Architecture Canada

vember/Novembre 1969
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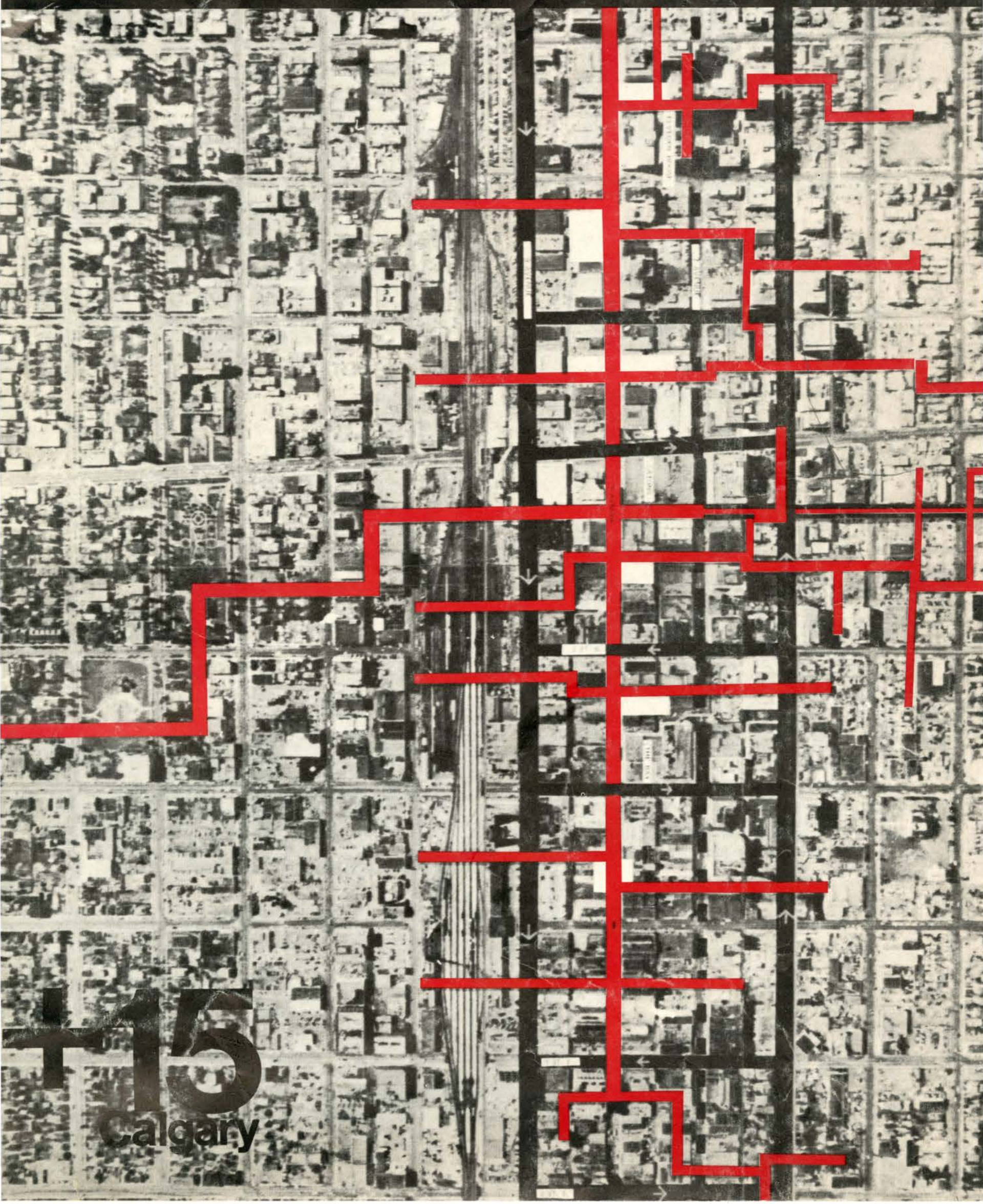

T15 Calgary

In Brief

Banff Session '70 Next October

CALGARY – Jack Long, MRAIC, chairman of a committee to plan another of the Alberta Association of Architect's study sessions at Banff, will recommend to AAA Council that a Banff Session '70 be held at the Banff Springs Hotel from October 18 to 23. (These dates leave both weekends open for those who would like to ski or enjoy Banff s other indoor or outdoor sports.) Proposed theme of the session is "The Environment of Change" Included on the preliminary planning committee are Harold Hanen and Arnold Fullerton of Calgary and Edmonton architect Joseph Donahue.

Calgary's Plus-15 Planner

CALGARY – Harold Hanen, MRAIC, Senior Architect Planner in the Planning Department of the City of Calgary, the work of whose Department in planning and developing the Plus 15 concept for the downtown core of the city is explained and illustrated elsewhere in this issue.

Evaluating NCD Historic Buildings

OTTAWA – Hazen Sise, FRAIC, who recently succeeded W.S. Goulding as chairman of the RAIC Committee on Historic Buildings, has been engaged this year by the National Capital Commission as counsultant on the evaluation of some 900 buildings and structures within the 1800 square mile National Capital District which might be classified as historic or "heritage". He has devised a scoring system for evaluating historic buildings which may have wider application. Mr Sise, who retired at the end of 1967 from active practice with the Montreal firm of Affleck, Dimakopoulos, Lebensold and Sise, may be communicated with through the NCC or his Montreal address, Box 900, Station H, Montreal 107.

Contents

Developer Competition Study

Information about the nature and significance of developer competitions in various parts of Canada is being collected and coordinated by the Director of Professional Services, Wilson Salter (F) at RAIC Headquarters, Ottawa, and forwarded to the Ontario Association of Architects, which is conducting a study of the situation.

The RAIC Council meeting on July 18 noted that a number of Provincial Associations had conducted studies of the problem (British Columbia and Alberta in particular). Quebec, Nova Scotia and Ontario also now are conducting studies.

A purpose in having RAIC Headquarters collect available information from Provincial Associations for onward transmission is to determine what policy the Institute should adopt at the national level.

The Developer Competitions Committee of the Architectural Institute of British Columbia, under the chairmanship of Fred Hollingsworth, advises members of conditions for entering.

Subject to the provisions set out below members may enter developer competitions for *Municipal Land Sales* of all types. Members may not take part in any other class of developer competition. Participating in such a developer competition by any member shall be taken to mean that the member agrees to adhere to, and to submit to, the following conditions.

1. Architects shall inform the Institute immediately on deciding on their intention to particpate in such a competition giving the Institute full particulars of the competition.

2. On being informed by a member of his intention to enter a competition the Institute will write the Municipality concerned to secure their agreement to an architect or architects being on the jury to decide the winner of the competition. If such agreement is not given participating architects will be so informed and will immediately withdraw from the competition. Members are advised not to formalize their contractual arrangements with their developers until they are informed such agreement has been reached.

3. Participating architects and their staff must be paid by their developer, client, consortium at least an amount calculated as follows: a) the sum of the number of hours worked on the project by each person multiplied by the hourly rate of that person. The hourly rate of each person shall be the monthly salary of that person multiplied by the factor 0.017. For the purpose of calculation the monthly salary of the Principal(s) shall be considered to be not less than $1,000.00. b) the successful architect will complete the work at the normal fee rate as set out in the By-laws and the fee under a) above shall be considered as part of the total fee.

4. Submissions must be accompanied by a letter addressed to the 'Juror Architect(s)' which is to contain a cheque in favour of the AIBC in the amount set out in 5 below.

5. Participating architects to pay the AIBC (Developer Competition Fund) a percentage determined from time to time by Council of the amount calculated under 3a) above. The Developer Competition Fund is to be used exclusively for payment of the services of the juror architect or architects and chartered accountants (see 6. below).

6. Participating architects agree to make their accounting books available to duly appointed accountants for audit in respect of any particular developer competition. It is the intention from time to time to select at random participating architects to have their books audited in this manner.

New Design Column

Although the various creative disciplines such as typography, graphics, industrial design, interior and environmental design have been dealt with in past issues of *Architecture Canada* in general feature articles, there has never been a monthly column devoted especially to these subjects. With the December issue, we begin such a column with Thomas and Sheila Lamb as co-editors.

The column, which will be entitled Design, will be loosely structured, to accommodate as many aspects of the contemporary design scene as possible. For example, some of the topics to be dealt with are: "The Bathroom – How Far Have We Come from the Kira/Cornell Report?" (in December); mobile homes; multi-purpose vehicles; the development of products for underwater research; new Italian furniture and the use of plastics in design. In addition, the column will include photographs and descriptions of varying numbers of Canadian mass produced products chosen for excellence of design.

Thomas Lamb was born in Orillia in 1938 and studied architecture, furniture and interior design at Ryerson Polytechnical Institute in Toronto. He formed his own industrial design firm, Thomas Lamb and Associates in 1968 and has a number of projects in progress including the design of drafting machines and table systems and urethane foamed furniture, chairs and storage systems. He formerly was with Design Collaborative and worked on the design of restaurant furniture for the Ontario Pavilion at Expo '67, and library furniture for the University of Guelph.

Sheila Lamb, formerly Sheila Best, was born in Hamilton, Ontario and studied material arts at the Ontario College of Art. She worked at the Royal Ontario Museum display department for two and a half years and as information officer for the Design Canada Centre for five and one half years. Mrs Lamb is presently on maternity leave from the Design Centre and is working on a project for blind children.

Committee to Study Production of Housing

KINGSTON – Two architects have been named to a 20-member Ontario Housing Advisory Committee being established by the Ontario Government. The formation of the committee to analyse information on the production of housing in Ontario was announced at a housing conference in Kingston on October 21st. Architects appointed were Henry Sears, of Toronto and Clifford Wilson of Port Colborne.

Clifford Wilson

Henry Sears

Mr Sears is a partner in the Toronto architectural firm of Klein and Sears, a firm which has won seven National Housing Design Awards and two Massey Medals for housing projects. He has recently completed a Canada-wide housing study for CMHC and The Association of Canadian Universities and Colleges, which will be published in English and French at the end of November. He graduated from the University of Toronto in 1954 and worked for Fleury, Arthur and Barclay in Toronto prior to forming his own firm with Henry Sears in 1958.

Mr Wilson is currently practicing as an architect and town planning consultant in the Niagara Peninsula as partner in the recently merged firm of Butcherd, Macdonald, Zuberec and Wilson with offices in Port Colborne and St Catharines. Mr Wilson graduated from the University of Toronto in 1952. He was an associate of the firm Henry Fliess, Architect before joining Stanley H. Butcherd, Architect in Port Colborne as a partner.

The committee will give particular attention to Social and physical development of Ontario, with emphasis on the changing needs of the construction industry; – Development of new approaches and techniques for the construction industry; – Development of an environment that will meet the needs of people, commerce and industry; – Specific research studies that will be conducted by the construction industry for the Government.

The group will be a continuing body with members appointed for three years and eligible for reappointment for three more.

Five members of the group are from government departments, 15 are from the private sector. Government representatives are: M.J. Cathcart, assistant to the general manager of the Ontario Water Resources Commission; Peter Honey, director of the economic planning branch of the Department of Treasury and Economics; Paul Goyette, deputy managing director of the Ontario Housing Corp.; R. Michael Warren, executive director of the manpower services division of the Department of Labor; and Donald Taylor, director of the community planning branch of the Department of Municipal Affairs.

In addition to Messrs. Sears and Wilson, members from the private sector are: William G. Connelly of Ottawa, Homer Emery of Chatham, E.L. Mayotte of Port Arthur and David Satok of Toronto, representing the building trade; Bruce Burns of Kitchener and Herbert Stricker of Toronto representing the Urban Development Institute; Patrick Monaghan of Toronto, president of the Association of Professional Engineers of Ontario; R. H. Timms of Welland, president of the Ontario General Contractors Association; Morden Lazarus of Toronto, public relations director of the Ontario Federation of Labor; Ronald Sanderson of Oakville and P.J. Harvey of Brantford, both past presidents of the Canadian Association of Real Estate Boards; Laurence Cazaly of Toronto, representing the Ontario Consulting Structural Engineers Association; and M.J. Bacon of Toronto, representing the Town Planning Institute of Canada.

Events

December 14-17.
A National Colloquy, Emerging Techniques of Practice "Management", University Park Campus, Pennsylvania State University.

January 23-24, 1970.
Alberta Association Annual Meeting, Macdonald Hotel, Edmonton.

February 16-17, 1970.
The Canadian Structural Engineering Conference, University of Toronto Convocation Hall, Toronto.

April 11-17, 1970.
American Concrete Institute 66th Annual Convention, New York City.

February 19-21, 1970.
Ontario Association of Architects Annual Convention, Royal York Hotel, Toronto.

May 13-16, 1970.
RAIC Annual Assembly, Winnipeg.

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Editor/rédacteur Walter B. Bowker
Assistant Managing Editor/rédactrice assistante gérante Annabel Slaight
Contributing Editor/Correspondant A. J. Diamond, MRAIC
Technical Editors/rédacteurs techniques F. W. Helyar, PPCIQS, FRICS, A. W. Cluff, MRAIC, ARIBA
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Letters

Brickbats and Bouquets

Muddy Reflection of Profession

When news of architecture in Canada has reached the point where it cannot be distinguished from supermarket sales circulars, promotional flyers from the chain stores, or weekend supplements to our daily newspapers, perhaps it is time to question the need for such a publication.

One prevalent symptom of our times is that we are too often willing to accept change as a substitute for progress. From an architect's point of view this outlook is one that he accepts when associated with the auto industry or those other segments of the economy that thrive on planned obsolescence, but when a meaningful evolution (which is what architecture is all about) becomes distorted into a frantic quest for novelty (which is what architecture is *not* all about), perhaps we should reassess the values by which our profession is motivated.

As for the latest issue of Architecture Canada – it does not conform to any module, does not fit on any shelf or in any file, it gets bent in the mail, is graphically little better than some of our more sensational mass-circulation scandal sheets, and is (to me at least) a muddy reflection of the profession it purports to serve.
This is progress?
Edward A. Macdonald, MRAIC, Oakville

Lively and Newsy

Well done! I have before me, the September issue of *Architecture Canada*. It's a splendid issue. Its format is so "lively" and "newsy". I'll be very surprised if your readers don't find this an irresistible change for your publication.

But why limit the 'New Product' section to 15 items? This section represents your measurable reader participation and deserves greater consideration in such an excellent new format.
J.C. Scarff, Product Marketing Manager, Dow Corning Silicones, Inter America Ltd, Toronto

Difficult Shape

The September 1969 issue of *Architecture Canada* has just landed on my desk and the first reaction was to throw it into my circular file at the side of the desk as it looked like a sales promotion brochure. My second thought was where is such an odd sized publication to be filed for future reference? The previous format allowed the magazine to be filed on shelves with other magazines.

Gentlemen, I feel certain that you will receive many unfavourable comments on the new format of your magazine as its appearance is cheapened and its shape makes it difficult to read unless you place it on a desk or table, and to file, unless special filing arrangements are made.
T. J. Granton, P.Eng., Technical Information Officer, Canadian Institute of Steel Construction.

Fine Presentation

We have seen the first copy of *Architecture Canada* in its new format and would like to congratulate you and your editorial board on the fine presentation.
W.A. Perry, Executive Director, Canadian Institute of Quantity Surveyors, Toronto

Readable and Provocative

Here is another of the dozens of congratulations which you must have received on the "new look" of our official journal. It is a splendid effort – most readable and provocative.
John Caulfield Smith, Executive Director, Canadian Structural Clay Association

Old Size More Useful

The new format for our publication is disappointing because the magazine can no longer be filed.

The most useful format might be the old size with all pages removable for filing. Thus those of us who keep files of building types etc. could file these easily; this might also encourage advertisers to make their material informative so that it could be kept.
G. F. Gourlay, MRAIC, Proctor, Redfern, Bousfield & Bacon, Consulting Engineers and Planners.

ADA 69/70

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Keeping an Eye on Israeli Prefab

A very interesting, and superbly understated letter has been received from Israel, Moshe Safdie's old home. "Having seen your publication of November 1968 on The Puerto Rico project, I am sure that you will be happy to know and to inform your readers that my prefab system (which you might be familiar with since I had first constructed it in Japan in 1963) is now very successfully on its way to completion in Hazeva, Israel. The Engineering firm is S. Ben-Avraham & J. Varsano.

Enclosed herewith are photos, plans and descriptions of the project for your information."
I.M. Goodovitch

Here *are* the photos and drawings. (1-4)

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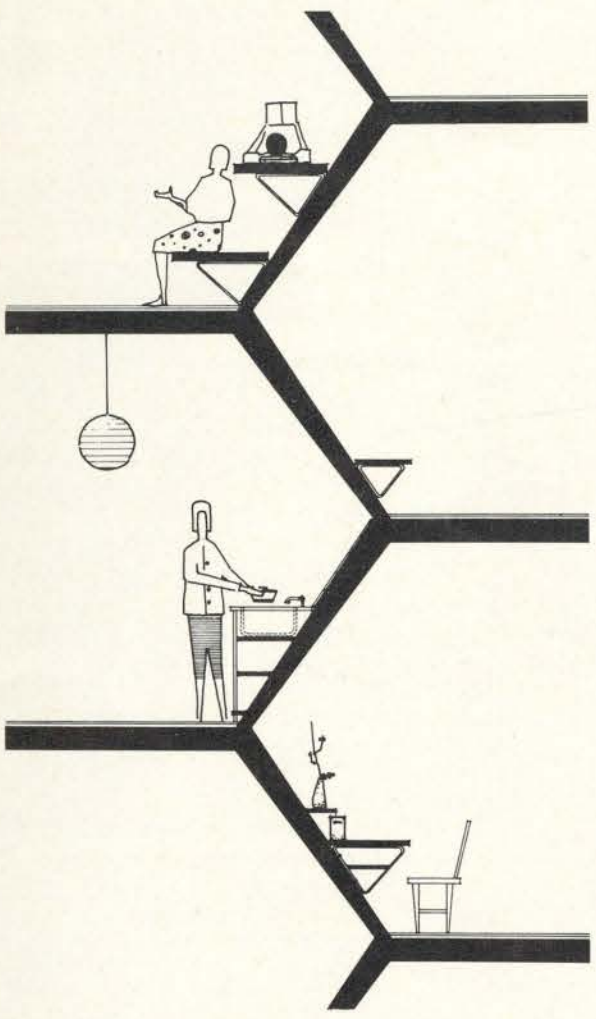

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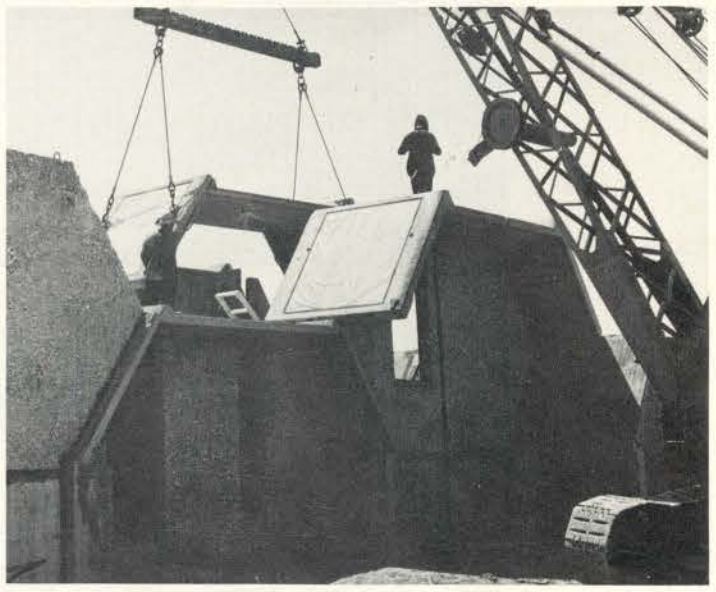

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Architects in Academia

An item from the *Winnipeg Tribune* that will probably put the cat among the pigeons –

"Tenders are scheduled to be called next month for a $1,500,000 addition to Taché Hall on the University of Manitoba campus in Fort Garry. *Working drawings for the project are now being made by the University's School of Architecture.* The project is expected to include two three-storey buildings to be used as students' residences." (our italics)

While it is clear that this will be of concern to some, the whole question of the relationship of the School to the profession, the achievements of the faculty – in fact the relevance of architectural education as it now is – should be debated by the profession at large. Students have assumed the right to challenge the relevance of education. By the same token, so should the practitioner. It is interesting to note that a professor in an arts faculty who publishes a good work is considered to have achieved something in his field, yet an architect who designs a successful building is not accorded the same approval in academia.

MANPLAN-Front Row at the Flicks

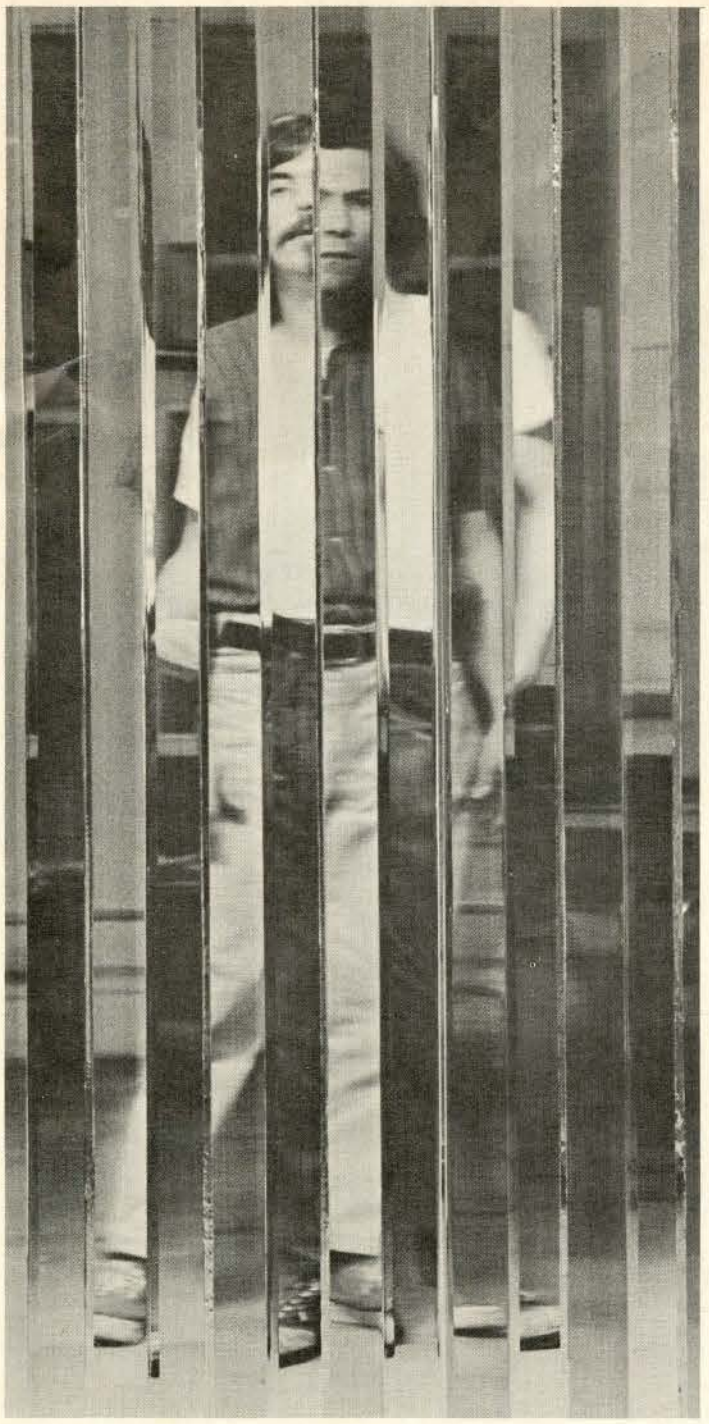
The September issue of the *Architectural Review* uses its new graphics to deal with *Manplan*, which, the editorial says, is concerned with the replacement problem – involving not only obsolete buildings, but the need to make "new appreciations."

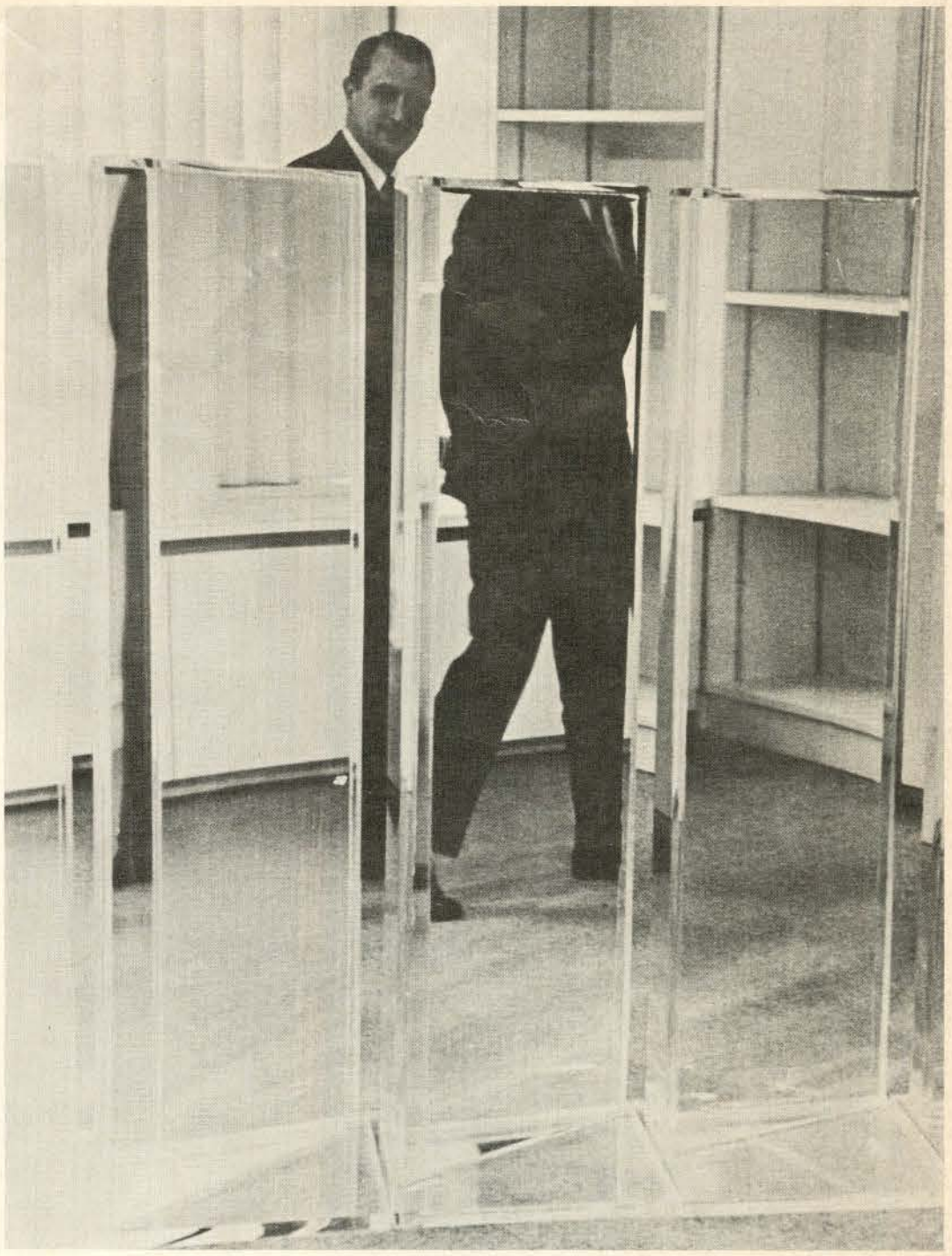
The graphics are the magazine equivalent of the front row at the movies; huge scale, confusing proximity, and almost no text. The captions are of the sort found at exhibitions – encapsulated thoughts for a lay public. (5)

If this is an example of new appreciations, older, less clever ones, would be more appreciated.

A.J.D.

5





Our fractured selves gazing upon our own destruction. Ross

The Money Changers are-

"New Alchemy" is probably one of the most subversive art exhibitions ever to hit Canadian art lovers in their aesthetic solar plexus. The exhibit was held in Toronto from September 27 to October 26, moved November 5 to the Musée d'Art Contemporain in Montreal and will continue there until December 15.

In Toronto, artists were brought together inside the Victorian halls of the Art Gallery of Ontario, a former "gentleman's mansion" now devoted to the pursuit of art collecting and promoting. This gracious old lady of architecture, "The Grange", literally had her Victorian drawers removed. Stripped to the bare walls without the slightest pretense of theatrical presentation, the elements, systems and forces of nature have been trapped into "acts of art" for our contemplation by the most fundamental aspect of art alone . . . . conceptual perception translated into a materialized action. In some cases the onlooker becomes himself part of the act in doing and responding to "beautiful things". Design durability, technique, imagery and all the other accoutrements propping up the classic idea of art production have been dispensed with in an unparalleled act of anarchy. All the mammon pursuits of buying, selling, promoting, collecting and above all housing in rich temples the hieratically selected items of artists' hands and minds have been rendered obsolete. The alchemists, Hans Haacke, Charles Ross, Takis, John Van Saun, with silken whips fashioned from natural phenomena, have lashed at the minds and perceptions of the art lover to drive the money changers from the temple, thus leaving the acts of art and the souls of man in ritual rites together.

With loving care, curator Dennis Young has connived and contrived to bring about the circumstance in which these events, usually so foreign to the art gallery (indeed perhaps hardly relevant in such an artificial environment any more) become the philosopher's stone whereby common elements of environmental life are transformed to the gold of spiritual and sensual delight through the art of perceptive contemplation.

What is it All About?

Hans Haacke takes the simple process of condensation to create a floor of mystic magic, or billowswhite silk, to evoke a memory of surrealistic landscapes, half forgotten, in dreams. The hidden magic of drainage systems, circulations, wind currents, high voltage discharge and all his variable phenomena are called forth as incantations to demand attention, as powerful as any conjured up by an Indian witch doctor. Even the hatching of eggs before our eyes becomes a horrifying and fascinating moment of tension as we and the chick choke upon the very air of suspense which we commonly breathe. Together our breath is drawn in common viability. Our hearts beat together in duet. . . . we enjoin in our common hymn to life.

Charles Ross, with his plexiglass monumentalities, so bewitches our fractured selves gazing upon our own destruction in his multiple mirror prisms that it makes one long to catch this magician and employ him to the task of making magic in our torpid temples of concrete and glass. The sensuous beauty of light caught up in endless reflection and refraction is powerful alchemy against the indifferent eye.

What Takis manifests with magnetic momentum is a moment where we too are impelled by powerful and hidden forces. We are made to distribute our unwilling selves to participate in the movement of molecules out of their wayward wandering to enjoin in dynamic symmetry. Here inertia has no place. Takis' variations on a theme are ingenious but honest. No trickery beyond the statement of fact that cohesion is present where dynamic magnetism dwells.

John Van Saun plays with fire in no uncertain manner. The angry and voracious flame is trimmed to a tiny, aching, spitting droplet, clinging precariously to life along the thin line of a taper. The poet's voice is seen in a suspended globule of incandescent light.

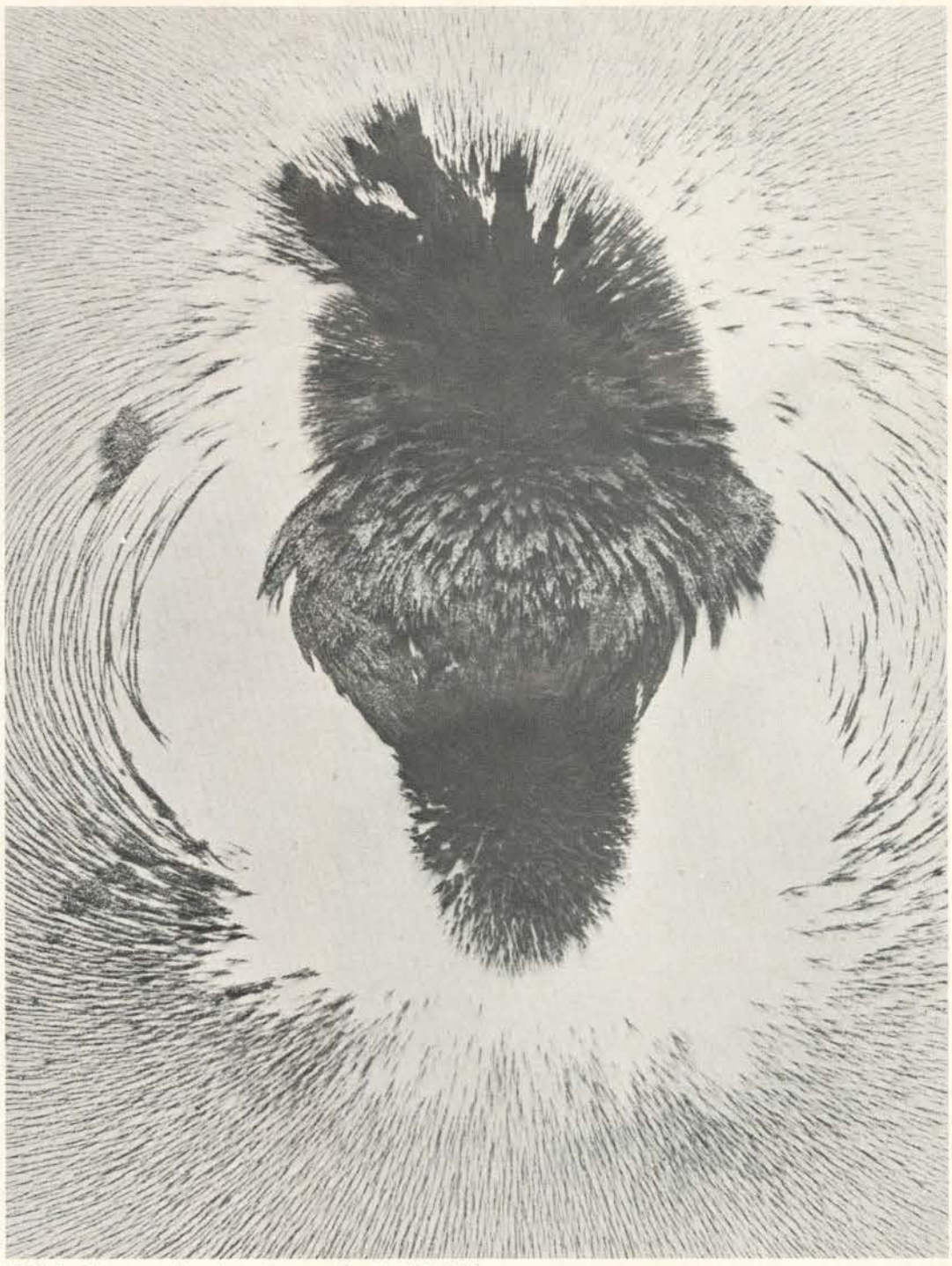
Bread mould too becomes a constant canvas of tessellated tiles, almost breathing in and out the beauty of its transient color. Black, reds and greys hardly separate in a constant forestry of furry mould. The grey matter of the daily trash can be elevated to a fairy forest in tiny acreage spread out on a place of domestic aridity. With every touch of these alchemist's fingers, the base metal of our everyday environment is transformed to a golden tribute to life. Truly, New Alchemy, in all its decompositions is the most seriously beautiful exhibition of ritualist purpose without cant or caution brought to the art-minded public for some considerable time. Materialism and personal ego are subjugated to the great ritual of perceptual and conceptual life.

What Has This Got To Do With Architects?

This is the stuff that dreams . . . . and environments are made of. Buildings are built. Environments are "dreams in life's purpose". They are the purposes of life highlighted by a master builder. Where the contemporary architect fails is in the mastery of techniques and fundamental economics. He ties himself to the

(Continued over leaf)

"A tiny aching spitting drop" Van Saun



"Cohesion is present where dynamic magnetism dwells" Takis

Robho

Being Driven from the Temple

drawing board to attempt an intellectual solution to his problems. What he fails to do is draw upon the very forces at his hand, as did the cave man, and transform them to his peculiar purpose, partly practical, partly wilful. The cave is one thing, the cave drawing another.

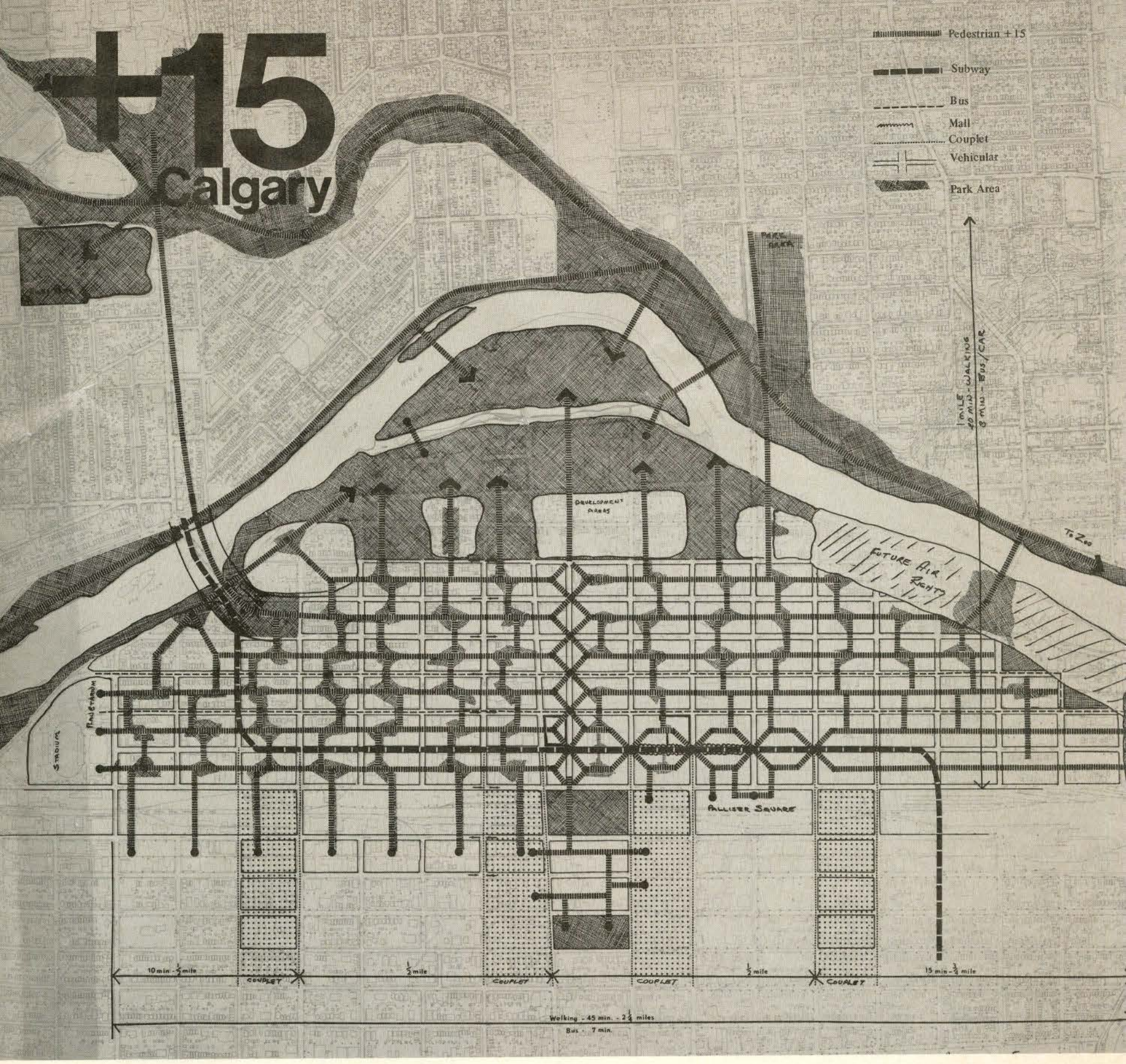
For Instance?

The very gods must laugh in glee to see the contemporary architect build his glass towers to emit the light of night and day and then, in frantic frenzy, mask the crystal pane with veritable acreages of muslins. How much wiser, as he fights the basic rebellion of the warring elements of heat and cold, to trap the mystic curtain of condensation with technological skill so that it may be summoned or banished at will to provide the protective visual screen desired. Frosted windows at nature's command are more magic and eventually more economic than fighting our idiotic battles in a warring technology. Corroding acids and metals can also be made to serve our aching longings for the organic beauty of departed landscapes. The new dynamics of particular growth are ours for the taking. Where are the architects who will leave the drawing board and as alchemists seeing the very "stuff that dreams are made of", the inner beauty of forces, elements and systems, use them to new environmental purpose.

But, some have already become catalyzed into action. In particular, architect Peter Goering and artist Jekabs Zvilna (*see Architecture Canada, March 1969*) have already been drawn into discourse with the Institute for Aerospace Studies of the University of Toronto in the business of dreaming up dynamic structures for new architectural concepts.

Let our alchemic-artists catalyze even more architects with their heaps and mounds of growths, their light refractions, water and fire as agents. This is a show for me . . . . and for you.

Anita Aarons



A Development Plan for Downtown

The downtown area is the most concentrated, complex and yet individualistic expression of human activity within the City's boundaries. The well-being of all citizens is affected by the adequacy of its circulation systems and by its environment relative to the inter-related commercial, residential, recreational, cultural and governmental land uses.

Orderly and economic development is the responsibility of the City, to ensure adequate provision for pedestrian, vehicular and utility requirements generated by each building, including proper spatial conditions relating buildings and landscaping to public open space, without infringing unduly upon the rights of the individual to obtain a fair development of his property. Within this framework of reference, development control will be judiciously used.

– Statement of Philosophy, from "Downtown Development Guidelines"; The City of Calgary Planning Department.

CALGARY – This fast growing city of 336,000 is now well launched on a controlled development program for its downtown core which, in concept and scale, is one of the most advanced of its kind.

The program seems to have come about without too much fuss and fanfare, and it is being carried out within a planning and development philosophy based on the premise that what is good for the citizen and the city is also good for business, commerce and the developer.

The solutions to the problems of the city centre are expressed in the planning department's "Downtown Development Guidelines".

The approach is to separate pedestrian, private and public vehicular traffic, develop a traffic circulation system to increase accessibility and avoid congestion; and adopt for the 180-acre downtown core a technique of development control, in place of control by zoning, which not only encourages but makes possible maximum economic development of building sites while, at the same time, improving the public amenities and the quality of civic design.

The key to the circulation problem is what is now called the "Plus-15 level", which creates a pedestrian environment structured on

(a) a ground level pedestrian mall, eventually to be extended along most of 8th Avenue within the core area.

(b) an elevated pedestrian level, consisting of open plazas and enclosed or partially enclosed walkways extended throughout the core and linking 8th Avenue with the downtown parking facilities, the high rise residential, the office buildings, the principal retail area and the civic administration and institutional area. The Plus-15 level is so laid out that the pedestrian is always within easy walking distance of his destination – parking space or public transportation to office or shop or institution, etc.

The vehicular circulation system is based on a city-wide network of limited access, high capacity roadways feeding into a downtown ring system (to be built), which will collect and distribute traffic to an inner roadway network (existing streets) with their direct connections to parking facilities. From there the motorist emerges as a pedestrian into the pedestrian environment (the Plus-15 level).

7th Avenue becomes the surface public transit route.

The main traffic distributor will be the Bow Trail, to be built between the northern boundary of the core and the bend of the Bow River.

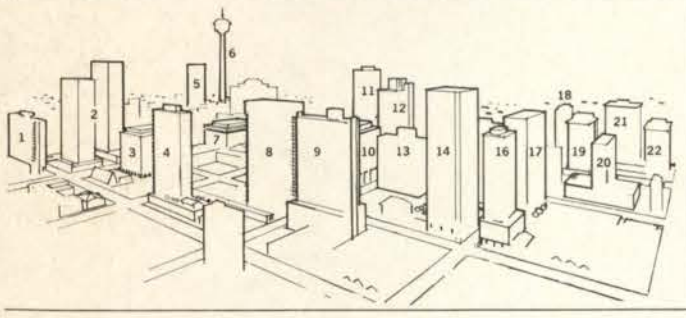
One of the problems this high capacity main artery presents is how to build it without cutting the city off from its major natural amenity – the Bow River and southern waterfront and civic parks. Included in this area is Calgary's Chinatown, now located at the southern approach to the Bow River astride Centre Street. Like these ethnic entities in other Canadian cities which add so much to city life, its existence in its present location is threatened by the need for a public utility.

A possible answer is to make available air rights for construction to, in effect, bridge the barrier which the expressway otherwise presents and so integrate it with the civic design aspects of the core.

Progress of the Plus-15 concept is illustrated on the pages following.

The Editors acknowledge with thanks, the assistance of the architect-planner staff of Calgary's Planning Department, Harold Hanen, Senior Planner; and of two Calgary architects, Gordon Atkins, MRAIC, designer of the 8th Avenue Mall, and Jack Long, MRAIC, consultant on micro design and public space.

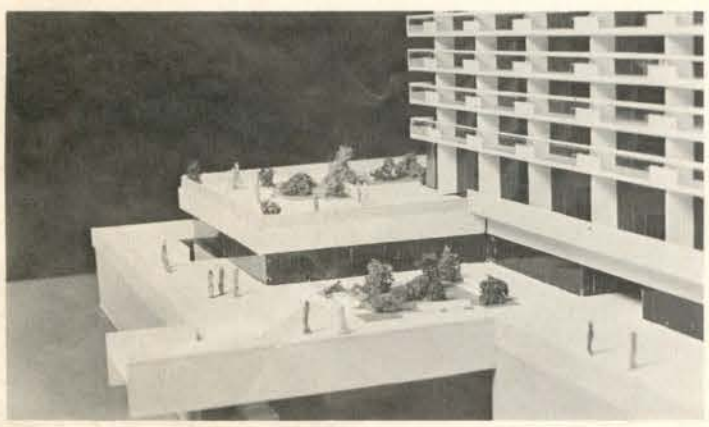
+15 Calgary



1 CALGARY INN
2 CALGARY PLACE
3 CHEVRON
4 LONDON HOUSE
5 PALLISER ONE
6 HUSKY TOWER
7 BANK OF CANADA
8 AQUITAINE
9 CHARTER TOWERS
10 CALGARY HOUSE
11 ROYAL BANK
12 CROWN TRUST
13 TEXACO
14 STANDARD LIFE
15 BOWLEN
16 CHATEAU APARTMENTS
17 PACIFIC PLAZA
18 WESTERN UNION
19 BA TOWER
20 EXECUTIVE PLACE
21 ELVEDEN HOUSE
22 GUINNESS HOUSE

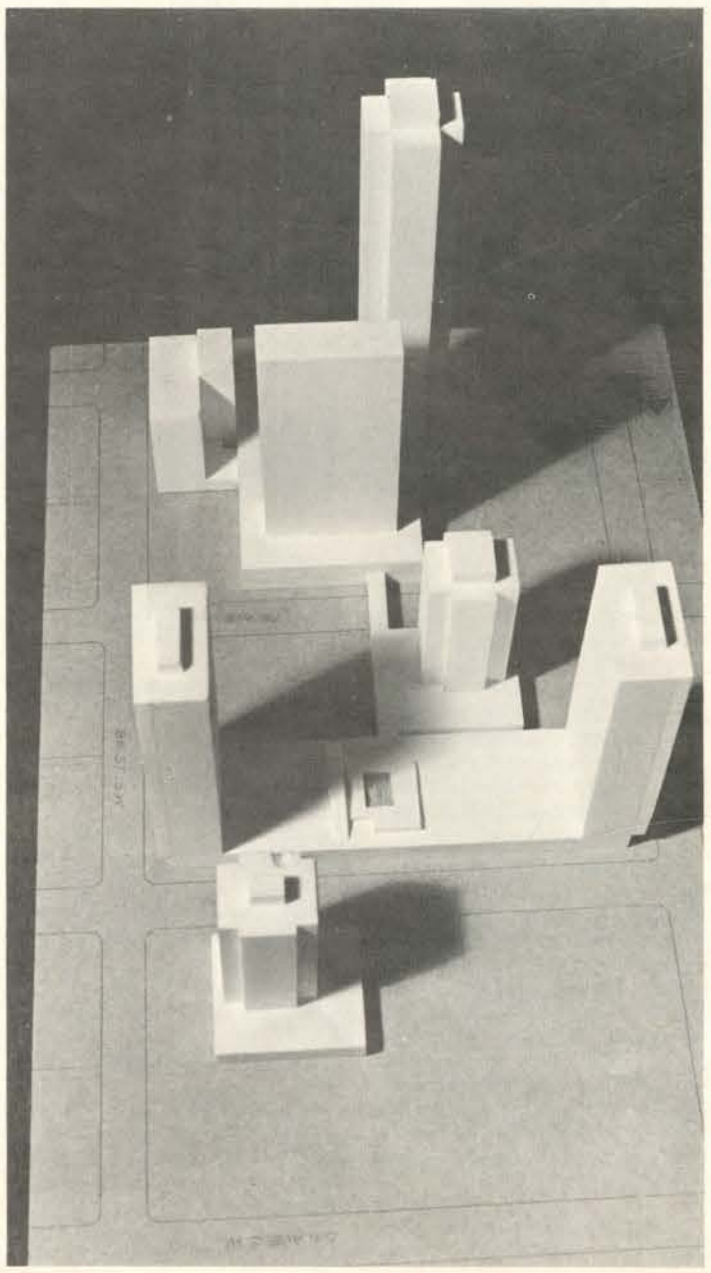
Looking toward Chateau Apartments Plaza from Pacific "66"

Chateau Apartments stairway from street to +15 Plaza



+15 and +30 Plaza of proposed apartment complex on 4th-5th Avenues at 7th Street SW

Link over lane between Pacific "66" and Chateau Apartments

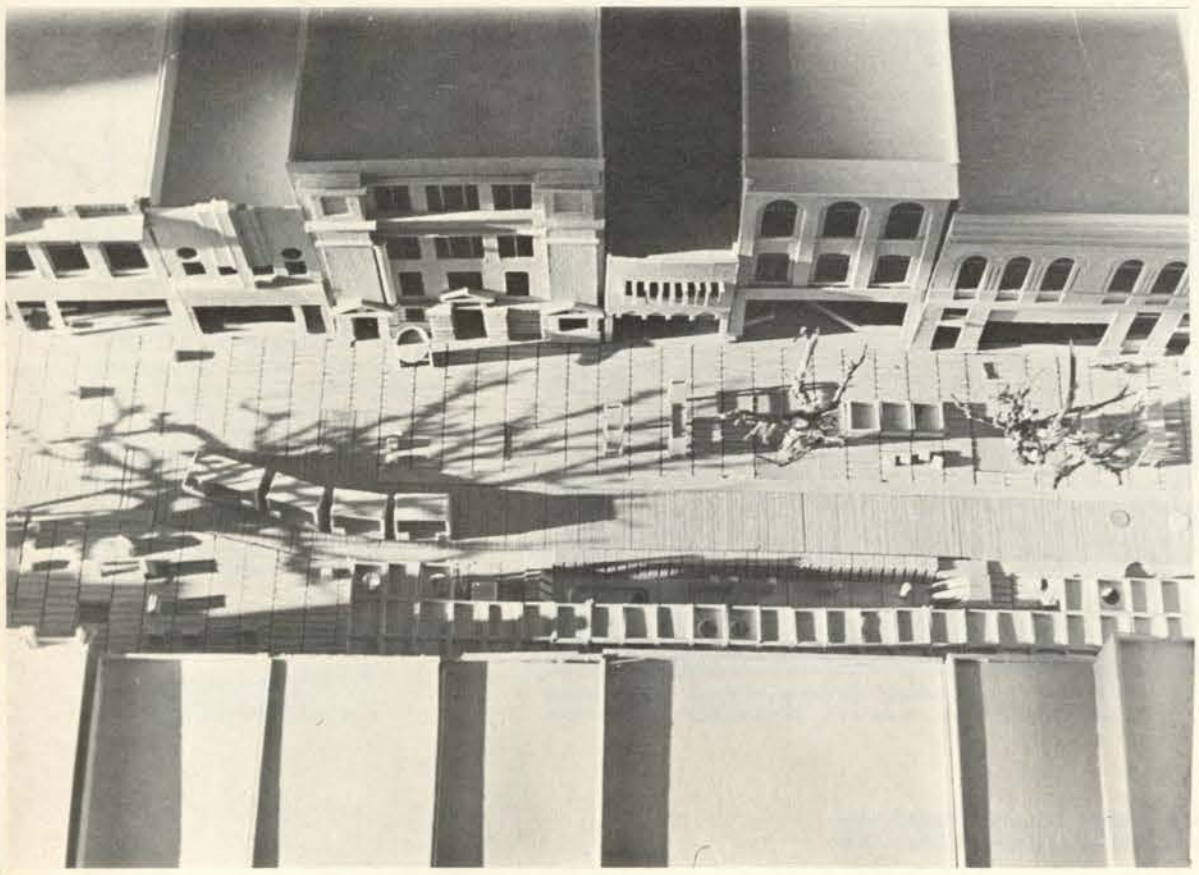


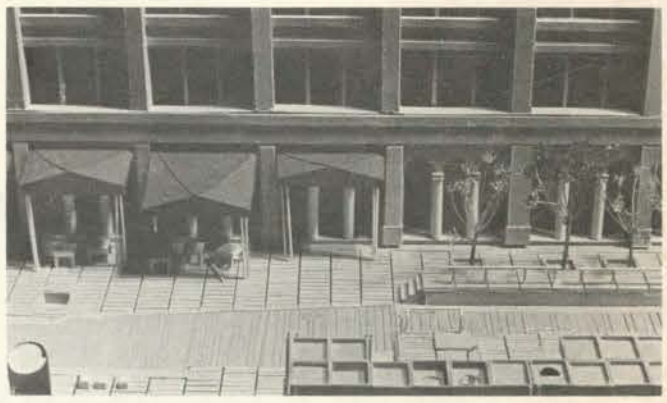
Model illustrating 15 connections; Careketen House, Place Concorde, Pentland Place, Penthouse Tower, Point Tower

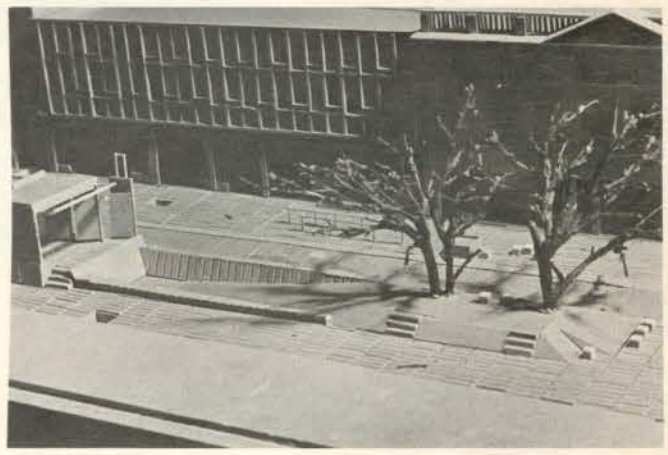
Aquitaine's stairway from 5th Street to Plaza

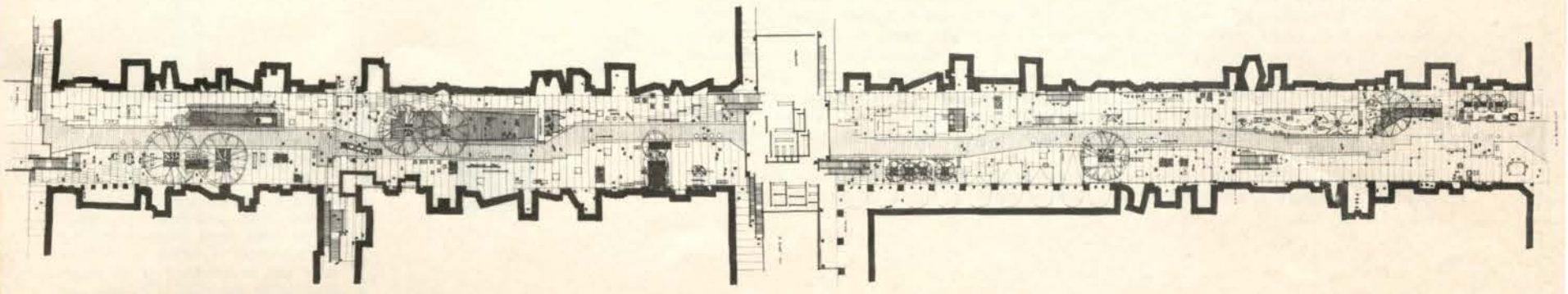
Entering Aquitaine Plaza by stairway from 5th Street

Looking on to Aquitaine's Plaza over lane from stairway



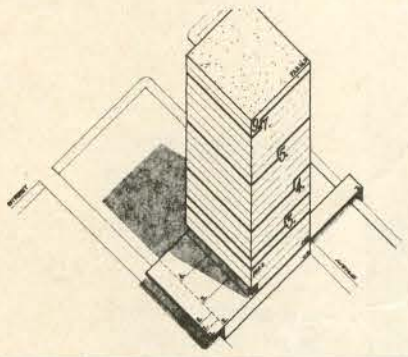






8th Avenue Mall, Gordon Atkins, Architect

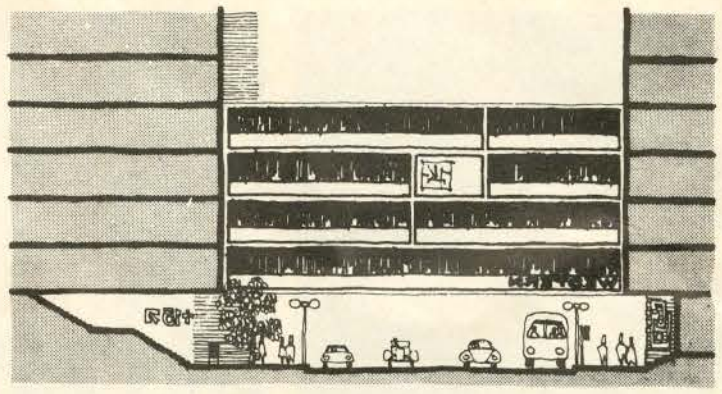
+15 Calgary



Floor Area to Open Space

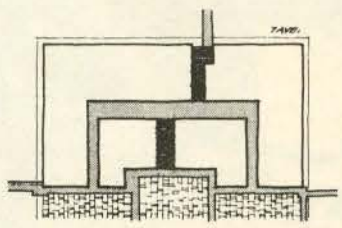
Air-Rights Development Over Public Thoroughfares

The development of air-rights with buildings over streets, avenues and lanes, permits utilization of hitherto undevelopable land in the downtown area. This opportunity offers good development potential and permits consolidation with adjoining private properties. Leasing of air-rights will therefore be entertained by the City as a reflection of its general objectives to stimulate downtown development and to improve pedestrian circulation.



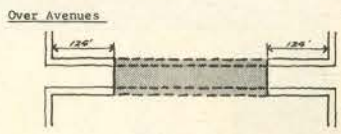
Major Office Area

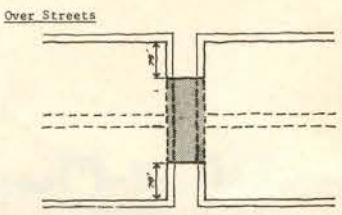
In the major office area, the attainment of elevated central plazas with walkway connections is the primary objective. The standards require a sequential order of use to realize appropriate allocations of open space over both private and public land.



Sample Retail Development Standard

A protected walkway in the central 100 of each block abutting 8 Avenue between 3 Street W. and Centre Street is required to connect the elevated lane walkways to the ground level 8 Avenue Mall and the +15 walkways. Its width must be not less than 20' and not more than 40'. A similar walkway is required for each lane to 7 Avenue to collect and distribute bus passenger traffic.





Over Streets and Avenues

Air-rights development will accommodate the pedestrian circulation system with retail facilities abutting the walkways. Location of development will be restricted to the center portions of the block's frontage and flankage as shown.

Expansion Predicted in Systems Building

All seven regional conferences on the systems approach to building held across Canada this fall have now been completed. The program of one-day conferences, sponsored by the Department of Industry Trade and Commerce BEAM Program with the cooperation of the RAIC, the ACEC, the CCA, the SWAC, and the National House Building Association, were intended to promote productivity and efficiency in the construction industry.

Each session was comprised of four lectures and a luncheon address followed by an afternoon of panel discussions. Main lecturers across the country were Herbert C. Auerbach, Vice-President of Concordia Estates Limited, Gerard Corriveau, Executive Director of the Institut de Recherches et de Normalisation Economique et Scientifique Inc., Robert Halsall, consulting engineer in Toronto, and Roderick G. Robbie, MRAIC, Technical Director of the Study of Education Facilities (SEF) Program. Local members of the building community participated in each session as luncheon speakers or conference chairmen.

Two exponents of the systems approach, Mr Robbie and Mr Corriveau, emphasized that construction costs could be reduced each year by more than a billion dollars if the construction industry used factory-made building components, mass produced and selected from inventory.

Ernest J. Smith, FRAIC, in his luncheon address at the Winnipeg session, October 21, urged architects to "recognize the importance of the systems approach in providing opportunities for leadership in the building community". He added that "the architect must protect his client by providing necessary buildings of all types at a reasonable cost which means greater integration of every facet of the building – from design to materials, to tradesmen, to management".

Federal officials forecast that, following the conference series, there will be a rapid expansion of the systems approach throughout Canada.

Herbert Auerbach *Robert Halsall* *Roderick Robbie* *Gerald Corriveau*

OHC Systems Building Study

Peter Barnard

OHC systems building studies

TORONTO – A detailed study to assess its future role in systems building will be conducted by the Ontario Housing Corporation.

The study, which will take the best part of a year, will be carried out by Dr Peter Barnard, of Toronto, who is current chairman of the Committee on Industrialized Construction and Systems Building of the American Society of Civil Engineers, Construction Research Council.

Among those who will be consulted during the course of study will be representatives of labor, financial institutions, developers, architects, engineers, contractors, and social agencies.

Integrated National Housing Policy Urged

TORONTO – Realtors too have shown their concern for the problem of improving the quality of housing for the Canadian public by including as a highlight of their convention agenda, a panel discussion on new forms of housing. 1,300 members of the Canadian Association of Real Estate Boards attending a conference at the Royal York Hotel, October 16-22, had the opportunity of hearing four panelists including two architects, comment on various aspects of the subject in an afternoon session on October 22.

Speakers were Desmond Parker, MRAIC, of Prince George and Vancouver; Harry B. Kohl, MRAIC, of Toronto; Lloyd Axworthy recently appointed Director of the Institute of Urban Studies of the University of Winnipeg and, H.W. Suters, Vice-Chairman and Managing Director of the Ontario Housing Corporation, Toronto. Moderator was H. Peter Langer, FRI, of Markborough Properties Ltd., Toronto.

Desmond Parker opened the discussion by relating his experience in the development of new or "instant" towns in northern British Columbia. He told the audience that the team approach in the formation of these new cities was proving to be most successful and added that no "prima donna" leadership approach was being used. There are no "grand planners, realtors, financial wizards or engineers who set the pace for the rest to follow". He said that industries concerned were presently gathering teams of architects, planners, landscape architects, realstors and engineering specialists with the hope that they would involve themselves in spin-off studies of all their individual fields. Mr Parker suggested that the new methods being tried in these smaller communities might well later be applied to larger centres.

Mr Suters outlined the history and activities of the Ontario Housing Corporation and added OHC was looking to the condominium to provide a breakthrough in housing of moderate income families in high cost areas and that systems building would also play an important role in the construction scene. He emphasized that OHC prefers to be a catalyst. "It is a private enterprise oriented organization and we prefer to use the techniques and know how of private enterprise to attain our objectives."

Mr Axworthy, in his address said that although there were many good ideas for physical arangements and accommodation being developed, the critical factor was implementation. He enumerated a number of difficulties in the present housing program including a "log jam of competing confused programs, creating over rigid bureaucracies, antequated rules, lack of exploration incentives and the absence of any compelling spirit of adventure to probe the new or unknown". He urged that a strategy of innovation be initiated by the government in the form of a national housing policy which would integrate "federal, provincial, local activities and assigns direct responsibility according to functional measures, not abstract legalisms".

The other architect on the program, Harry B. Kohl, argued with points in Mr Axworthy's address by stating that *no* research was needed on middle and low income housing *at this time*. He said that "we already know what is wrong and why – the only thing needed now is the funds to correct it and agreement from the people who are paying taxes that this is what they want us to do". He referred back to his phrase much quoted in the Toronto daily press about "clean dry warm boxes". He said at this time we feel lucky if there are enough funds to provide only this type of housing even if it may be totally inadequate.

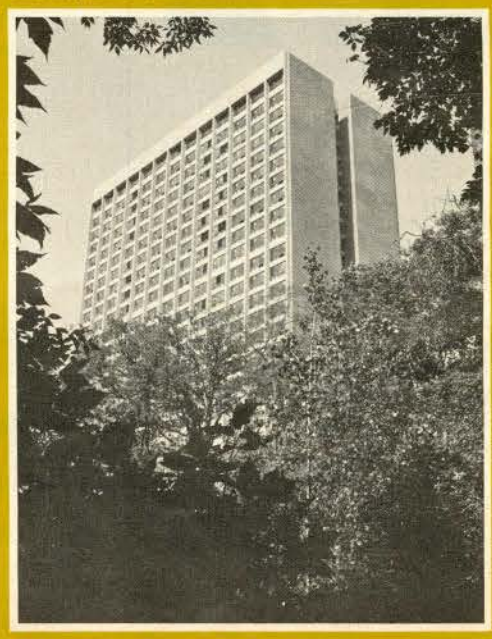
Laurentian University, Sudbury
Architect Planner: Dr. Thomas Howarth, U. of T.

Medical Sciences Bldg., University of Toronto · Architects: Govan, Kaminker, Langley, Keenleyside, Melick, Devonshire, Wilson In association with: Somerville, McMurrich & Oxley

Senior Sciences Complex, McMaster University
Architects: Wm. R. Souter & Associates

Etobicoke Education Centre, Etobicoke, Ont.

Simpson's Tower, Toronto
Architects & Engineers: John B. Parkin Associates and Bregman & Hamann



Old Mill Towers Apartments, Toronto

Building Information System Progresses

OTTAWA – The Department of Industry, Trade and Commerce has retained two Montreal firms of Demers, Gordon & Baby and Hanscomb Roy Associates as consultants to undertake work in connection with the development of a national construction information system. Both firms are using the technical experience of Auerbach Information Sciences of Canada Limited, Toronto, to assist in carrying out their respective contracts.

The consultants are preparing performance specifications for the establishment of a viable national construction information system. To attain this objective they are undertaking the following major tasks: 1 – A detailed design for a comprehensive construction information system based on a predetermined method of presenting and indexing technical product information. The design will also permit the inclusion of technological and commercial information into the system.

2 – Establishment and operation of an experimental model of the proposed system for a period of sufficient time to permit a meaningful evaluation of its effectiveness.

3 – Finalizing the proposed design as indicated by the results of testing and evaluating the experimental model.

4 – Preparation of a performance specification for the establishment of the system covering the following requirements: Input, output, communications, distribution, location. In addition, the specifications will define the marketing, financial, organizational and functional requirements of the system. The latter item will cover space, equipment, personnel and software needs.

The consultants are also providing the Department with a thesaurus of Canadian construction industry terminology and the required indexes to the thesaurus.

The principal functions of a construction industry thesaurus are to assist the user to find a term for a given meaning and to resolve the ambiguity in natural language terminology. This ambiguity has been a major impediment in the development of an efficient construction information communication, storage and retrieval system.

It is intended that the thesaurus will be used in a variety of ways by the construction industry: as an authoritative vocabulary reference;

in the preparation of information documents;

in the key work indexing or identification of information documents;

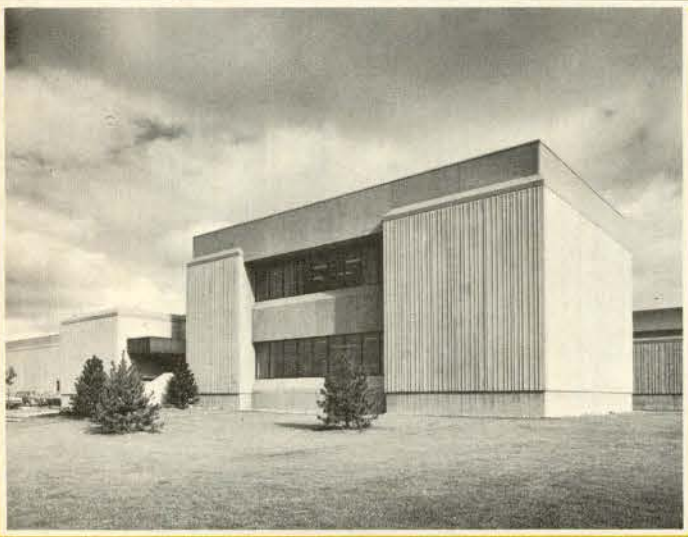
in the framing of inquiries to an information system (search process)
and,
in the information retrieval process.

It will also serve as a model for preparation of similar thesauri in other industrial and professional sectors of Canadian business.

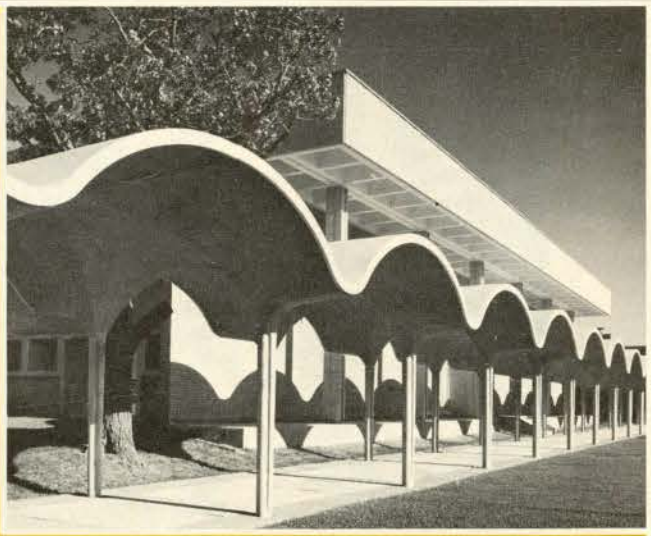
Similar methods to those employed in the compilation of Engineering Joint Council (USA) Thesaurus of Engineering & Scientific terms are being followed, with any improvements and modification considered necessary for construction industry usage.

A pilot thesaurus and indexed product literature will be supplied for the experimental model. The final document – a comprehensive thesaurus in both English and French, will be delivered by mid-1970.

During the course of these contracts, officers of the Department are discussing with officials from various industry associations and institutes a proposed method of administering the construction information system. It is anticipated that the performance specifications and the final report will be completed by the Fall of 1970.



Distribution Centre for Dominion Stores, Toronto
Engineers & Architects: A. D. Margison & Associates



School for the Deaf, Milton, Ontario
Architects: Marani, Rounthwaite & Dick

Office Bldg., 45 St. Clair Ave. West, Toronto
Architects: Clifford & Lawrie

Bell Canada Data Centre, Don Mills, Ontario
Architects: Webb, Zerafa, Menkes

Rapid Transit to be Studied

VANCOUVER – A $75,000 study of rapid transit in the Vancouver region has been commissioned by the Vancouver Regional District Council and the British Columbia Hydro.

DeLeuw, Cather and Company of Canada Ltd., have been appointed to head the study which is expected to last six to eight months. Hans Blumenfeld, Toronto planning consultant, and Phillips, Barrett, Hillier, Jones and Partners, consulting engineers of Vancouver will also be part of the consulting team.

The group will consider the latest existing and futuristic modes of rapid transit and the interaction between land development and rapid transit. It is hoped that the study will determine what role rapid transit can play in the Greater Vancouver area, specifically in the next 20 years.

Pre-Fab Sauna

A new pre-fabricated Sauna Lodge for homes, cottages, pool-size, ski chalets, and commercial applications has been introduced by the Sauna Company of Canada. Available in a wide range of sizes, each is supplied complete with heater, thermostat control, interlocked pre-cut Canadian red cedar plank walls, doors, windows, double and triple bench assembly, and complete sequence instructions. *Sauna Company of Canada Ltd., 17 Belfield Road, Rexdale, Ontario.*

Microfilm Storage

A new catalogue of microfilm storage equipment has been published by the Tab Products Company. It details specific equipment for high-density storage and filing of aperture cards, microfilm rolls, cartridges and boxes, and microfiche. Request Catalogue number 445. *Tab Products Company, 663 Battery Street, San Francisco, California 94111.*

Sound Slide Unit

A portable, one-piece tape playback programming system for coordinated front or rear projection sound-slide presentations is now available. The CR-100 Pro-Gramo eliminates the need for separate tape recorders, synchronizers, speakers, complicated wiring hook-ups, and requires no audio-visual training of its own. A Kodak Carousel projector is coupled to the Unit's top in piggyback fashion. The system uses standard continuous tape cartridges which slip-in for playing without threading. With the tape in the cartridge inaudible "beeps" are added on a second track with the accessory Pulser to provide precise synchronization of sound and picture. Modified Pro-Gramo systems are available for Nikkormat, Sawyer, filmstrip, and other projectors. The one-piece Pro-Gramo programming system is available from *Rutherford Audio Visual, 211 Laird Drive, Toronto 17, Ontario.*

Fire Protection

A Fire Protection Specialties catalog is now available from the Grinnell Corporation. The catalog describes in detail various types of fire prevention equipment, such as hose houses, fusible links, valves and alarm devices. Write: *Grinnell Corporation, 260 West Exchange Street, Providence, Rhode Island 02901.*

Ultrasonic Clean

Ultrasound, a source of energy in the form of sound waves that can't be heard by humans, is now being used as a method of low cost precision cleaning for a variety of commercial and professional fields. This includes cleaning of drafting and recorder pens and other precision parts and instruments. The Bransonic cleaner has three basic parts housed in a durable metal case; a generator to produce high frequency electrical impulses; a transducer to convert electrical impulses into ultrasonic waves; a cleaning tank containing an appropriate solvent. Flicking the switch sends high-intensity ultrasonic energy into the water-filled tank, causing violent activity among millions of microscopic bubbles. The bubbles acting as tiny scrub brushes, blast dirt and other soil from the objects immersed. *Branson Instruments Company, P.O. Box 768, Parrot Drive, Shelton, Connecticut 06484, (203) 929-5341.*

Pump Control

A new automatic fire pump engine controller has just been announced by Vibron Limited of Toronto. The Master Controller, a new automatic model, is listed for 12 and 24 volts. It will automatically start an engine-driven fire pump to provide the required volume and pressure for proper operation of the sprinkler system. There are optional features including a built-in battery charger which can be added to the basic unit – some even in the field. *Vibron Limited, 2400 Finch Avenue West, Weston, Ontario.*

Design Aid Report

A new report in the Portland Cement Association's Architectural Design Aid series entitled *Precast Joist and Plank Roof Systems for Industrial and Commercial Buildings* has been released. The report describes the structural design and erection of the new 142,000 sq. ft. Booth Fisheries plant and warehouse in Portsmouth, N.H. The booklet contains photographs, engineering drawings, and design charts that provide basic information for selection of similar framing systems. The structure was complete in 4-1/2 months. Copies of the report are available from any Portland Cement Association regional office or from the *Portland Cement Association, Dept. P1-91, Old Orchard Rd., Skokie, Ill. 60076.*

New Lighting List

A new 24 page full-color "Lighting Classics" catalogue featuring commercial and industrial lighting fixture lines has just been published by C & M Products Limited. The firm is a subsidiary of Thomas Industries Inc. Two-page spreads illustrate each of the firm's major fixture lines superimposed on a stylized art background that relates to a typical installation situation of that particular fixture type. Descriptive copy also details each group. 154 different fixture models are listed.

C & M Products Limited, 189 Bullock Drive, Markham, Ontario.

VIP Overshoes

A new VIP overshoe stand for office, foyer and lobby overshoe and boot storage has just been announced. Three wood choices are offered for sides and top, these being walnut, oak and rosewood, and the three metal shelves are finished in color complementing and corrosion-resisting baked enamel. There is also a choice of swivel or fixed base, special finishes for large orders and designs which accommodate ladies' tall boots as well as mens' overshoes. Priced from $96.50 to $140.00 depending upon the model and its availability from stock. *Doric, 4255 Sherbrooke Street West Montreal 215, Quebec.*

Circuit Stopper

Emoh Sales & Mfg. Ltd. announce a new Canadian-designed, Canadian-built safety ground fault circuit interrupter. Built to meet the CSA Standards for Swimming Pool (lights) Protectors Class "A" Sec. 68, Can. Elect. Code, the circuit interrupter can also be used for safety in homes, industry and service. The Elektragard detects the "trouble" current which flows externally to the normal flow and acts instantly to turn off power, preventing electrocution. *Emoh Sales & Mfg. Ltd., 38 McCulloch Ave., Rexdale, 603, Ontario.*

Signage

A new 20-page brochure describing the availability of a wide range of architectural signage for the sign industry and specification contractural sign requirements has been published by Fidelity Sign Centre. Over 40 typefaces are standardly available in letters and engraved plates from 1/16" height to any size required. Write: *Fidelity Sign Centre, 1919 Leslie St., Don Mills, Ontario.*

Door Closers

Leigh Metal Products have announced a new line of door closers for interiors and exteriors. For interiors, the compact "Power-Closer", which operates hydraulically, using silicone damping fluid for exteriors, the "Windjammer", a low cost door shock absorber that uses a polyurethane air cushion to prevent wind damage to doors and wind damage to doors and locksets. *Leigh Metal Products Ltd., 101 Brookside, P.O. Box 578, London, Ontario.*

Roof Climatrol

New rooftop air conditioners have recently been introduced by Climatrol Air Coils Limited. Made in Canada for the first time, the new Climatrol units are said to be the ultimate in year-round air conditioning. Each model is designed for the lowest silhouette and weight distribution compatible with maximum efficiency. Integration of the gas furnace in the unit completes the single package idea and makes servicing easier. Each model arrives factory assembled, piped, charged, wired and tested on a rigid channel iron base for rooftop or ground level installation. *Climatrol Air Coils Limited, 346 Wyncroft Rd., Oakville, Ontario.*

Cost in Use

by John C. Rankin MRAIC

Two major school programs in Canada, one in Montreal and one in Toronto have adopted a systems approach in the provision of educational buildings.

The research conducted for both programs has been extensive and has been concerned with the relationships and activities of all those involved in both the provision and use of suitable educational facilities.

The requirement of internal flexibility has introduced a new "time" dimension into the provision of space.

The SEF report T1 states: "It can be expected that the projection of the useful life of the building at the time of its design will become normal practice. The building systems of the foreseeable future will have built in provision for renewal. Educational building is taking the lead in bringing this metabolic change to the building industry."

In considering the concept of a designed life for buildings, there is increased concern with total cost including financing, operating and maintenance costs since the capital cost alone may give a misleading comparison between materials and types of equipment.

Mr John Rankin, Technical Research Officer for the SEF program introduces this subject in the following article. A.W.C.

What is the cost of a building? There are probably as many opinions about this as there are people. To the contractor, traditionally, the cost of a building is his tendered stipulated sum price. To the architect, the cost of a building is the tendered stipulated sum price, plus any separate contracts for which he is responsible. To the owner, it is frequently the stipulated sum price, plus all of the additional contracts, plus all consulting fees, plus the cost of the land.

The financier would include all of these items, plus the cost of the money which it was necessary for the owner to borrow to institute the program over the amortizing period of the loan.

I would like to suggest that the cost of a facility is all of the total costs mentioned, plus the operating cost, and that probably one of the better ways of expressing this cost might be as an annual cost for a stipulated period. The Metropolitan Toronto School Board Study of Educational Facilities (SEF) used the above definition and arrived at the annual cost for a fifteen-year period for its systems building program.

The reason for the selection of the fifteen-year period was the firm belief and experience that the mechanical and electrical systems in a building today become obsolescent by the time that period has elapsed. SEF studies have indicated that one of the major requirements of schools today is a complete flexibility of interior parts to allow for the changes in education that take place during a period of time.

Buildings become Obsolescent Day by Day

In the past, there has been a tendency to construct buildings with the supposition that they will last forever. Today's scientific and technological developments are forcing a need to re-evaluate this concept. A facility, a building, begins to die from the moment the building plan is crystalized. It begins to become obsolescent day by day. In order to minimize this in a long-term program, it is necessary to add a time dimension to the moulding of the space that becomes an artificial environment. Buildings of the future must have a built-in provision for renewal.

The metabolists, a group of Japanese architects, formed in 1960, hold the view that architecture is composed of two elements. First there is the spatial equipment which determines the space itself, and second the living equipment which corresponds to living patterns. The spatial equipment is the skeleton which is not normally subject to temporal changes in function. The living equipment is considered the equipment which can be changed in accordance with the living patterns of the society in which the building exists.

Under the philosophy of cyclical building renewal, building parts may have varying life spans. At an initial stage, the pattern may well be as follows: the portion known as permanent would be the structure, the vertical skin and the stairs which may have a 30 to 60-year renewal cycle. The renewable portion of the building would include such items as roofing, plumbing, interior space division, atmosphere, escalators and elevators, which would have a renewal cycle of 20 years. Electrical work, electronic equipment (communication equipment), caseworks, lighting-ceiling, wall and floor finishes might have a cycle of ten to fifteen years.

One of the important criteria for renewing parts of the building is that the existing parts no longer perform their function economically. It is entirely probable that the method of providing illumination will become far more sophisticated in the near future and the method of distributing power and communications throughout a building will also likely change drastically. Radio frequency transmission laser beams, and self-illuminating surfaces are all physically demonstrable today, and in the very near future will probably become economically efficient.

Cost in Use

When the concept of cyclical renewal phasing for buildings and their sub-systems is generally accepted, it is probable that the only viable way of evaluating the costs parts of a building will be

the "cost in use" formula which would equate the capital costs to the costs of operating and maintenance. The cost perameters must include all initial costs which are comprised of the sum total of the contracts and consultant's fees, and the site cost plus all operating and maintenance costs. I would like to suggest that to operating and maintenance costs should be added a cost factor for convenience of access to the building, the costs of items such as parking or time loss to employees attributable to location or inter-building circulation time, as well as the costs of money at the time the investment was made in the project.

Space requirements of the owner should be projected not only on a year-to-year basis, but in five and, if possible, ten-year terms. In this way, the owner can take advantage of fluctuations in the money market in his consideration of the appropriate time to renew any parts or all of the building. Only by this method of approaching the requirement for artificial environment can the violent peaks and valleys of improvements and obsolescence that are common in traditional construction be avoided. The process of change must be a smooth series of events within the life cycle of a building. With this approach the advanced developments in technology can be exploited on a continuing basis and to a far greater degree than has ever been possible before in the building industry.

A building is to be erected on a site which has been purchased for $30,000. The capital cost of the building will be $150,000, including architects' fees, and it is known that certain services and finishings will have to be replaced at a cost of $10,000 every 20 years, and other services and finishings will have to be replaced at a cost of $15,000 after 30 years. Operating and maintenance costs are expected to be $10,000 per annum. Calculate the cost in use of the building, assuming the total life of the building to be 50 years.

Site cost		$30,000	
Annual equivalent in perpetuity at 7%		.07	$2,100
Building cost		$150,000	
1st Replacement cost in 20 years	$10,000		
Present worth of $1.00 in 20 years at 7%	.258		
Present value		2,580	
2nd Replacement cost in 40 years	$10,000		
Present worth of $1.00 in 40 years at 7%	.067		
Present value		670	
Replacement cost in 30 years	$15,000		
Present worth of $1.00 in 30 years at 7%	.131		
Present value		1,965	
Total cost		$155,215	
Annual equivalent over 50 years		.0734	$11,393
ASF to replace $1.00 in 50 years at 6%	.0034		
i at 7%	.07	.0734	
Annual equivalent of the capital costs			$13,493
Annual operating and maintenance costs			10,000
Cost in use			$23,493

The above simple example of calculating cost in use has been provided by Helyar, Vermeulen Rae & Mauchan, Quantity Surveyors and Construction Economists.

Calculating Cost

In explanation of the above example, the site is dealt with separately and with a very simple calculation because it will still have a value after the building has gone. The replacement costs during the life of the building are capitalized to present values, added to the capital cost of the building to give a total present cost, this is then converted into an annual equivalent over the 50 year life of the building so that operating and maintenance costs can be added to it to give the total cost in use.

The annual equivalent of a capital sum in perpetuity is merely another way of stating the rate of interest which will be earned on an investment, but it is stated as a decimal. It is usually expressed as i, and if the rate of interest is 7% then $i = 7/100 = .07$.

Present value is the capital sum which must be invested today to give a certain amount of money at the end of a given period of time at a given rate of interest. It is calculated from present worth tables which show how much has to be invested to give $1.00 at the end of a given period of time at a given rate of interest.

If someone makes a capital expenditure on something which has a limited life, it is advisable for him to invest sufficient money each year to enable him to replace it when the time comes. Sinking fund (ASF) tables show the annual deposit which must be invested at the end of each year to provide a capital sum of $1.00 at the end of a given period of time at a given rate of interest. They differ from present worth tables in that whereas present worth is the amount to be invested now to accumulate $1.00 at a certain time in the future, sinking fund tables show the amount to be invested annually at the end of each year to accumulate $1.00 at a certain time in the future.

To find the annual equivalent of a capital sum spent on something which has a limited life, not only must the interest which can be earned be considered, but the sinking fund required to replace the capital over the life of the asset must also be taken into account. The annual equivalent of $1.00 for a limited term will therefore be the interest that could be earned on $1.00 plus the annual sinking fund to replace the $1.00 over the term. The equation to find this amount therefore is: Annual equivalent of $1.00 = i + ASF

An alternative approach to the calculation of Cost in Use, known as Ultimate Cost, can be found in the *Technical Notes on Brick & Tile Construction,* Volume 9, Nos. 9 and 10 dated September and October 1958, and in the *Journal of the AIA* for September 1958.

Dr Robert F. Legget (left) is presented by his successor, Dr Neil B. Hutcheon with a book of letters from friends and colleagues in the world-wide fraternity of building research on the occasion of his retirement as Director of the Division of Building Research, National Research Council of Canada.

Legget Retires

Dr Robert F. Legget retired September 26 as Director of the Division of Building Research of the National Research Council of Canada, after 22 years of public service in this position. His successor, Dr Neil B. Hutcheon, has been a close colleague since joining the Division as its Assistant Director in 1953.

Dr Legget, a graduate in civil engineering of the University of Liverpool, began his career in heavy construction with a firm of consulting engineers in London before coming to Canada in 1929. He gained further construction experience in Canada until 1936 when he began a teaching career in civil engineering first at Queen's University and later at the University of Toronto.

In 1947 he was invited to come to Ottawa to start the new Division of Building Research. From the beginning he dedicated himself and the Division to serve the technical needs of the construction industry of Canada.

One of his contributions to the architectural profession is the Canadian Building Digest which,in the form of a four-page removable insert, has been part of the content of Architecture Canada since January, 1960.

The importance of standardization to a rapidly developing technology attracted the attention of Dr Legget at an early stage. As chairman of the NRC Associate Committee on the National Building Code since its formation in 1948, he has concentrated his attention on the continuing improvement and acceptance of the Code in Canada. His activities and reputation outside Canada led to the presidency of the American Society for Testing and Materials during 1965-66 and to the presidency of le Conseil International du Bâtiment pour la Recherche, l'Etude et la Documentation, this international building research organization being more widely known by its initials CIB.

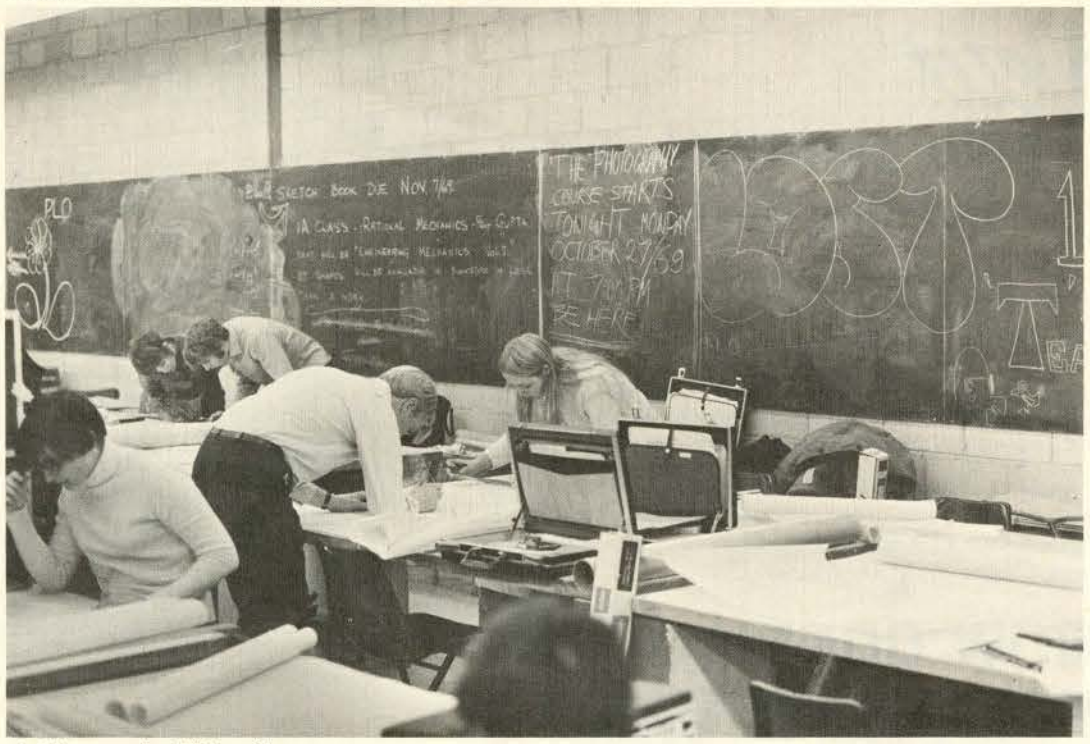
Many honors have come to Dr Legget during his career in Building research. He has received honorary degrees from six Canadian universities and from Charles University, Prague. He holds memberships in engineering societies in Canada, USA and Great Britain. He is a Fellow of the Royal Society of Canada and an Honorary Fellow of the Royal Architectural Institute of Canada. In 1967 he was awarded the Order of Canada, Medal of Service.

Dr Legget's contributions to engineering literature are widely known. His work in the application of geology to engineering resulted in a standard reference book on the subject and finally to the Presidency of the Geological Society of America in 1965-66. In 1967 he was honoured by election as a Commonwealth and Foreign Fellow of the Geological Society of London. Retirement from official responsibilities will undoubtedly provide a welcome opportunity for renewed interests in this field.

In this connection it will be remembered by inland waterway boating enthusiasts that he wrote in the nineteen fifties a book "Rideau Waterway" which is probably the best reference work available on the history of the construction of the Rideau Canal connecting Ottawa and Kingston.

The new Director, Dr N.B. Hutcheon, came to the Division of Building Research from the University of Saskatchewan, where he had been professor of Mechanical engineering. He was a pioneer in the technology of moisture in materials and in the performance of building enclosures in cold climates. He has been active in the American Society of Heating, Refrigerating and Air Conditioning Engineers and in 1964 was made a Fellow of the Society. Dr Hutcheon takes over the Division during a period of great construction activity in which the demands for technical information about building are increasing rapidly.

First year in foreground, second year spontaneity in background



Architecture school "Found"

Work too goes on

"Skid Row"

Waterloo forms New Division

The University of Waterloo has announced the formation of a new Division of Environmental Studies within the University. The Division, which has the status of a regular Faculty, includes within the same administrative unit the School of Architecture, two non-professional Departments, that of Geography and Man-Environment Studies, and the other professional School, Urban and Regional Planning. This new Division reflects the response of the University to provide educational opportunities which keep abreast of the needs of society, and concentrates in one area all modes of knowledge needed to attack the specific problems of man and his environment.

The University recognizes that these problems are extremely complex. It notes, for example, that "solutions to traffic problems may be found not in roads but in changes within the structure of urban activities; control of water pollution may require the mobilization of technical and community resources of entire watersheds, the location of economic activities may prove to be a function of environmental amenities. A *team* approach to such problems is often required. Yet at a time when urban problems are becoming more critical, man is also acquiring a greater capacity to master them. The new technology, based in part on the computer, makes it easier to process the immense quantities of data required to understand any given situation".

Interaction to a High Degree

University spokesmen draw attention to the fact that one of the innovative aspects of the Division of Environmental Studies is the high degree of interaction among its four units. Professors in each School or Department participate in the programs of the other units, and all faculty are available to students in any unit of the Division. This cross-fertilization of disciplines goes even further, and students will not only be free to, but will be encouraged to choose courses from across the whole University.

Among the constituent parts of the newly formed Division, it is interesting to note that the Department of Man-Environment Studies is a completely new attempt to structure an honors-level program focused on an *area of study* rather than on a traditional academic discipline. The Department will be staffed with as wide a range of scholars as possible and may include anthropologists, biologists, earth scientists, economists, engineers, geographers, philosophers, political scientists, and any others who have the interaction of man and his environment as their primary field of work.

Four Units

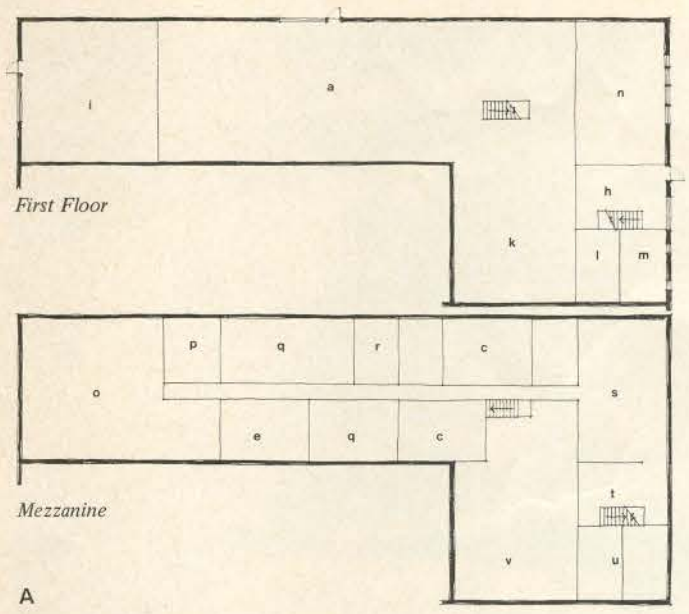
The Department of Geography offers Bachelors, Masters and Ph.D. programs. The new Bachelor of Environmental Studies in Honors Geography will provide students almost unlimited freedom to choose supporting electives from across the whole University.

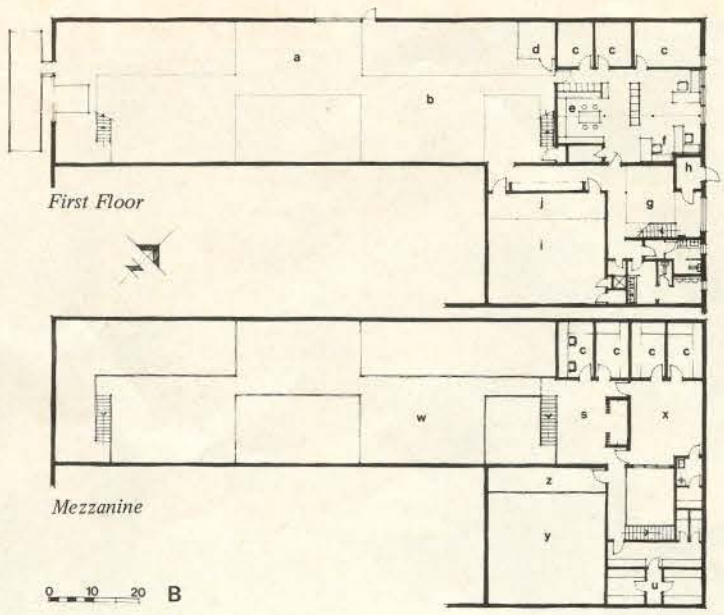
The School of Urban and Regional Planning has evolved out of the Planning Program of the former Department of Geography and Planning. The emphasis of this School will be on the integrated planning of entire regions including both the urban and regional components. The School will continue to offer Masters and Ph.D. programs, but its Bachelors program is the only undergraduate program recognized by the Town Planning Institute of Canada.

The School of Architecture, now part of the Division of Environmental Studies was formerly the Environmental Studies/Architecture program in the Department of Design in the Faculty of Architecture. The School intends to be a centre for research to generate new knowledge and understanding of Architecture, and will try to bridge the gap between the humanities and the engineering sciences. Special attention will be given to the concepts of systems engineering and applied computer science.

The School will continue the co-operative program initiated in September 1967, whereby study terms alternate with work terms. Entry into the four academic terms and on eight-month work term Bachelor of Architecture program, follows completion of the three year Bachelor of Environmental Studies/Architecture degree.

The Division of Environmental Studies was formed on the recommendation of a study held at the request of Dr H. E. Petch Academic Vice-President of the University of Waterloo. Four professors, Tore Bjornstad of Environmental Studies/Architecture, Jack Ellis of Engineering, Len Gertler of Planning, and Ralph Krueger of Geography participated in the study, and a number of campus-wide meetings were held to elicit opinion from other faculty members and students. The proposal has been approved by the Senate of the University of Waterloo and came into being at the start of the fall term of 1969.





LEGEND

a	studio area
b	future scaffold construction
c	faculty offices
d	heater
e	library
f	reception
g	lobby and exhibition
h	entry
i	lecture hall
j	gallery above
k	workshop area & studio
l	men
m	women
n	offices and reception
o	lecture below
p	photo labs
q	studio below
r	artist studio
s	seminar-lounge
t	food services
u	darkrooms
v	workshop and studio below
w	future level for studio
x	faculty work area
y	upper part of lecture hall
z	gallery

A Student Proposal for School of Architecture, University of Waterloo (in area only)

B The School of Architecture at "Hotpack Industries"

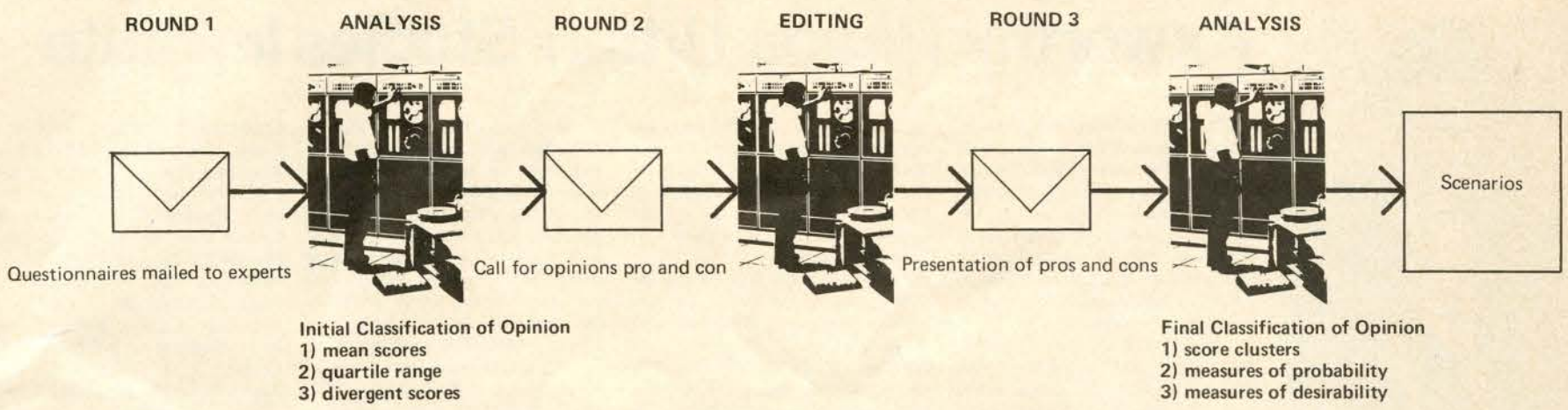
Warehouse Houses School of Architecture

Hotpack Industries undergoing changes

The University of Waterloo eventually intends to house the whole Division of Environmental Studies in one building. To this point the Schools have been scattered in different spaces around the campus – the School of Architecture, when it was part of the Faculty of Engineering, was housed in the Engineering Building.

As space was limited there and as the number of students grew, the School of Architecture was given the alternative of occupying the sixth floor of the Library or finding a more informal space of its own. (Their pet pig would not have been allowed in the Library space.) Several alternatives were explored, such as moving into a vacant Loblaw's store in Waterloo Square. Finally the Faculty suggested the warehouse of Hotpack Industries, their suggestion was accepted, and the space was leased to the School.

The problem was then set to first-year Architecture students (1B) to take the space and "consider the accommodation of the physical and human resources in the most economical manner". The class was divided into six teams and each team was to be responsible for the total process. Of the six schemes submitted, the most successful is shown here (A) From this scheme, the faculty went on to devise the actual plan (B) The photographs on the previous page show students at work in their new surroundings.



Questioning Procedure used in the Delphi Probe

The Delphi Technique of Forecasting

The RAIC will, at its 1970 Annual Assembly in Winnipeg, May 13-16, use a new communications technique to clarify questions about the architectural community which will assist it in assessing its future role and responsibilities. The technique known as the Delphi "Probe" will be conducted by Harry E. Nolan of Toronto (see page 6, *Architecture Canada,* October).

The same technique was recently used to solicit views on possible future developments in Canada. An article discussing how this technique was used to outline possibilities for the future appeared in the September issue of *Science Forum*. The article by R. D. Voyer, a science adviser on the staff of the Science Council of Canada is reprinted below.

The anticipation of technological change that permeates practically every contemporary activity is essential to planning. The governments of all industrialized countries are continually faced with decisions on matters with technological content (communication satellites, ABM systems, airbuses, supersonic aircraft, nuclear reactors, etc.) without having developed the mechanisms necessary to assess the impact of technological change on society. As it becomes increasingly evident that technological change cannot forever 'ride madly off in all directions,' like Stephen Leacock's young hero but must be harnessed to the solution of social and economic problems, the art of forecasting will play an increasingly important role in planning. By focusing attention on possible future opportunities and threats, forecasts can lead to more responsible decision-making, something highly desirable since we are all destined to spend the rest of our lives in the future, living out the consequences of our decisions.

The reliability of extrapolations into the future, based on the present dynamics of our society, decreases rapidly with increasing time; long-range forecasts must be increasingly tempered with intuitive judgment. A method known as the Delphi Technique (T.J. Gordon and O. Helmer, *Report on Long-Range Forecasting Study,* RAND Corp. Report P2982, (1964) has been developed in order to make effective use of the informed intuitive judgment of a group of experts.

The traditional approach to reaching a consensus has been face-to-face discussion, but this method is open to several criticisms; in particular the influence of such psychological factors as intimidation by pecking order, unwillingness to abandon publicly expressed opinions, and the bandwagon effect of majority opinion. The Delphi Technique was developed to avoid such pitfalls by replacing direct debate with a series of individual interrogations on a given subject, by questionnaire to assure anonymity, and interspersed with opinion feedback derived from earlier rounds of the inquiry. It is usually found that after a few rounds, opinions tend to converge to a reasonable consensus.

Future Developments in Canada

The Delphi Technique was used recently to solicit views on some possible future developments in Canada from a group of colleagues whose backgrounds include the natural sciences, engineering and economics.

In the experiment, consisting of two sequential questionnaires, the 10 participants were asked to estimate the future timing (i.e., giving a date between 'now' and 'never') of certain events, and the reasons for their choice of dates.

The results from the first questionnaire were summarized and presented in a second questionnaire, giving the median date for the occurrence of each event, the time interval containing the middle 50% of the responses (the so-called interquartile range or IQR) which gives a measure of the consensus, and the reasons for dates falling *outside* this interquartile range. The respondents were then asked to review their initial estimates in the light of this new information. It was found that there was a definite tendency towards a convergence of opinion after the second round.

As well as forecasting the timing of certain events having some technological, economic, social or political relevance to Canada, the panel was also asked to make value judgments as to the desirability of these events.

The results of this joint forecast are *only opinions,* but they do provide some insight into this group's views of the future and they present a useful basis for discussion of the planning necessary to attain desired objectives. Rough sketches of some future possibilities can be outlined.

The results would seem to indicate that the panel believes that new technology will contribute to the well-being of Canadians at an accelerated pace, unless there is a major setback or slow-down of Canadian technological progress in the late 1970's brought about by general unrest, dissatisfaction with irrelevant existing institutions which cannot adapt to social change, and a backlash against the U.S. military-industrial complex which would spill over into Canada. These are their predictions.

Computer Development

Accelerated computer developments will probably lead to a central data bank, keeping up-dated records of the entire population by the early 1980's. Since such a development will lead to an increasing lack of privacy it will be resisted; this will necessitate the establishment of adequate safeguards. The development of large sophisticated computers will lead to information retrieval systems from central data banks via a console in the home since the 1990's. This should bring about, for example, the possibility of home education for children. As we enter the next millennium, computers will have evolved to the stage where automatic language translation of texts, with correct grammar, should be a reality; this will be a distinct boon to a bilingual Canada. On the political front, computerized home consoles will be used for 'instant' voting on daily or weekly referendums after the year 2000; as the burden on decision-makers increases and as long-range planning proves more necessary, it will become essential to improve the efficiency of the democratic process and achieve a broader participation by the populace.

It is expected that automation will lead to a wide-spread displacement of money by a national credit and banking system in the 1980s. As automation improves communications, the day may come when a majority of the work force will simply 'communicate' to work from their homes or elsewhere (median date 2030). In the next century, traditional means of communications (e.g., written correspondence) will become obsolete as alternative ways of sending and storing messages become more efficient.

Increased Leisure

Automation will also lead to increased leisure; it is expected that the number of leisure days per year will exceed the number of working days by 1990. In such a 'post-industrial' society, whose members will spend most of their time pursuing avocations, new values will surely develop. For example as education becomes more and more valued and as its efficiency increases (possibly the equivalent of a present university education in half the time by the 1090's) it should become a sought-after avocation. Travelling will also play a major role in enjoyment and education; new vistas, such as the Canadian Arctic, will open up to the tourist in the next century. Eventually Canadians will be able to enjoy their leisure longer through an extended life span; the panel estimated that life expectancy will have reached 100 years by the late 21st century (median date 2085; IQR 2070 to 2100).

It was forecast that 50% of the petroleum produced will be used in ways other than combustion after the turn of the century. This substitution will come about through various innovations, in inexpensive plastic materials which will become more important than conventional paper products (newsprint, writing and wrapping paper, etc.) by the year 2000, and in other fields such as the widespread production of synthetic proteins (feasible by the early 1980's).

Nuclear Energy Furnaces

Canada's nuclear reactors will surely be instrumental in the development of nuclear energy complexes for industrial production, particularly in metal refining, by the mid 1980's. Later on, by the turn of the century, new applications such as the heating of buildings from centralized nuclear energy sources, instead of from conventional individual furnaces, can be expected.

More Public Transportation

Canada is rapidly becoming an urbanized country – by the year 2000 more than 85% of the expected 35 million-plus population will be living in urban centres. The population in the industrialized Montreal-Windsor corridor is expected to double by the early 1990s. A rapidly increasing population and rate of urbanization will create a variety of problems requiring totally original solutions; the usual patchwork will no longer be satisfactory if we are to keep a desirable human environment. For example it is predicted that to improve the quality of life in our larger cities, advanced public transportation systems will have replaced the automobile in city cores by 1990. As urban planning becomes more widely accepted, new city concepts will develop. It can be expected that by the early 21st century, new cities will be built in Canada with all essential services underground, including transportation, thereby liberating the surface for human habitation and enjoyment. Such cities will be united by high speed surface transportation systems (e.g., a 300 mph system should have been developed by the late 1980's).

Improved Bulk Transportation

Increasing human activity, in terms of use per capita of energy and material resources, will result in a greater flow of goods and materials requiring improved bulk transportation systems. 'Containerization' has already produced a significant improvement in the bulk transportation field. The increased flow of supplies will make it necessary for the seaway to be kept open year round by the mid-1980's. Also by that time new modes of bulk transportation, such as pipeline transportation of wheat and other materials, will have appeared. The accelerated use of materials will mean that Canadians will have to go further afield to replenish their supplies of raw materials; oil will flow from the Arctic to points south, firstly by tankers and pipelines and then possibly by submarine tankers after the turn of the century, while minerals will be extracted from the ocean once the economic feasibility is demonstrated (median date 2000).

The panorama of future possibilities outlined here is far from complete, and further attempts can be made at filling in the mosaic by integrating these events with other data and conjectures; the limit lies only with the imagination.

Any one of the subjects touched on represents a theme that can be developed in several scenarios of the future depicting the possible consequences of alternative decisions. Scenarios that integrate social, political, economic and technological extrapolations with *desired* goals, such as those set down by the Science Council in its Report No 4, serve as catalysts for the crystallization of thought; they indicate the decisions necessary *today* and at various times in the future to achieve desired objectives or to avoid catastrophes.

Lloyd Axworthy

Axworthy Heads Urban Studies Institute

WINNIPEG – An Institute of Urban Studies has been established at the University of Winnipeg. The new research organization, which is sponsored by the University on a grant from Central Mortgage and Housing Corporation, will study local problems to assist in finding solutions to urban problems generally.

The new Institute's Director, Lloyd Axworthy, BA (Man.); MA (Princeton), was Executive Assistant for Housing and Urban Development to the Hon. Paul Hellyer during the Housing Task Force operation, and, in that capacity, participated in the RAIC Conference in Toronto last February on the Task Force's report. He formerly taught political science at the University of Winnipeg. Last month he was appointed to the Council of the Company of Young Canadians.

In a statement of its aims, the new Institute said that: "The purpose is to create an Institute that is more than a place for just academic study and debate. The central concern is to develop practical answers to real problems. It will concentrate its work on proposing solutions, testing new methods and implementing different techniques to meet the physical, economic and human dilemmas faced by a modern city. Through the mobilization of the skills of people in the university and in the wider community, the Institute will act as an initiator of new ideas, a consultant offering resources and advice, and a commentator on the urban scene. In this sense, its primary purpose is to serve the urban community."

The Chairman of the Board of Governors is R.K. Siddall, of the Great West Life Assurance Company, and the members are W.J.A. Bulman, President of the Bulman Group; Prof. Gordon Blake, Head of the School of Economics at the University of Winnipeg; Prof. B.M. Evans, Geography, University of Winnipeg, J.A. Houston, Regional Supervisor of Central Mortgage and Housing Corporation; E. Levin, Director of Planning for the Metropolitan Corp. of Greater Winnipeg; Prof. Wm.A. Morrison, Head of Sociology, University of Winnipeg, N. Osler, Manager, Manitoba Housing & Urban Renewal Corp., Dr J. Graham Pincock, Assistant to the President, University of Winnipeg; E. Simpson, Director, Housing & Urban Renewal Dept., Winnipeg; Prof. R.S. Veatch, Political Science, University of Winnipeg.

Fullerton New NCC Chairman

D.H. Fullerton

OTTAWA – Douglas H. Fullerton, 51, investment councillor and former chairman of the Cape Breton Development Corporation, has been appointed chairman of the National Capital Commission, the Federal agency responsible for planning and development of Ottawa and Hull within the 1,000 square mile National Capital Region. He succeeds A.J. Frost of Ottawa who held the position for the past two years.

Slayton Named AIA Staff Head

WASHINGTON – William L. Slayton, 52, has been appointed Executive Vice President of the American Institute of Architects succeeding William H. Scheick, FAIA, who has been Executive Director for the past nine years. Mr Slayton was formerly president of Urban America, Inc. and is the first non-architect to hold the top AIA staff job since 1949.

Before joining Urban America, Mr Slayton served for five years as commissioner of the Urban Renewal Administration of the Housing and Home Finance Agency.

Urban America has not named a successor for Mr Slayton. Mr Scheick, 64, will remain with the AIA on a special assignment basis.

Classified

Advertisements for positions wanted or vacant, appointments, changes of address, registration notices, notices of practices including establishment or changes in partnership, etc., are published as notices free to the membership.

Practice Notes

Andrew A. Chomick, MRAIC, has moved from West Vancouver to Barbados. His new address is c/o Robertson and Ward Associates, Architects and Town Planners, Welches, St. Thomas, Barbados, West Indies.

Bruno Apollonio, B. Arch., MRAIC, has moved to new offices at 100 Dupont St., Toronto 180, Ontario. 416-925-5224.

P. G. Morley, A.A. Dipl. FRIBA, MRAIC, has been appointed Chief of Design Division, Department of Public Works, Government of the Northwest Territories, P. O. Box 1977, Yellowknife, N.W.T.

Robert Eaton, MRAIC, has opened his own architectural practice at 388 Highfield Street, Moncton, New Brunswick.

Positions Wanted

Graduate architect, completing postgraduate study in town and country planning with specialization in housing and community planning seeks employment in April 1970. Contact S.K. Gupta, School of Planning and Architecture, Indraprastha Estate, New-Delhi-1, India.

Modelmaker — required for new provincial museum; to undertake scale models of historical and other subjects. Full time position. Write R. O. Harrison, MRAIC, Director, Provincial Museum and Archives of Alberta, 12845 – 102 Avenue, Edmonton 40, Alberta.

Back Copies Required

The Library of the National Gallery of Canada needs early issues of the RAIC Journal to complete its collection and would be interested in hearing from anyone who would supply copies of the years prior to 1947, that is, volumes one to 23.

General Sound

P. L. Shea

The appointment of P. L. Shea as General Sales Manager, Communications Division of General Sound and Theatre Equipment Ltd., has been announced by Lloyd C. Pearson, President. Bringing more than twenty-two years' experience in the industry to his new position, Mr Shea has served in management capacity with the company since 1963. Previous to his new appointment he was Ontario District Manager of the Communications Division.

Mr J. M. Cohoe succeeds P. L. Shea as Manager of the Ontario District, Communications Division. Previously he was chief estimator and engineering consultant for the Ontario District, Communications Division.

Index to Advertisers

Significant Changes in New NBC

OTTAWA – The Division of Building Research of the National Research Council announces that the new edition (Fifth) of the National Building Code will contain significant changes to the section on earthquakes and wind loads. This information is being released in advance of the publication date for the convenience of those working on advance designs for 1970.

The 1970 earthquake design provisions will be related to a new seismic regionalization map for Canada, prepared by the Department of Energy, Mines and Resources and the National Committee on Earthquake Engineering. Significant changes that will follow the official use of the new map include some reduction of the seismic regionalization factor (R) for the Montreal and Ottawa area and for Maritime cities, but an increase for the Niagara area. The seismic forces to be used in design will be affected not only by changes in the regionalization factor but also by other revisions of the earthquake design requirements. There are important changes for example, in connection with the design of school buildings.

The designer will also find several novel features in the new requirements for wind effects, all expected to result in more rational design, providing greater safety in some cases and greater economy in others. The main change will be that two different methods of calculating wind loads will be given. The first, called the "standard method" will be contained in the Code itself, whereas the second, called the "detailed method" will be given in the new structural Supplement No. 4 to the Code.

Full information on these now authorized changes is now available in the form of a mimeographed copy of the new Section 4.1. Address requests to J. M. Robertson, Secretary, Associate Committee on the National Building Code, National Research Council, Ottawa 7, Ontario.

Colloquy on Practice Techniques

The topics and faculty members for the National Colloquy on Emerging Techniques of Practice Management to be held at the Pennsylvania State University December 14-17, have been announced.

The two and a half day colloquy devoted to discussion of new techniques of practice and practice management will consist of ten sessions. At each, one basic subject will be presented by a faculty member followed by comments from a panel of other faculty members and a question and answer session open to participants.

Topics to be discussed are: Practice Management and New Business Development; Practice Management and Project Planning; Management Procedures – Business and Production; Total Project Management including Construction Management, Programming Management and Techniques; Practice Management and Project Systematizations; Production Management and the Team Approach; a Design System using Photography and Printing and Construction Cost Management.

Faculty members will include Frank W. Helyar, partner in the Toronto firm of Helyar, Vermeulen, Rae and Mauchan, Construction Consultants and Quantity Surveyors and a technical editor for *Architecture Canada* and Ned H. Abrams, Sunnyvale California, architect and developer of a design system using photography and offset printing (see *Architecture Canada,* September, October 1969).

Colloquy Director is C. Herbert Wheeler Jr, AIA, architect and Associate Professor of Architectural Engineering, Pennsylvania State.

All practicing architects and engineers are invited to participate. For registration information write Prof. Wheeler at the Department of Architectural Engineering, Pennsylvania State University, University Park, Pennsylvania 16802.

N.A. Construction Industry Slammed

BOSTON – Canadian management consultant, Gordon G. Allan, of Urwick, Currie & Partners Ltd., Toronto, told members of the Prestressed Concrete Institute Convention here that the North American construction industry is considered to be the most mismanaged, disunited and malorganized industry on the continent.

Contractors have been forced to adopt a task-force type of organization, which is more permanent than the pyramid structure, because objectives must be set out. Conglomerates perform successfully in the same manner.

Allan urged his audience to break down the bureaucratic pyramids seen most frequently in companies and replace them with departments that will undertake complete responsibility for a part of the total business instead of partial responsibility.