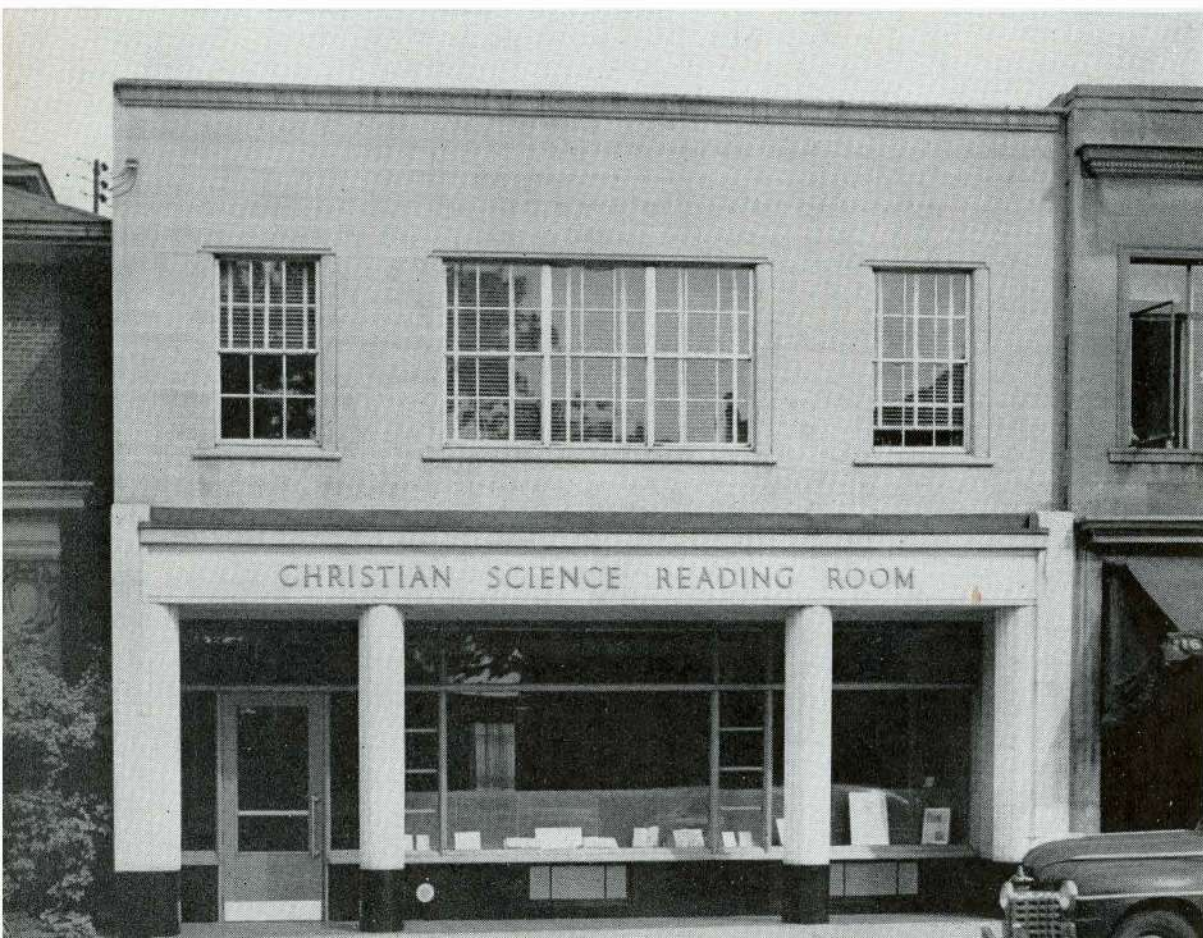




Photograph by Panda

DISPLAY ROOM

READING ROOM BUILDING, FIRST CHURCH OF CHRIST, SCIENTIST, TORONTO  
SPROATT AND ROLPH, ARCHITECTS





# TESTS SHOW PERMANENCE OF ALUMINUM ALLOY SHEET

By C. O. P. KLOTZ

CONSIDERATION of the use of aluminum alloy for roofing, siding or flashing purposes gives rise to two major questions: How long will it last in comparison with galvanized or copper sheets and how does it stand up in coastal areas.

These questions can be effectively answered in two ways: (1) Exposure tests; (2) Case histories of existing installations: This report provides answers both ways. The American Society for Testing Materials undertook in 1931 an extensive plan for exposure tests of a wide variety of non-ferrous metals and alloys at nine different locations typical of various industrial, marine and rural atmospheric conditions. The results after 10 years exposure were published in 1943 and 1944, and the test program is continuing. Similar tests have been and are being conducted by Aluminium Laboratories in England and by the Bureau of Standards, Washington, D.C., as well as by various of the major producers of aluminum.

There are available many case histories of outdoor aluminum installations, one of which dates back to 1884. Several of these are discussed here and may be used as a guide to the actual life expectancy of aluminum roofing in various climates and locations.

## Tests

On the following page is a comparative tabulation of some of the findings affecting pure copper, prime western zinc, commercially pure aluminum (2S) in half-hard temper, aluminum-manganese alloy (3S) and an Alclad sheet which in this case was aluminum-copper alloy (17S-T) clad with 99.7% pure aluminum.

Pure copper is generally regarded as being highly resistant to weathering despite its discolourations. Zinc, the coating on galvanized steel, is here included for comparative purposes; but it must be realized that zinc would be more rapidly attacked as a coating than in the form of sheet as here dealt with because the coating must sacrifice itself galvanically to protect the steel from rusting. The Alclad sheet is included to show the generally excellent nature of such sheets having thin coatings of aluminum or aluminum alloy that are anodic to the core sheet, i.e., coatings that are protective to the core sheet. Where the core itself has good weathering characteristics the results are particularly satisfying; and while the Alcladding has the same theoretical effect as zinc galvanizing on steel, the ultimate dissipation of the coating after many years of service will not expose a rusting core sheet of poor weathering characteristics. The Alcladding serves to reduce and spread the effects

of weathering smoothly and uniformly over the whole area of the sheet. It eliminates any spotty or pin-point attacks under severe atmospheric conditions. Beneath the cladding the core sheet remains as basic armour against the weather.

The type of aluminum roofing sheet developed for ribbing or corrugating is an Alclad product, while Alcan "Utility" sheet, used for seamed roofing and flashings, is of "working-up" quality for general purpose use in the sheet metal trades and is the equal of 2S and 3S in weathering resistance. Alcan 2S and Alcan 3S have been used for nearly half a century as roofing, siding and flashing materials, and are still being so used today because of their excellent record. It is worth observing that 3S alloy had its origin in a search years ago for a material from which to manufacture photographic equipment to withstand tropical marine exposure. Alcan 2S and 3S are generally considered of equal weather resistance; but Dix and Mears\* conclude from the A.S.T.M. tests commenced in 1931, and from their own world-wide tests commenced in 1928, that 3S is superior (slightly).

It is frequently suggested that coastal areas are very severe on aluminum. This is not true. The thought has its origin in the common knowledge that alternative materials such as galvanized steel, do deteriorate rapidly in such locations. Our tabulation clearly shows how well aluminum withstands coastal conditions. La Jolla, California, was the most severe exposure station and here the specimens were close to the water and subject to wave spray and salt-laden local fogs. Dix and Mears wisely emphasize: "Actually the location with respect to the ocean, the type of beach, and the surrounding topography as well as the direction of the prevailing winds all may exert as much, if not more, influence than the particular part of the country . . ." in discussing the regional rating of weathering conditions. For the sea-coast locations of Key West and Sandy Hook, where the specimens were subject only to sea air and not to frequent spray, the weathering effects were only a little more severe than at inland rural locations.

In our tabulation, the changes in tensile strength and the losses in weight show the extent to which the various metals and alloys were affected by the weather. It is

Dix, E. H. and Mears, R. B. The Resistance of Aluminum Base Alloys to Atmospheric Exposure. In, Symposium on Atmospheric Exposure Tests on Non-Ferrous Metals. American Society for Testing Materials, Philadelphia, 1946.



## TEN-YEAR WEATHERING TESTS ON VARIOUS METALS\* IN VARIOUS LOCATIONS

Data from report of Committee B3, Subcommittee VI, on Atmospheric Corrosion of Non-Ferrous Alloys, American Society for Testing Materials, Proceedings Vol. 43, 1943 and Vol. 44, 1944.

Material and Location with notes on Nature of Exposure	Description of Surfaces After 10 Years	Change in Weight 9" x 12" Specimens* Chemically Cleaned After 10 Yr. Exposure %	Changes in Tensile Strength, from Storage Specimens %**	Changes in Tensile Strength, from Original Strength %***
<b>Altoona, Pa., (heavy industrial)</b>				
Com. Copper (99.983% Cu.)	Scale: rough, black, sooty	- 2.80	- 6.8	- 10.9
Com. Zinc (prime w.)	Film: rough, dark gray	- 11.00	- 22.2	- 24.4
2S-½H Aluminum	Film: rough, black, sooty	- 1.17	- 7.0	- 4.7
3S-½H Aluminum Alloy	Film: rough, black, sooty	- 3.50	- 10.4	- 9.6
Alclad Aluminum Alloy	Film: smooth, black, sooty	- 1.53	- 1.9	0.0
<b>New York (industrial marine)</b>				
Com. Copper (99.983 Cu.)	Film: smooth, brown and gray	- 2.64	- 6.2	- 10.3
Com. Zinc (prime w.)	Film: rough, gray-white	- 11.10	- 20.7	- 22.9
2S-½H	Film: rough, gray metallic	- 1.83	- 6.3	- 3.4
3S-½H	Film: rough, gray metallic	- 2.34	- 6.2	- 5.3
Alclad	Film: smooth dark gray	- 1.37	- 1.9	+ 0.1
<b>Sandy Hook, N.J. (northern marine)</b>				
Com. Copper (99.983 Cu.)	Film: rough, mottled dark gray	- 1.47	- 3.4	- 7.6
Com. Zinc (prime w.)	Film: rough, gray	- 3.02	- 6.7	- 9.4
2S-½H	Tarnish: dark mottling, rough	- 0.13	- 3.1	- 0.1
3S-½H	Film: rough, mottled gray	- 0.30	- 3.0	- 2.1
Alclad	Film: smooth speckled light gray	- 0.33	- 4.6	- 2.7
<b>Key West, Fla. (tropical marine)</b>				
Com. Copper (99.983 Cu.)	Film: smooth, purple-green	- 1.13	- 1.8	- 6.1
Com. Zinc (prime w.)	Film: rough, dark gray	- 1.16	- 1.9	- 4.7
2S-½H	Tarnish: gray loose film	- 0.21	- 1.7	+ 1.4
3S-½H	Film: mottled gray on tarnish	- 0.20	- 0.5	+ 0.4
Alclad	Tarnish: gray, white specks	- 0.08	+ 0.6	+ 2.5
<b>La Jolla, Calif. (very severe marine)</b>				
Com. Copper (99.983 Cu.)	Scale: rough, brown-green	- 3.14	- 10.0	- 13.9
Com. Zinc (prime w.)	Film: rough, white, speckled	- 3.84	- 10.9	- 13.5
2S-½H	Scale: rough, white, loose	- 1.60	- 14.1	- 11.5
3S-½H	Scale: rough, white, loose	- 1.32	- 7.6	- 6.7
Alclad	Tarnish: gray, loose white specks	- 0.94	- 2.0	- 0.1
<b>Phoenix, Ariz. (dry rural)</b>				
Com. Copper (99.983 Cu.)	Film: smooth, purple-brown	- 0.22	- 0.8	- 5.2
Com. Zinc (prime w.)	Film: smooth, dark gray	- 0.54	- 1.9	- 4.7
2S-½H	Tarnish: bright, white specks	- 0.006	- 1.7	+ 1.3
3S-½H	Tarnish: smooth light gray	- 0.006	+ 0.9	+ 1.9
Alclad	Tarnish: smooth light gray	- 0.006	- 1.1	+ 0.9
<b>State College, Pa., (northern rural)</b>				
Com. Copper (99.983 Cu.)	Film: smooth, green-black	- 1.29	- 4.2	- 8.4
Com. Zinc (prime w.)	Film: smooth, dark gray	- 2.18	- 6.0	- 8.7
2S-½H	Tarnish: smooth, white specks	- 0.072	+ 0.1	+ 3.2
3S-½H	Tarnish: smooth, light gray	- 0.057	- 0.3	+ 0.6
Alclad	Tarnish: smooth, light gray	- 0.059	- 0.6	+ 1.3
<b>LABORATORY STORAGE SPECIMENS (AIR TIGHT)</b>		<b>Original Tensile Strength P.S.I.</b>	<b>Change in Tensile Strength after 10 Yrs. %</b>	
Com. Copper (99.983 Cu.)		35,200	- 4.4	
Com. Zinc (prime w.)		29,940	- 2.9	
2S-½H		16,410	+ 3.0	
3S-½H		20,450	+ 0.9	
Alclad		58,790	+ 1.9	

\*All specimens approx. 0.035" thick.

\*\*Exposed as machined tension specimens and compared with specimens stored 10 years in air tight laboratory containers.

\*\*\*Exposed as machined tension specimens.



important to note that all the laboratory specimens of aluminum increased in strength with age while those of copper and zinc decreased; hence the second column comparison of weathered specimens with 10-year laboratory specimens puts an unbalanced burden on the aluminum which can best be interpreted by the third column in which comparisons with original strength are made.

Another general conclusion which may be made from the weathering tests, and which experience has proven, is that the initial rate of attack, no matter how small, diminishes rapidly after the first year or two, i.e., the attack vaccinates itself.

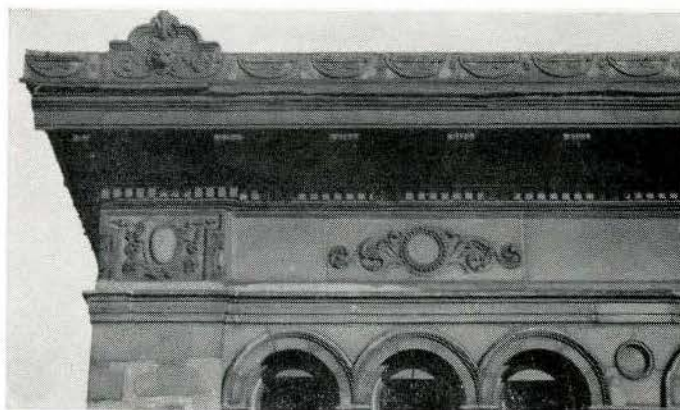
Finally, it is wise to keep in mind that the smaller percentages in our tabulation are frequently within the range of experimental error where a practical conclusion of "no weathering effect" would be rational. Actually, this conclusion would apply to the alclad specimens and to most of the 2S and 3S specimens too.

Mr. Willard Mutchler, Metallurgist, National Bureau of Standards, Washington, D.C., reported to the A.S.T.M. that exposure tests by the Bureau at Washington, at Hampton Roads, Va., and at Coco Solo, Canal Zone, were in close agreement with A.S.T.M. tests, and with the conclusions and comments outlined above.

Aluminium Laboratories Limited of Banbury, England, recently reported on the results of ten-year weathering tests carried out by them. The exposure station was in a semi-rural area adjacent to a railway and a smelting plant; and it is pointed out that the English atmosphere generally, even in rural areas, is unkind to most metals. Once again it was found that 2S and 3S and Alclad sheets showed extremely small losses in mechanical properties over ten years. In fact, the elongation (workability) values which are often severely reduced by the corrosion of any metal showed no appreciable change; hence it is quite possible that the recorded small losses in tensile strength were not even real, but rather within the range of experimental averages. In the case of 3S, for example, there was no loss recorded after the first seven months. None of the 2S, 3S or Alclad specimens showed any visual sign of appreciable attack after ten years, just soot and dirt on the surface. An Alclad specimen after cleaning with soap and water showed good reflectivity. The maximum depth of any pit on the 3S sheet was 0.003", which means that had this pitting continued at the same rate, it would have required seventy years to penetrate a roofing sheet of 0.020" thickness. Once again, however, it was found that the rate diminishes rapidly after the first year or two, and hence it may be concluded that the sheet would be between 100 and 200 years old rather than 70 years before any pit or pin hole had actually pierced the sheet.

#### Case Histories

The histories of several aluminum installations will corroborate the evidence of the weathering tests carefully conducted by the A.S.T.M. and by the Bureau of Standards in Washington.



Cornice — Canada Life Building, Montreal.  
Erected 1896, removed 1948.



Cornice — Canadian National Railways Building, Montreal. Erected 1901.

A cast pyramid of 97.9% aluminum, weighing six pounds, was put on the Washington Monument in 1884 (the commercial process of electro-smelting aluminum was developed in 1886) and after over a half century was found to be in excellent condition, covered by a dull thin uniform oxide coating that was easily removed by light rubbing with emery cloth.

In 1898, the domes of St. James Church in Rome were roofed with aluminum sheet 0.05 inches thick. In 1938, when closely examined, the surface of the sheet was found to have become rough and gray with a tight adherent film of oxide and dirt. Pitting to a maximum depth of under 0.005 inches was observed, corresponding to an average rate of about 1/10,000 of an inch per year. The sheet was of an impure 2S type containing 98.3% pure aluminum. Any of the sheet alloys used for roofing and flashing today would have been superior. It may be observed that the above rate of maximum pit penetration would require 200 years to penetrate a sheet of the 0.020" thickness commonly used today for barns.

Canada boasts two very early installations in the form of pressed and beaten cornices of aluminum sheet. Both are in Montreal, one installed in 1896 on the Canada

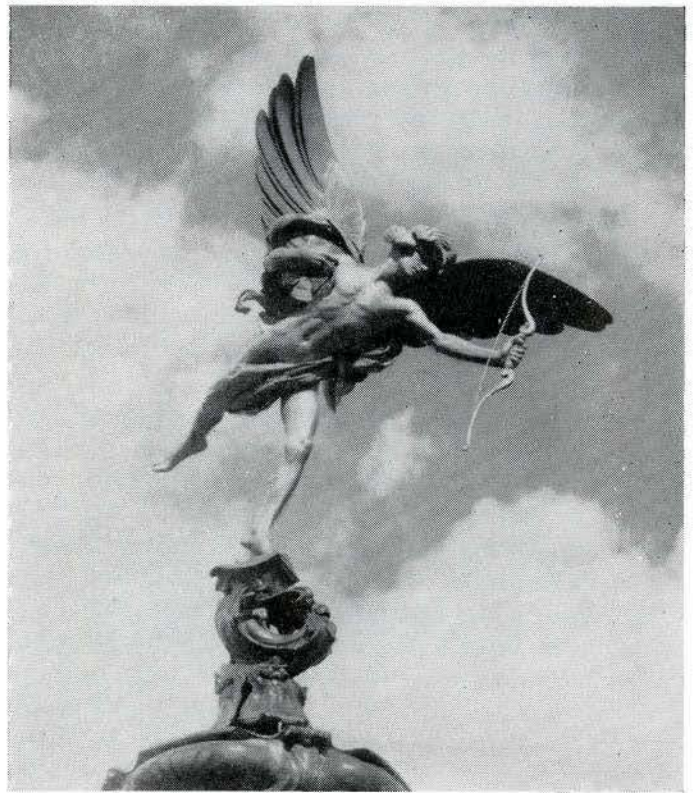


Life Building on St. James Street, the other in 1901 on the Canadian National Railways building on McGill Street. The latter may be seen today. Specimens from the former, removed during renovation of the building in 1948, had previously been closely examined. The sheet employed was about 0.030" thick and was of 98.4% purity, being an impure 2S type of alloy. The maximum depth of pitting, observed under a microscope was 0.006" which is equivalent to about 0.00012" per year. Again it should be pointed out that tests have shown this average rate to consist of a relatively rapid initial increment followed by decidedly decreased increments after the first few years. These buildings are located in the downtown commercial area, densely built up and not far from the harbour. The air here is heavily contaminated with soot and smoke. The surface of the specimens had become rough, acquiring a dark gray to blackish weather-beaten appearance resembling weathered limestone. This rough coating of grime when lightly rubbed with emery cloth revealed a surface of gray oxide which was easily removed with further light abrasion to show the shiny aluminum beneath.

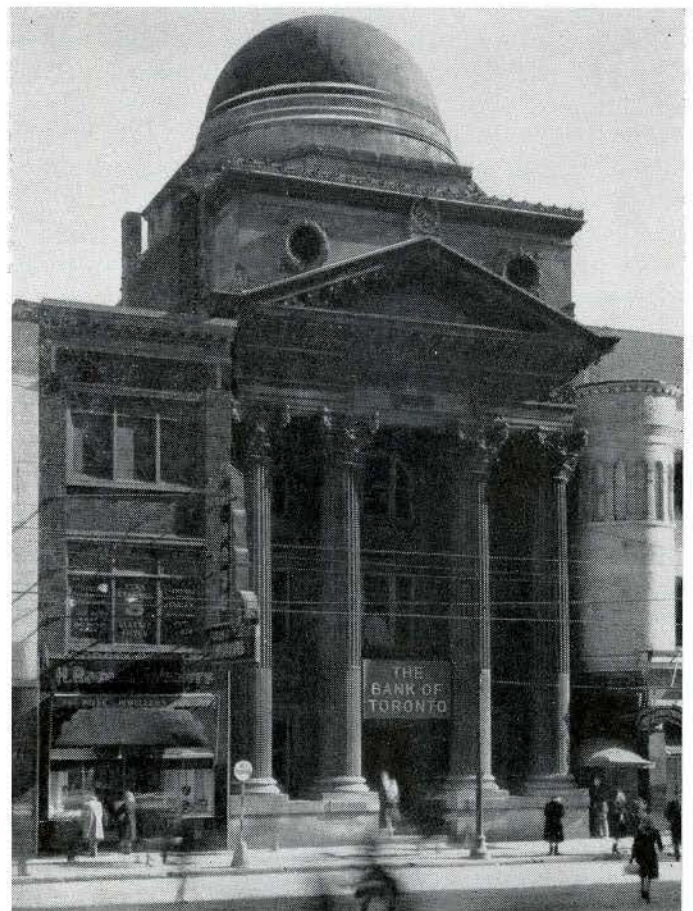
When the Canada Life cornice was removed, portions of it from the soffits or undersides were found to have become more weathered than where exposed to the full beat of the weather. This effect is well known on all metals and other materials where so located that dust and dirt may accumulate and cling to surfaces on which dew or condensation can form without being dried by the sun or washed by the rain. A dirt poultice is thus developed which, being moist frequently and for extended periods, tends to promote more rapid weathering. Thousands of pigeons nesting in the cornice for half a century had resulted in an interior accumulation that must also have contributed to the severity of the weathering conditions. Finally, it was observed that much of the metal had been beaten thin, drawn and worked to develop ornate designs, even to the extent of causing many splits which had been ingeniously patched. Such abuse does not contribute to the life expectancy of any metal. The Canada Life Building cornice, large in size and typical of the Victorian era of massive cornices minutely detailed and tooled, is now dead and buried to make way for modern lines. Although functionally useless, its life will be remembered as a monument to the modern metal. It gave good service.

In the case of the Canadian National Railways building, the metal was again of an impure 2S type. The appearance of the weathered material is today similar to that described above, dark gray, rough, resembling stone; and the maximum depth of the weathering was somewhat less, corresponding to an estimated annual penetration rate of 0.00010" per year.

In London, England, there was erected in Piccadilly Circus in 1893, the so-called Statue of Eros, a memorial to Lord Shaftesbury by Alfred Gilbert, R.A. Cast in aluminum of 2S composition, it was closely examined



Eros, Piccadilly Circus, London. This cast aluminum statue was erected in 1893, taken down during World War II for safety, and cleaned and replaced at the end of hostilities.



Dome - Bank of Toronto Building, Toronto. Covered with aluminum sheet in 1907.



and reported upon in 1936 when it was found to have accumulated a layer of soot and grime and weathering products nearly 1/16 of an inch thick; but beneath this there was no deep-seated corrosion of any kind. During the recent war the statue was taken down, and prior to its recent re-erection it was cleaned and examined in minute detail. It was in excellent condition; and it is of interest to note that inserts and fasteners of lead, bronze and copper had been employed in its casting and erection, without visible harm to the aluminum, or evidence of galvanic action. London's smoke and fog, described as "biting" even when Eros was first erected, had had little effect.

In Toronto in 1907, the dome of the old Bank of Toronto Building at 205 Yonge Street was covered with flat locked sheets of aluminum about 12 x 30 inches in size. Now almost black from over 40 years' accumulation of dirt, there is no sign of corrosion when this dirt is rubbed off; and as far as is known there has been no maintenance.

In Charlottetown, P.E.I., aluminum sheet copings were used on a high school erected in 1932. An inspection report in 1946 reads:

"The whole has taken on a medium grayish colour but there is no evidence of localized corrosion or marked pittings . . . the installation is an excellent sample of sheet metal workmanship and should remain sound for an indefinite period."

This is typical of exposure in maritime areas. The sheet was 3S alloy.

When the National Research Council Laboratories were built in Ottawa in 1932, aluminum copings, flashings and ventilators were used. Today they show no sign of corrosion. Again, when the Aeronautical Laboratories of the National Research Council were commenced near Ottawa in 1938, 2S-1/2H aluminum copings and flashings were used. In the latter case the location is rural and the sheet has scarcely become dull; in the former case, paper mill fumes and local heating-plant smoke affect the building.

In Arvida, Quebec, in 1926, 271 houses were built. The roofs were flashed with 3S aluminum sheet including valleys and chimney flashings. On several houses aluminum shingles were employed. All flashings and shingles are in good shape today, despite the rather severe climatic conditions. Maintenance work has been nil. When several chimneys were recently rebuilt the existing aluminum flashings were re-installed. In 1946, a small church built at the same time and roofed with 3S aluminum shingles was burned. Shingles retrieved after the fire were smooth and gray on the exposed side, still mirror bright beneath where not blackened with smoke. The various types of roofing products used at Arvida, other than aluminum, have required considerable maintenance and renewals; and complete renewals of some of the fireproof, non-metallic, shingled roofs will have to be made very soon.

Amongst many other aluminum applications at Arvida, there stands out a battery of large ventilators on the ridge of a plant building erected in 1926. Frequently subject to fumes from adjacent operations such as caustic digestion, carbon baking and aluminum smelting, these ventilators are in excellent condition, somewhat grayed only.

On the Canadian National Railways terminal roundhouse in Toronto, thirty-four smoke jacks, installed in 1929, do not yet show any pronounced ill effects although coated now with carbonaceous and sulphurous accumulations from engine smoke that would have quickly damaged and eaten away other metals commonly used for such purposes. Here is an excellent example of the resistance of aluminum to dense industrial atmospheres.

When the tall skyscrapers of New York are built, materials must be selected with care to avoid maintenance or replacements, particularly on the uppermost, least accessible portions. Outstanding are the towers of the Empire State Building completed in 1930 and the Chrysler Building in 1929 where aluminum sheet was extensively used for decorative and facing purposes. On the latter the parapets of the several setbacks were coped with aluminum while on both, aluminum was extensively used for spandrels and window sills. Sixty Wall Tower Building (Cities Service Building) of 1931 is another of the taller New York skyscrapers where aluminum sheet has been used to guard the tower storeys against the ravages of sea air and city smoke. Sixty Wall Tower also has double-hung aluminum windows, 2746 of them. The aluminum applications are in excellent condition. An extract from a 1947 inspection of Sixty Wall Tower reads:

"At the observation floor of the tower, all interior aluminum trim including the elevator encasement is in good shape. Outside on balcony, south side, the sheathing sheet is smooth, light gray, free of corrosion. On the north side balcony, overlooking the steam station stack, the aluminum sheet is medium gray, slightly rough, free of corrosion attack."

The stack referred to is that of the New York City Steam Corporation close by, which spews smoke and heavy soot over Sixty Wall Tower, particularly the north and east elevations. One can scarcely find more convincing evidence of the weathering qualities of aluminum exposed to seacoast air and fogs, where a severe climatic range subject to rapid changes accompanied by an unusual density of smoke with accumulations of soot and fly ash produces extraordinarily severe exposure conditions.

#### Notes on Galvanized Steel Sheet

In a report entitled *Metallic Roofing for Low Cost House Construction* (B.M.S.49) prepared in 1940 by the National Bureau of Standards, U.S.A., there is summarized a test program initiated by the A.S.T.M. in 1926 to evaluate the weathering of hot-dip galvanized iron and



steel sheets. If we conclude that the life of a galvanized sheet is equal to the life of the coating plus the time for perforation of the base sheet, admitting of course that the sheet may become entirely rust coated and unsatisfactory before being perforated, then Table 2 and the following graphs will give a good idea of the life expectancy of such sheet under various climatic conditions.

It will be observed that the weight or thickness of zinc coating is all important from the weathering angle. Commercially such coatings are applied in weights from 2.75 oz. per sq. ft. down to 1.25 and lighter, these weights including both sides of the sheet. The average purchaser of galvanized sheet for roofing purposes has become accustomed to buying by gauge, taking whatever weight of coating the market commonly offers which is ordinarily no heavier than a nominal 1.25 oz. per sq. ft.; yet it is apparent from the graphs that the heaviest coating available is none too good. Coatings of nominal 1.25 oz. weight may be actually as low as 0.80 oz. per sq. ft. on spot testing, by specification.

The weight of coating, however, is limited on practical grounds by the amount of forming to be done. The A.S.T.M. & U.S. Federal Specifications set up five classes of galvanized sheet:

Class A – Extra heavily coated, intended for no forming beyond corrugating, carrying 2.50 to 2.75 oz. per sq. ft.

Class B – Heavily coated, intended for no forming beyond corrugating and curving to large radii, carrying coatings varying from 1.25 to 2.5 oz. depending on gauge of sheet.

Class C – Moderately heavily coated, intended for moderate bending, carrying coatings varying from 1.25 to 2.00 oz. depending on gauge of sheet.

Class D – Ordinary coating, for general utility use, carrying coatings not specified or guaranteed but lighter than Class C, particularly in the heavier gauges. Not intended for long life. This is the class generally found in warehouses.

Class E – Light, tightly adherent coating for severe forming. No coatings specified.

The Bureau of Standards, in summarizing, say:

"In applying the data assembled here to the durability of galvanized roofing sheets, it should be borne in mind that the American Society for Testing Materials tests cover only isolated corrugated sheets and furnish no data concerning the relative life of the metal at laps, locks, fasteners and covered places such as occur in all roofs. It is quite possible that the life at these locations may be less than on the central portions of the sheet. Galvanized sheets are also subject to deterioration if condensation occurs in storage, and some cases of premature failure of galvanized roofs may be attributed to the fact that the zinc coating was damaged prior to erection on the roof."

The remarks of the Portland Cement Association in their Bulletin No. ST-8 of 1944 are also worth noting:

"Zinc (the coating on galvanized sheet) is attacked by solutions of caustic alkalies such as calcium hydroxide and is, therefore, attacked by green concrete and mortar . . . If it is desirable to avoid all action between the calcium hydroxide and the zinc, the metal should be coated with asphalt, varnish or pitch. Corrosion of zinc will occur also where the metal comes in contact with wet unseasoned concrete and since some of the corrosion products may be removed by abrasion, rain or other causes, pitting of the surface may result. The metal should be protected under such conditions."

It thus appears that zinc or galvanized sheets require protection from strongly alkaline materials such as concrete and mortar, just as aluminum does. The same is also true of lead. Of course, such protection is only required when the concrete or mortar is wet and green, or when it stays damp or becomes damp frequently after having set. The initial effect of freshly placed concrete or mortar is not sufficient to cause trouble if the concrete or mortar dries out and stays dry. Only the slightest superficial etching in the case of aluminum will have occurred, if anything; and even this is retarded by thin films of oil which may be present on the sheet. The frequent development of condensation on the under side of any metal in contact with concrete, mortar, or even wood, can cause trouble and should be guarded against.



TABLE 2

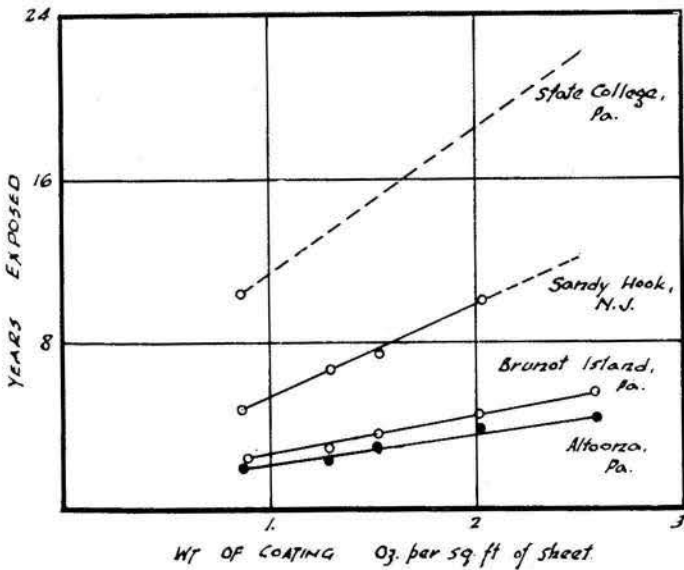
(Average of results obtained on open hearth iron & steel.)

TYPE OF MATERIAL	BRUNOT ISLAND, PITTSBURGH, PA.	ALTOONA, PA.	KEY WEST, FLA.	SANDY HOOK, N.J.	STATE COLLEGE, PA.
WITHOUT COPPER	2.2	3.2	3.1	4.4	(a)
WITH COPPER	9.0	8.5	4.4	6.4	(b)

a- No perforations after 11½ years exposure.

Time, in Years, for Perforation by Rusting of 22-Gauge Black Sheets Exposed continuously to the Weather.

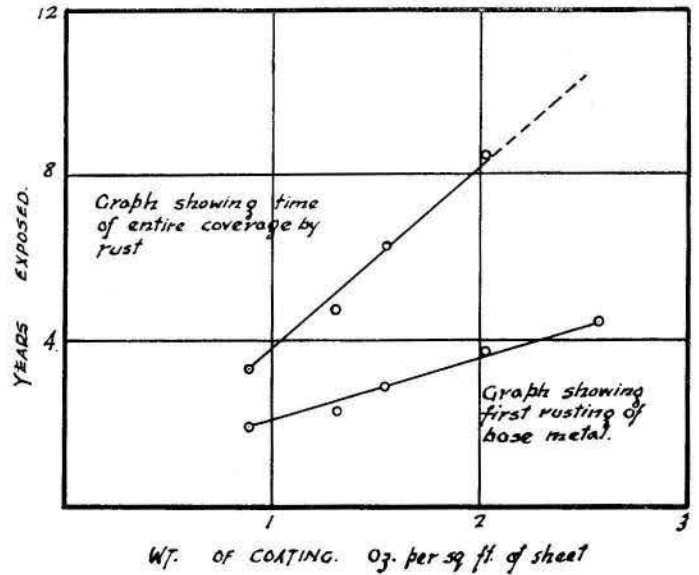
FIGURE 1



Relationship between Weight of Zinc Coating and Time at which Rust first appears on Surface of Galvanized Sheets exposed by the American Society for Testing Materials at four locations. Dotted lines indicate probable course of the curves.

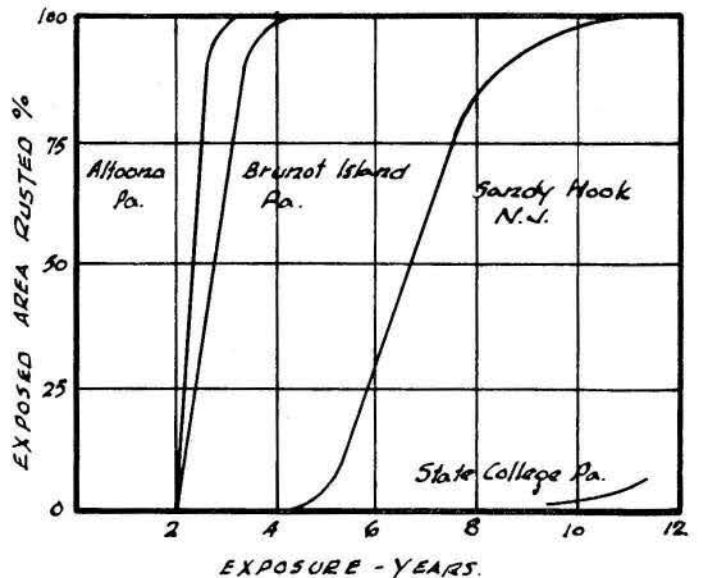
Source of graphs: "Metallic Roofing for low cost housing construction, May 7, 1940", National Bureau of Standards, U.S. Department of Commerce.

FIGURE 2



Manner in which Rusting proceeds on Galvanized Sheets exposed by the American Society for Testing Materials at Altoona, Pa. (heavily industrial atmosphere).

FIGURE 3



Development of Rust on Surface of ¾-oz. Galvanized Sheets exposed by the American Society for Testing Materials at four locations.





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# NEWS FROM THE INSTITUTE

## ALBERTA

The enthusiastic mind of the typical western Canadian has the effect upon him that he seems to himself to be living, not amongst the conditions that actually surround him but in such as his imagination pictures that they shall be at any time from one to twenty years or more hence. In some cases these dream pictures prove to be totally beyond the mark, but, in others, they may be far exceeded by the reality. One day he learns that a great new hotel is about to be built, probably by an eastern syndicate. It will be finished in a year and a half from now. He sees it so plainly that he will apply for rooms in it. When the time comes at which the expected rooms will be ready for occupation, the dream may have dissolved. On the other hand, he may be enthusiastic about the rapid increase of population, business, etc., when some fine morning a rash of oil wells breaks out in the neighbourhood and all his calculations are left far below the mark.

Since Edmonton claims to be a fairly typical western city, it is interesting to make some comparisons between anticipations and realizations. In 1931 when the late Mr. J. D. Tanquerey was engaged as town planner to the city, the population was, by statistics, 75,000 and he considered that the largest that it would be well to look forward to would be 150,000. At the present day, although in popular estimation it is 150,000, the cold statistics say 137,469. I do not know at what figure the recently appointed town planner is setting his sights, but it will require to be much above the earlier target.

The rapidly changing view gives rise to much loose use of figures; it may be well to keep the realities in view. The following are some statistical figures, straight from the horse's mouth (so to speak). The building permits taken out in Edmonton in 1949 amount to a total value of \$40,050,063, classified as: Commercial, \$11,952,694; Institutional, \$5,564,883; Residential, \$21,698,688; Miscellaneous, \$833,798. It may be noted with some satisfaction that the residential work is more than half the total. These figures probably represent the case fairly closely, for although the estimated costs will in some cases be exceeded, in others work may be delayed. The total of \$40,050,063 for 1949 compares with \$21,881,928 for 1948 and with \$5,670,185 for 1929.

Amongst the larger buildings for which permits were issued in 1949 are:—

Schools .....	\$2,408,380
Goodyear Tire and Rubber .....	232,628
E. I. Clark (store).....	265,000
Canadian National Railways (freight sheds) ..	512,000
Edmonton Exhibition (grandstand).....	500,000

Singer Sewing Machine Company.....	238,000
Northern Hardware (repairs).....	275,000
Burns Packing Plant (addition).....	225,000
Gaults Warehouse .....	460,000
Aberhart Memorial Hospital .....	1,459,332
Gardner Hotel (south side).....	300,000

Cecil S. Burgess

## ONTARIO

Diamond Jubilees being notable events, the Ontario Association of Architects in its 1950 Convention and Annual Meeting, gave fitting recognition to the fact that the Association has now sixty years of history. Its history, like all history, shows the pressure of different groups, and the impact of personalities. The checkered history of the Association and its consistent struggle for registration, culminating in the passing of the Architects' Act, 1935, by the Ontario Legislature are chronicled in a book written by Mr. Raymond W. G. Card, M.R.A.I.C. Copies of this book were distributed by those attending the Diamond Jubilee Dinner, held in the Royal York Hotel, which is built on the site of the former Queen's Hotel, where the inaugural dinner of the Association had been held sixty years previously. The 1950 gathering was large, including many distinguished guests, and was addressed by The Honourable Sir Alexander Clutterbuck, K.C.M.G., M.C., the High Commissioner for the United Kingdom in Canada, a speech that will no doubt still be found of very considerable interest, in view of present world conditions, when the O.A.A. celebrates its centennial.

Ontario architects have helped to provide commodious and beautiful factories, where manufacturers have been able to streamline production; school building in this province has been revolutionized in the past decade, but housing lags far behind that found in many parts of the world. Feeling that the spotlight of architectural interest should now be turned in the direction of Public Housing, the Committee of Arrangements under the able and genial chairmanship of Mr. G. D. Gibson, provided seminars on this currently vital topic, with a tour of the Regent Park Housing Development, conducted by Architect Hoare. Outstanding speakers brought excellent papers on Social Aspects, Economic Aspects, Government Participation and the actual Physical Planning of such projects. There is no doubt that the housing field opens up an avenue of humanitarian service and architectural opportunity that must not be missed. Of the Pilgrim Fathers who founded the charming New England towns, Edward Everett Hale has written:



No blaring trumpets sounded out his fame,  
He lived,— he died,— I do not know his name.  
No form of bronze and no memorial stones  
Show me the place where lie his mouldering bones.

Only a cheerful city stands  
Built by his hardened hands.

Only ten thousand homes  
Where every day  
The cheerful play

Of love and hope and courage comes.  
These are his monuments, and these alone,  
There is no form of bronze and no memorial stone.

An important feature of the convention is the exhibition of new building materials and techniques. This happy concentration of interesting materials and their proponents permits the architects assembled from many parts of the province to keep "au courant" with new techniques. New displays included the British Book Service, showing architectural books recently published in Great Britain; the Canadian Underwriters' Association explaining how to design buildings with minimum fire insurance premiums, and Showcraft Limited, displaying architectural models, and techniques in making models.

W. A. Watson

## OBITUARY

### ALFRED H. CHAPMAN

On Saturday, November 12th, 1949, Alfred H. Chapman died in Toronto, his native city, in his seventy-first year, after being partially incapacitated for more than six years.

Subsequent to the first steps of his education at the Model School and Harbord Collegiate Institute he was articled to Beaumont Jarvis and then worked in the office of Burke & Horwood in Toronto. He was enrolled in the Ecole de Beaux Arts for two years in Paris and his later work gave evidence of that influence. He then spent several years in New York.

He returned to Toronto in 1906 and did useful spade work in the Guild of Civic Art, which was an early effort to arouse an architectural consciousness in the city under the active leadership of Edmund Burke. In 1907 he won the competition for the Toronto Public Reference Library. For the execution of this work he associated with Wickson & Gregg.

In 1908 he formed a partnership with R. B. McGiffin and in the ensuing ten years this firm of Chapman & McGiffin designed many well-known buildings, among them being Knox College (a fine Gothic conception, won in competition).

Early in 1919 the firm of Chapman & Oxley was formed and, with the inclusion of the late Roy H. Bishop as a partner from 1921 to 1925, was responsible for many

buildings in Toronto and other places in Canada. Among the works executed were the Sunnyside Park development, including the Bathing Pavilion (a successful application of a novel concrete mixture), and the preparation of a comprehensive plan for the Canadian National Exhibition and several structures there of which the "Prince's Gates" is the most notable; buildings exemplifying, among other features, a successful use of an artificial stone facade, the tallest reinforced concrete building in the British Empire, a combined office building and newspaper plant, a building designed for an addition of twenty storeys to the present nine; large department stores in Toronto and Montreal; the Royal Ontario Museum, in which marbles quarried in Ontario were used very extensively and successfully; Holy Blossom Temple, a happy expression of synthesis of symbolic design and material; several schools and hospitals and many industrial plants including two large munitions plants for World War II. In 1938 the firm was awarded the commission for a building for the Bank of Montreal in Toronto. This was interrupted by the War and when it was resumed in 1945 Chapman had been disabled for active work and it was carried to completion by the partnership of Chapman, Oxley & Facey and Marani & Morris, with substantial changes from the original design, due to developments in the owner's requirements and the architect's ideas.

Throughout his active life "Chappy", as he was known to his friends, was alert to initiate or adopt improvements in the art, after adequate investigation and testing. At times the conception of the "parti" of a project would come seemingly by quick inspiration, but more usually it was the result of long and careful consideration of various alternatives. Every job was accepted as a challenge to accomplish something better, more perfectly suited to its purpose and with due regard to the client's purse. If Mark Twain was right in thinking that the noblest delight of all is conferred on him who is *first* with the idea, who does something before *anybody* else, Chappy had many happy moments in his work.

Alfred Chapman was a Fellow of the R.I.B.A. and the R.A.I.C. and an A.R.C.A., a past president of the O.A.A. and for some years a member of the P.Q.A.A.

He was an ardent member and past president of the Arts and Letters Club of Toronto. He was an enthusiastic amateur farmer and many of his confreres enjoyed a visit to his summer home on the south shore of Lake Simcoe and a sail in his sixteen-foot dinghy.

He married Doris Helen, daughter of Thomas Alfred Dennison of London, England, who survives him with two daughters and three sons, one of whom, Howard, is following in his father's professional footsteps. One son, Robert Alfred, was killed on active service on the war.

J. Morrow Oxley



## THE SOCIAL ASPECTS OF HOUSING

(Continued from page 45)

are in the \$20-\$30, the \$30-\$40 and the \$40-\$50 classes? Until a good deal more is known about each community's housing situation it will not be possible to make intelligent proposals for local housing policy which will both relieve immediate pressures and enable us to build well-rounded community developments.

In considering the social aspects of Housing I have thought it most useful to concentrate upon the broad implications of community planning because if we get our ultimate strategic social objective clear the tactical details will fall into place. The idea I particularly want to leave with you for discussion is that public housing should not be regarded as an opportunity to build impressive projects reserved for a special class in the community. If we are to build low-rental housing we should regard it as a normal part of community development and redevelopment, taking its place without social stigma beside other kinds of housing.

In a less prosy age the subject of Housing used to be known as Domestic Architecture. This was an art in which the most distinguished architects throughout history have achieved their most intimate and sensitive expressions of society. The elements of domestic architecture lie at the very roots of architectural tradition. They are constantly there, though they re-appear in new forms as society changes. The domestic hearth around which the family gathers for warmth, for food and for conversation. The front door which admits friends or closes upon the inner sanctuary of intercourse and child-raising. The sunlit porch or balcony disposed for relaxation and romance. All these have been the very stuff of architecture, from Babylon to the Bay style, from Callicrates to Marcel Breuer. These are the architectural expressions of the social aspects of housing. Human needs are the same whether in palaces or public housing.

Since the war Canadian architects have enjoyed the profitable fields of commercial and institutional practice. With a renewed knowledge of building perhaps they can now return to the central theme of their art and give to the Canadian people some of the excitements and enjoyments of fine domestic architecture of which they have been too much deprived. I suppose this Conference is an attempt to discuss the way in which architects can now project themselves into this field. This may not be easy but it is in itself an important social objective.

## CONTRIBUTORS TO THIS ISSUE

### Humphrey Carver

Chairman, Research Committee, Central Mortgage and Housing Corporation. An Associate of the Royal Institute of British Architects, he was educated in England in the social sciences and in architecture. He came to Canada in 1930, worked in a town-planning firm and in partnership with a landscape architect and lectured at the University of Toronto School of Architecture. After 3½ years in the Army he joined the School of Social Work to do housing research and is the author of "Houses for Canadians".

### C. O. P. Klotz

Born in Lanark, Ontario, in 1912, graduated in Civil Engineering from Queen's University in 1933. He engaged in construction and in topographical and geological survey work in Northern Ontario and Quebec following which, for two years, he was attached to the Chief Trade Instructor's Office at Kingston Penitentiary under the Department of Justice. During 1938-39 he lectured in Civil Engineering at Queen's University and then joined the Codes and Specifications Section of the National Research Council where much of his time was spent on the National Building Code. In 1941 he undertook post-graduate studies at Cornell University in Highway Engineering, Town and Regional Planning, following which he joined the Aluminum Company of Canada, Ltd. (Alcan). Since then he has supervised construction at Alcan's Kingston Works and has had considerable to do with the development of the City of Arvida, home of Alcan's smelting operations. During 1946 he came to Montreal with the Sales Development Division of his Company and has recently been appointed Building Industry Product Manager for the Aluminum Company of Canada, Ltd. (Alcan).

### T. A. Reed

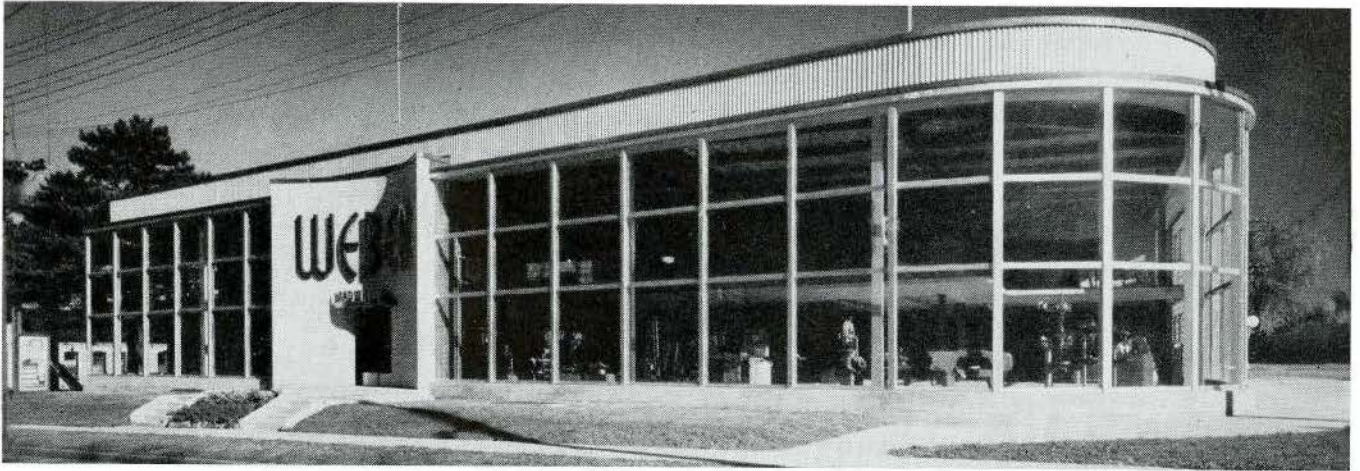
A graduate of Trinity College, was for over forty years a member of the staff of the University of Toronto, and Secretary of the Mendelssohn Choir from 1903 to 1929. From his youth up he has taken a keen interest in local history and has given nearly 500 illustrated talks on Toronto and the University. The accompanying article has been compiled from some of his "gleanings by the way". It is by no means an exhaustive list of Toronto's early architecture, but it will serve perhaps to show the gratitude this community owes to the "giants of those (early) days".



# Facts by Pilkington about Glass FOR ARCHITECTURAL STUDENTS

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