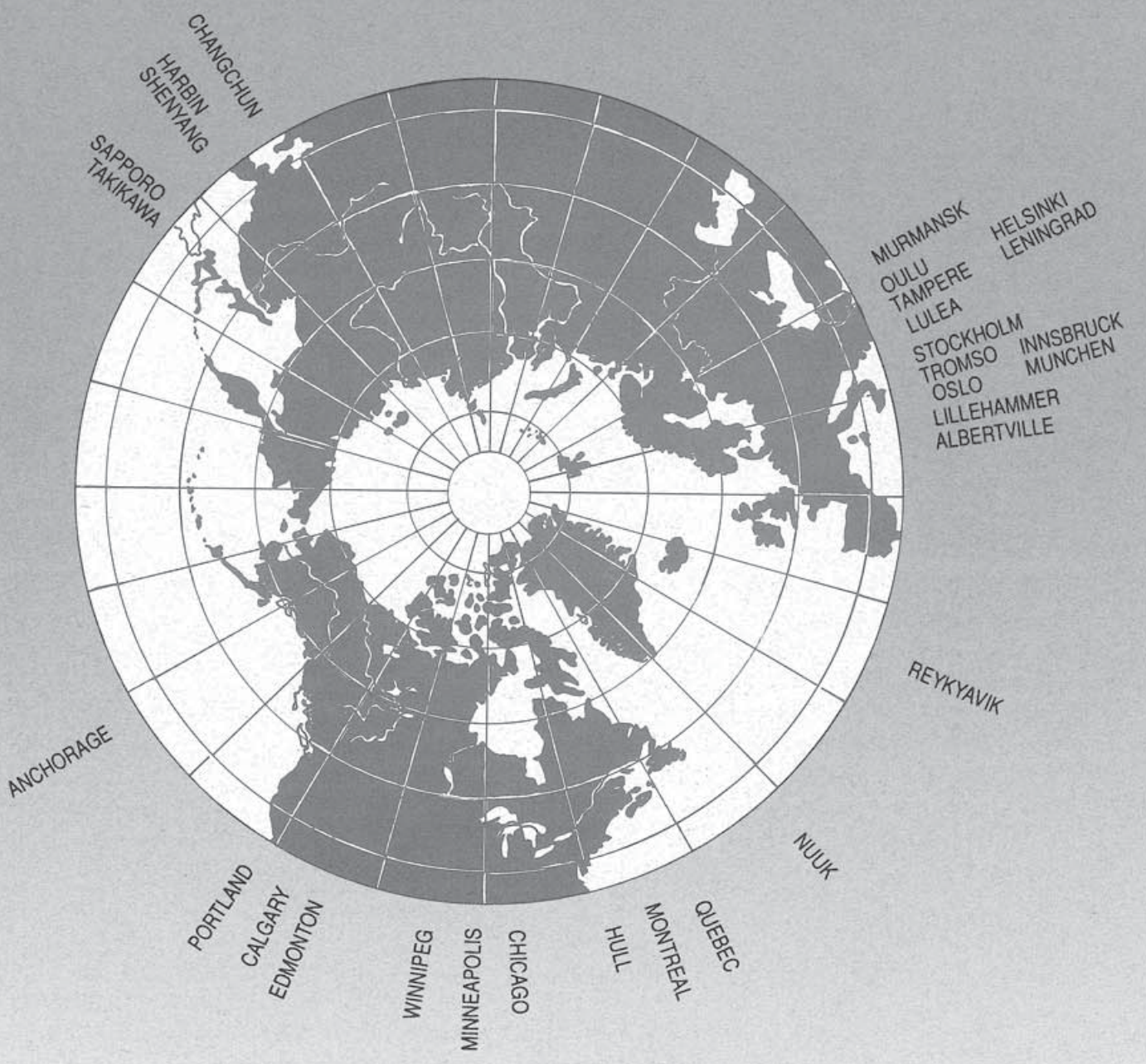
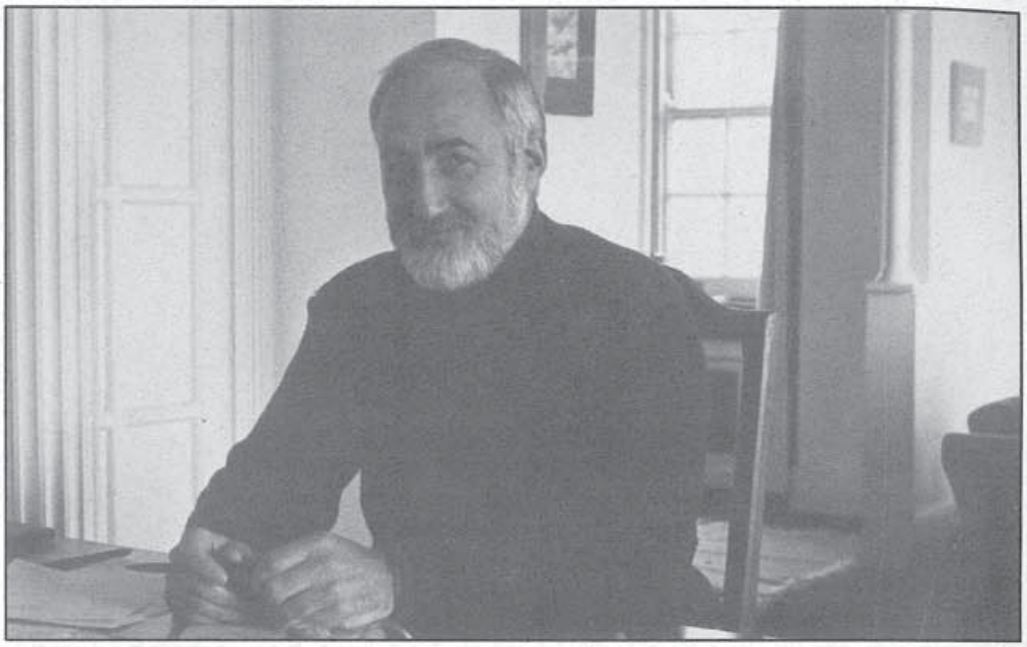
WINTER CITIES



THE BUSINESS OF WINTER

JANUARY/ FEBRUARY 1990 VOLUME 7, NUMBER 7

PRESIDENT'S MESSAGE



President
Harold Hanen

The last decade of the century, like a countdown to a major anniversary, quickens our collective pulses and sharpens our perspective.

How do we follow up our considerable accomplishments of the '80's? To date we have made great strides in increasing awareness. There is now a developing sensitivity within the circumpolar community of the pervasive impact that the northern geo-climate has on all aspects of our lives. We must continue to encourage through our affiliate network, N2P2 program and publications each community's ongoing efforts to realize their own vision of the ideal winter city.

But I believe, as we enter the '90's, that the emphasis must shift. It is time to focus on specifics. Most important is the logic, one rooted in our own traditions, geography and resources.

This will require the same vigorous entrepreneurial approach that characterized the Association's efforts in the 80's. We have a critical part to play in stimulating the generation of relevant data and solutions to help northern communities dynamically fulfill their four season livability and economic potential.

This issue of "Winter Cities" begins our journey into the '90's and into a new and exciting future for northern communities. I look forward to the International Winter Cities Forum/Showcase in Tromsø which will certainly help shape the winter cities movement agenda for the upcoming decade and beyond.

I would also like to bring to your attention the theme graphics for this issue - nature motifs of northern coinage. We believe they elegantly express the interdependance of economics and the sustainable winter city environment, and reflect the need for intersector and interdisciplinary strategies in approaching winter city issues.

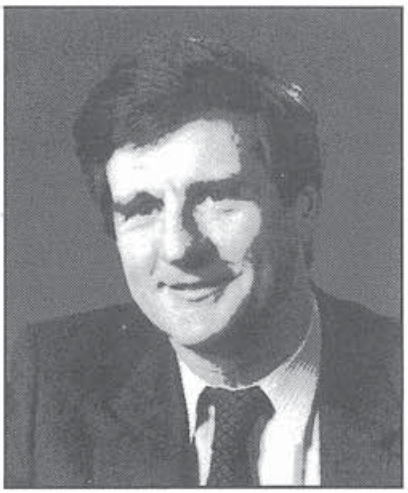
The new Winter Cities "look" has generated many very favorable comments. It's people! The Winter Cities Association has been blessed by dedicated, energetic and creative volunteers and workers. It is because of them, I am enthusiastic and optomistic about the future.

FROM THE EDITOR'S DESK

Sustainable development not only presupposes an environment-economy link for all future winter city development, but it implies making good past mistakes.

"Our Common future", the report of the U.N. World Commission on the Environment and Economy, (see book review) states: "Humanity has the ability to make development sustainable - to ensure that it meets the needs of the future without compromising the ability of future generations to meet their own needs." The book, though only 400 pages, is causing a revolution in planning and legislation.

Sustainable development is often viewed as simply the need to pull back and retrench; to reduce consumables and force sobriety of our lifestyles. However, more thoughtful entrepreneurs and individuals fully understand that society must alter certainly its consumption and pollution practices, if future generations on planet earth are to continue. Inherent in the new sustainable development policies are significant new business opportunities. Ultimately the business of the environment may become a major industry. Distance, profligate energy consumption, and resource based economies when combined with cold and snow create special challenges and opportunities for winter cities in the future. Existing businesses will become environmentally friendly and new businesses will control pollution and emissions, recycle waste and energy byproducts, and operate in harmony with natural resources. New ways will be devised to maintain renewable resources, to establish new forms of energy efficiency, to bring communities closer together with transportation and communication technologies. "Sustainable Development in Winter Cities; Forum '91" in Sault Ste. Marie will be the chance for winter cities and communities to take a progressive look at new economic opportunities resulting from a Northern sustainable development perspective. Our goal at Forum '91 is to produce a program whereby delegates can return home with useable ideas and plans which will more than offset their time and costs for the conference. Forum '91 officials will be attending the Tromsø Conference supported by Ontario's Minister of Northern Development and his staff. See you in Tromsø.



Guest editorial is by Jim Hilsinger
Vice President WCA & Chairman of Forum 91 Coordinating Committee

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CONTENTS

NEWS BRIEFS

THE MEDIA AND WINTER CITIES

BOTH THE SCANDINAVIAN AND JAPANESE MEDIA, have in recent weeks sent teams travelling the world in preparation for major in-depth series on the subject of "Winter Cities". While the 1986 and 1988 Winter Cities Forum/Showcase events in Edmonton attracted short-term media attention, this is the first time in-depth media analysis of the reasons behind the "Winter Cities movement", its nature and possible future directions will have been undertaken.

The Scandinavian activity is a co-production between Swedish Television SVT2 in Lulea; Station YLEI, Helsinki, Finland and NRK, Oslo and Tromso, Norway. It will be a series of four 50-minute broadcasts: three documentary films and a studied-based segment including interviews and a panel discussion.

Shooting began in November at Kiruna, Sweden, followed by a trip across Canada for filming in Edmonton and Toronto. In January segments were short in the North Calotte region of Northern Scandinavia and then in the Russian cities of Moscow, Novo Urenjoy and Yakutsk. Early February, found the filming crew in Sapporo. At Winter Cities Tromsø '90 further filming and interviewing will be done. The series is to be ready for airing in July.

Responsible for the series are Christian Hedlund, author/director and Bernt Viklund, Producer/Project Manager both of Swedish Television, Lulea. On the Canadian tour, they were accompanied by Gardar Sjodin, cameraman and Greger Fitinghoff, soundman.

In Edmonton, Canada under the guidance of Debbie Kronewitt-Martin, chairman of the Winter Cities Association affiliate, the crew filmed at West Edmonton Mall and the Atler C. MacKenzie Health Sciences Center. In Toronto they interviewed Architect Eberhard Zeidler in Eaton Centre the highly-successful glass-domed galleria/shopping mall and Winter Cities editor and founder, Jack Royle.

Bernt Viklund described the film purpose; "to show the possibilities and problems connected with planning, building and living in a harsh and cold climate. For too long, a rigid and conservative view has dictated how life should be lived in the north ... most planners, architects and politicians followed ideas and patterns copied from the south that ignored the frost, snow, wind and darkness that are the realities of winter cities".

"We want to present the history of our northern cities, show what they look like today and what they might look like tomorrow when we have evolved better adaptations to our climate".

The first episode of the three documentaries will look at what has happened to winter cities in the past. The second will feature West Edmonton Mall as "one of the best examples of a winter city based on technological development and massive input of capital and energy". In contrast examples will be shown of designs by Ralph Erskine, widely-known Stockholm architect, acknowledged to be an initiator of the "Winter Cities movement" and advocate of "user-friendly" designs and adaptations.

The third episode will focus on Sapporo and Mayor Takeshi Itagaki who initiated the worldwide bi-annual conferences of Northern Mayors. It will also examine the decision making processes.

The final episode consisting of interviews and discussions will review the documentaries and consider conclusions that might be drawn.

THE JAPANESE PROJECT started when a reporter-photographer team representing Hokkaido Shimbun the largest newspaper in Northern Japan with more than 1,000,000 circulation, travelled across Canada in preparation of a series of eight articles. Messrs. Riki Kato, a leading journalist and Takeshi Koalai, photographer, visited St. John's and Cornerbrook, Newfoundland, Montreal and Toronto. In each of the cities they were greeted and assisted by civic leaders and members of the Winter Cities Association.

One article is being devoted to each of the two cities in Newfoundland, three to Montreal and three to Toronto. Civic officials interviewed included Major Jean Dore of Montreal and Robert Millward, Commissioner of Planning and Development, City of Toronto. W.C.A. members and supporters who gave assistance included: Dr. Alexander Robertson, St. John's, Chairman of that city's W.C.A. affiliate; Robert Stevens, senior planner, Scar- borough City Centre, Ms. Bonny Alter, Public Relations Director, Toronto Harbourfront Corporation and Winter Cities Association members Ms. Zenia Zepic, urban consultant Toronto, Ms. Sheila Pepper, Ottawa and Jack Royle, Toronto.

(Editor's Note: Hopefully the media in Canada and U.S.S.R. will inform their readers and viewers about the important inter Cities movement).

HARRICANA

THE INDIAN NAME OF A RIVER IN NORTHERN QUEBEC, Canada will in the next two months become familiar to the world, and particularly to those who fancy the daring, the unusual and humans putting themselves against the toughest of odds.

Adventure seekers of France and Canada re-joining forces to stage the world's first international long-distance endurance-testing snowmobile race. The event will take place February 23 to March 11 beginning at Quebec City and terminating at Radisson, on the east of Hudson's Bay. The route will be via La Malbaie, Roberval, Chibougamau, Nemiscau, Wemindji and Chisasibi.

Organizers are drawing on experiences with the famous Paris-Dakar annual auto and motorcycle races which have proved to be popular in Europe.

No more than 80 teams each made up of three snowmobiles and a sled will be permitted to enter the race. Each team of three will sleep in tents, and forego outside mechanical help. The race is a test of endurance rather than speed and teams may help each other with only the arrival time of the slowest team to be recorded. The route of some 2500 kilometres is scheduled to be covered within 12 days.

The event will make possible practical tests of clothing, sleeping bags, other pieces of equipment, and, of course snowmobiles.

Entrants will include teams of Quebecois or Inuit snowmobilers, Cree and Montagnais teams, a team from Lapland, one from Paris fire- fighting brigade, all-women teams, a team of computer scientists and numerous others.

Backers include the Quebec and Canada Ministries of Tourism, Damart, manufacturer of cold weather clothing; snowmobile- manufacturer Bombardier, Quebec Federation of Snowmobile clubs, the Inuit, Cree and Montagnais Communities of Quebec, Air Canada, and a number of media firms and clothing manufacturers.

Only "stock" snowmobiles are permitted with a mandatory fuel range of 300 kilometres and with no studded tracks. For a fee of $18,700 per person, entrants will be provided with air fare, accommodation before and after the race, supply of sled for each team with survival equipment, and other items. For entrants who do not own snowmobiles, an arrangement is being considered for rental. Entrants will be accepted on a first come first serve basis.

Progress of the race will be monitored by helicopters, Medical support and insurance will be provided. Each team will be equipped with distress signals.

The teams will drive from 4 to 10 hours per day commencing at 10:00 a.m.

POLYSTYRENE AND ROAD DAMAGE

A LIGHTWEIGHT MIX OF CONCRETE AND POLYSTYRENE BEADS is starting to reduce frost damage on Canadian highways. Similar to mixes used in Japan the lightweight expanded polystyrene (EPS) concrete mix is laid directly onto the subgrade to reduce frost penetration through the surface. The vibration-dampening material is said to reduce traffic noise an as added benefit.

EPS concrete, available from EBM Industries Inc., of North Vancouver, contains polystyrene beads that have been expanded by steam and coated with a filler material which allows them to adhere to concrete. The material, which has only about a quarter the weight of normal concrete, also contains cement, fine sand and water and is supplied in cubic meter bags, weighing about 25 kilos (55 lbs) each.

In its first Canadian application, EPS was used recently on a test section of highway near Williams Lake in the southern interior of British Columbia. Conducted as a demonstration project by the B.C. Ministry of Transportation, the application took place on a section of highway with heavy industrial traffic, averaging around a thousand loaded logging trucks a day. Initial results were termed encouraging with the product showing the thermal insulating properties required to reduce frost damage on highways, particularly in areas of permafrost. Other applications for EPS concrete include bridge surface protection, the elimination of 'waving' on the surfaces of airport runways and in wall panels for residential and commercial construction.

YET ANOTHER AWARD FOR MATUS

"DESIGN FOR NORTHERN CLIMATES" receives Honour Award from Canadian Institute of Planners. Vladimir Matus, urban planner, City of Hamilton, was recently advised his book, "Design for Northern Climates" received an Honour Award in the Environment and Resource Planning category in this year's Awards for Planning Excellence.

The judges' comments stated: "This book provides a methodology to take into account climatic and environmental factors which have not often been sufficiently addressed in urban design. It is applicable to many Canadian communities and represents an important advance in physical planning and design methods".

Mr. Matus, a Director of the Winter Cities Association, previously received Winter Cities Forum 88's International Grand Prize for his publication.

ASTIS WORK CONTINUES

THE ARCTIC SCIENCE AND TECHNOLOGY INFORMATION SYSTEM (ASTIS) has completed a contract from the DIAND Circumpolar and Scientific Affairs Directorate to add the Annotated Bibliography of Publications Based on Research Supported by the Northern Scientific Training Program, 1988 to the ASTIS database.

The contract is the latest in a series that has seen all NSTP bibliographies since 1983 integrated into ASTIS. ASTIS and other Canadian polar information centres continue to plan for the creation of a Canadian Polar Information System (CPIS). ASTIS manager Ross Goodwin and Boreal Institute head librarian Robin Minion are currently working on two of four recommended CPIS background studies funded by DIAND Circumpolar and Scientif ic Affairs Directorate. The first study will choose subject and geographic access methods for CPIS; the second will select an organizational structure for CPIS.

"DOUBLING THE ADVENTURE"

THE TORONTO WINTER CITIES ASSOCIATION and Metro Toronto Board of Trade are working together to create wintertime attractions in the Canadian National Exhibition grounds and other waterfront areas. A campaign to lure tourists with cut-price "winter vacation packages" has proved to be successful. A book listing the city's attractions and containing "2 for 1" coupons entitling admission fees and/or hospitality services at a number of the city's establishments has been mailed to prospective tourists each winter since 1982. This year the book went to more than 1,200,000 homes in Ontario and neighbouring provinces and the U.S.

A documentation of results for last season shows that the campaign produced 20,729 room nights, and 37,922 guest nights in the city's hotels. Accommodation receipts totalled $1,301,200 and total expenditures by visitors was estimated at $7,333,000. More than half the users (53.7%) were from U.S. Average party size was 3.1 persons.

The program is titled "Double the Adventure".

WINTER ' SISTER CITIES'

IN THE LAST 28 YEARS SOME 40 CANADIAN CITIES HAVE MADE "SISTER- CITY" arrangements with Japanese cities, almost half with sisters in Hokkaido, the most northerly Japanese prefecture. This is to be expected since Canada and Hokkaido are both "winter regions" of the world.

The first such adoption occurred in 1962 when New Westminster, B.C., signed an agreement with Mirguchi-shi a ward of Osaka. Since then, 19 other B.C. cities have adopted Japanese sisters. The list includes: Vancouver, Burnaby, Prince Rupert, North Vancouver, Richmond, Victoria, Summerland, Port Alberni, Vernon, Nelson, Oliver, Surrey, Castlegar and Lake Cowichan.

Alberta cities and Ontario cities, respectively with eight and nine sister-city agreements, stand well behind. Alberta cities include Jasper, Banff, Taber, Rocky Mountain House, Stony Plain, Camrose, Lacombe, and Canmore. Ontario cities are: Dundas, Lindsay, Collingwood, Hamilton, Mississauga, Timmins, Oakville, Windsor and Burlington.

Only three other Canadian cities have signed agreements: Winnipeg, Manitoba, with Setagaya, a ward of Tokyo; Halifax, N.S. with Hokodate-shi in Hokkaido; and Whitehorse, Yukon, with Ushiku-shi, Ibaraki-ken.

The Canadian cities that have sister-city arrangements with cities in cold and snowy Hokkaido are B.C.: Burnaby, Penticton, Sparwood, Quesnel, Campbell River, Port Alberni, Castlegar and Cowichan. Alberta cities: Rocky Mountain House, Stony Plain, Camrose, Lacombe and Canmore. Lindsay, Ontario and Halifax also have agreements with Hokkaido cities.

Sapporo has no sister-city arrangement with any Canadian city, but has such an arrangement with Portland, Oregon., U.S., as well as other cities around the world. Glen Jones of Ontario Government offices in Tokyo supplied above information and wonders if some large Canadian cities, perhaps Ottawa, or Thunder Bay may benefit by entering a sister-city arrangement. with a Japanese city. Readers wishing to contact Mr. Jones can write to him at Ontario Government Offices, Ste. 1219, World Trade Center, 4-1, Hamamatsu-cho #2-chome, Minato-ku, Tokyo 105, Japan.

2 MILLION ATTEND SAPPORO'S SNOW FESTIVAL

STARTED IN 1950 BY A GROUP OF STUDENTS who built snow statutes on Odori Park, Sapporo's 1990 Snow Festival, held the first week of this month, was attended by more than 2,000,000 people from Japan and abroad. Sapporo's population if 1,640,000.

The usual large number of snow statutes and ice sculptures were on display at three different sites. The largest were on display along Odori Park, Sapporo's broad midtown boulevard which stretches for13 blocks.

Plentiful snow had fallen on the city before the event and popular attractions were the hills and mountains that lie within city limits. Okurayama and Miyan Omori jump hills were a favorite with skiers; Mount Moiwa in the south western part of the city has a rope tow and chair lift and attracts those who wish to look down on the city's panorama. Further south Hitsujigaoka Observation hill looks down on farmland.

The snow statues and structures first created by the students were increased many times after 1955 when the Self Defense Force joined with the students and brought their equipment and manpower to bear. Up to 6,400 truckloads of fresh snow are hauled to the snow statute sites each year from outlying districts, beginning about three weeks before the Snow Festival. Large wooden frames are created and these are filled with well packed snow. Then the frames are taken away and carvers begin their work of reproducing famous scenes or figures. Ideas for the sculptures are invited from all citizens and many are contributed by students.

One large snow statute (some are as high as 15 to 20 metres) requires 2,000 metric tons of snow. In 1974 the first international snow statute competition was held. The competition takes place on International Square while on Citizens' Square, citizen and student groups try their hands, too, at snow statutes.

Ski jumping and cross country skiing carry on continuously through the winter. Cross country skis may be borrowed free of charge from the Winter Sports Museum. Skating rinks designed for the Winter Olympics are favored, also the famous Makomanai Indoor and Outdoor Skating Rinks.

Sapporo has a novel idea for creation of a "snow queen". A competition is used to select the most attractive young women and the four who rank highest are designated to serve jointly as "Queens". They make appearances during the festival and play the role of "Miss Sapporo" until March of the following year.

SNOW AND ICE MANAGEMENT

SNOW AND ICE MANAGEMENT IS THE MOST VISIBLE OF THE MANY SURCHARGES RELATED TO DOING BUSINESS IN WINTER CITIES. Despite attempts to improve traditional methods and a few recent experiments, the costs are going up.

Scientists of University of Western Ontario, Canada in a study of snow removal methods and costs completed at the beginning of the past decade (previously unreported in any general circulation publication) found that numerous problems existed and trends and conditions are making the problems more severe.

The study showed costs had increased by about seven times between 1952 and 1972 after discounting inflation. Projecting the accelerating curve indicates such costs today may be running on average some 12 times higher than 40 years ago, and if inflation is put back into the calculation probably 20 times higher.

Municipal engineers and other experts say the added expenditure has produced little improvement for the average motorist or pedestrian. Rising populations (people and vehicles) and increased expectations that go with higher living standards have offset advances in technology and methods.

Information was hard to come by. Not much exchange of information has been taking place between cities, counties and towns. Differences in microclimate, terrain and many other factors mean that municipalities often feel it has its own problems are special. The U.W.O. study is a Canadian benchmark in that it examined previous methods and terminology and provided a basis of facts and figures.

A detailed eight-page questionnaire was sent to more than 200 Canadian municipalities. Seventy responded including 38 cities and 11 towns.

Some of the conclusions:

"Questionnaire results suggest that the course of action currently followed in snow clearing operations are not very sensitive to prevailing conditions;

"The snowfall magnitude at which most municipal snow clearing operations begin was found to be 2.5 inches: With no snowclearing action, 1.5 inches was rated as a nuisance, 3 inches as inconvenience and 6 inches as a disruption;

Comparison with climate data supplied by local meteorological services where such were available suggested decisions often were not strictly related to local climate conditions but sometimes to such considerations as "custom". "It's what we've always done!"

The report declared: "The disruptive effects of snow, wind and cold temperatures on transportation and overall mobility are of considerable importance to our present society" ... "Rapid urban growth has complicated matters by creating new and expanded travel patterns that are quite sensitive to the effects of a single snowstorm ... As the growing urban populace makes increasing demands for a better quality of life, municipal governments are finding it exceedingly difficult to fulfill these demands as the costs of maintaining municipal responsibilities have sored ... "

"The quality of life in expanding urban centres is often measured in terms of mobility ... a normally manageable depth of snowfall may, combined with high winds and low temperatures, create conditions that are severely disruptive". This often happens when winds are extreme but no snow is falling.

An extensive literature search by the authors revealed that: "very scant information on the definition of snow hazard in terms of prevailing weather conditions is found in the present day literature."

A tabulation of the results showed that 39.4 percent of responding municipalities had adopted formal snow control plans; 82.4 percent including virtually all cities and towns had established snow routes; 69.1 percent were enforcing a variety of street parking regulations to facilitate snow removal; Most were using Canadian Meteorlogical Service or electronic media for their weather information but only 38.1 percent issued reports or warnings to the public.

Comparisons showed the benefit of a well-organized plan to deal with winter winds and precipitation. If no action is taken, eight to nine inches of snowfall will produce serious traffic disruption. With a good organization backed by a full array of equipment, problems set in after four inches of snow have fallen and severe disruption occurs when 11 to 12 inches have fallen. "Normal" experience is somewhere between with problems setting in at two inches and also reaching crisis level with 11 to 12 inches of snow on the ground.

One important item discussed recommended methodology for selecting a rational choice of alert period.

Defining "snow hazards" is a problem. "One can define a number of snow hazards. Such hazards as the loss of visibility due to falling and blowing snow, the disruption of transportation due to snow and or ice on the roadway, and economic penaltie s to municipalities are forms of this hazard.

Authors were M. Mikitiuk and N. Isyumov of the university's world known Boundary Layer Wind Tunnel Laboratory headed by Dr. A.G. Davenport.

SAD STUDY

TWO NEW MEDICAL RESEARCH ASSOCIATES, appointed Chris Gorman and Doug Watson, of the University of Calgary Faculty of Medicine, have joined the Arctic Institute located in Calgary, Canada as research associates to conduct a seasonal affective disorder (SAD) study. SAD is a psychiatric illness characterized by regular winter depressions alternating with non-depressed periods in the spring and summer. Symptoms include increased appetite, carbohydrate craving, weight gain and hypersomnia.

STRENGTH IN NUMBERS

THE DRIVE TO CAPTURE EXPORT MARKETS was the impetus for the formation of the Cold Climate Technology Association of Canada (CCTAC), located in Edmonton, Alberta, Canada.

"Small companies can't afford to wait for opportunities at home," explains association Chairman Jim Pallister. "We're looking to the export market." "It's only recently that we began to think of cold climate technology as a separate industry."

Established just over a year ago, CCTAC undertook as assessment of the Antarctic market as its first project. The group's lobbying efforts resulted in Canada's membership in the Scientific Community for Antarctic Research (SCAR). Membership allows Canadian companies to supply goods and services to the Antarctic market, which Pallister estimates at close to $500 million.

C-FER vice-president Larry Staples sums up the Alberta advantage: "With its mix of research capability and engineering know-how, the cold weather engineering community in Alberta is one of the most advanced in the world."

CHIPS FLAKES AND GUSTS

BY BILL ROGERS

"THE TWIN CITIES HAVE A WARM LOOK OTHER PLACES LACK", writes Tim Brady in a recent issue of Minneapolis St. Paul Magazine. He attributes the advantage to the use of locally excavated Kasota stone.

We love the looks of the marvellous building material and only wish it was used more instead of the highly favored cold steel, snow white aluminum and glacier-blue glass which adorn most of our new buildings. Still, Kasota stone is used by Cesar Pelli for the huge, handsome new Norwest Tower and for the WCCO-TV building, both new downtown Minneapolis buildings. Brady describes the stone as the color of "New York-Vanilla Ice Cream". It has pink and other strains .. and a creamy, buff color, according to a salesman for the Mankato-Kasota Stone Co. We hope these people realize they are selling a very warm winter cities product.

SNOW REMOVAL is a major contribution to the business of winter. Snow and ice control accounts for about one sixth of the world's annual consumption of salt. Highways consume 1,000 to 1,200 pounds per mile each year, according to Shelly Fling in the December Minnesota Monthly. Dump truck snow plows cost around $60,000 (U.S.) each and get less than seven miles to the gallon of gas. over 500,000 snowthrowers are sold in U.S.

SNOW CAN KILL TOO. An Armistice Day storm in 1940 took 49 lives and the 1975 "Super Bowl blizzard" killed 34. On the other hand snow absorbs valuable chemicals from the atmosphere and releases them into the soil for a gain of $20 per acre.

BEATRICE WERHAHN is the beautiful woman who runs Raichle, a huge Swiss producer of 700,000 ski boots a year. Her picture is on the cover of "Swiss Business (December issue). Seventy percent of the firm's production is exported. The company also sells 250,000 pairs of walking and hiking shoes each year in "fashionable purples, pinks and greens", (which, by the way, are our favorite winter colors).

Mme. Werhahn makes frequent trips to Japan where she is of great interest as a successful woman executive. "The Japanese are really fanatical skiers", she says. "Skiers are very young and unbelievably fashionable .. and have money for ski equipment since they usually live with their parents and can save. Skiing is a good place for young Japanese in search of a partner and Japanese youth will spend up to half of their ten holidays on the slopes."

THE THREE-DAY ANNUAL MINNEAPOLIS/ST. PAUL SKI, SNOWMOBILE AND WINTER SPORTS SHOW told us all we wanted to know about winter exertions. Besides mammoth exhibits of ski and snowmobile manufacturers, seminars, appearances of sports celebrities and previews of new films were offered.

At a more down to earth level, is the fourth annual "giant swap of winter sports gear". Ski shops and the general public bring in unsold merchandise and unwanted equipment worth around a quarter of a million dollars. Everything is sold at bargain prices.

WE SPENT A DELIGHTFUL COUPLE OF HOURS at the City of Edina's Indoor Park, recently. It is part of the handsome Edina Park Plaza developed by Larry Laukka (W.C.A. member). A handsome brown and green masonry 20-story complex of apartments and offices adjoins the Park building. Flowers and trees flourish in the glass-domed park. Also included are a 255-seat ampitheatre, a swimming pool, a running track, tot lot and restaurant. The performing and visual arts have found a home in the park with daily performances. Numerous grandparents with their grandchildren are to be seen since there are activities to appeal to all ages.

SNOW REMOVAL in front of Minneapolis public buildings must be preceded by reading throughout an "Invitation to Bid" of 91 pages even through "no bid over $15,000 will be considered". Shovelling the snow is surely an anti-climax after shovelling through this bureaucratic mountain.

It was great to meet fellow WINTER CITIES NEWS COLUMNIST, CHARLOTTE MATTHEWS at breakfast one snowy Minnesota day. She was attending a gerontology conference. We had a good discussion of ways to make winter cities more friendly to the aging. She told me about Canadian seniors moving into hotels and motels in the winter taking advantage of low rates due to high vacancy levels. Busy season for these businesses is summer and they're better to have lower income in winter than none.
Charlotte got me interested in the problems of seniors and I hope to find out more in future.

THE BUSINE$$ OF WINTER

By Harold Hanen, President of the Winter Cities Association

IT IS ALWAYS DURING CHANGE THAT OPPORTUNITIES ARE MOST DRAMATICALLY REALIZED OR LOST.

The Dynamics of doing business in the '90's is changing. Increased global trading has already created significant and permanent shifts in our international business environment. These include increased competition, rationalized enterprises and industries that cannot compete as well as some innovative new strategies for economic cooperation.

During the last two centuries, the northern regions seem to have lost the sharpness in their cultural expressions, but also in the nature of their global business strategies.

This issue of "Winter Cities" attempts to heighten awareness to the fundamental, economic impact of the differing geo-climatic conditions between the north and south regions.

It is clear that for winter cities to flourish in the merging global marketplace they require far more detailed and quantitative understandings of the financial surcharges as well as the unrealized opportunities associated with being a member of the northern business community.

There are certain imperatives inherent in the development of a strategy for the northern world to be successful in achieving a competitive posture with the more southern industrial communities. These include taking a more comprehensive approach to the use of natural and human resources. This implies a very high degree of inter-sectorial, inter-professional and inter-governmental cooperation incorporating a greater sensibility to the natural environment and a more creative effort to develop synergistic and harmonious solutions in resolving the interactions between the built and natural worlds, a higher degree of awareness of the impact of the climatic conditions and resultant development and managerial strategies on the life quality of all citizens in respect to their safety, comfort, mental and physical health. This has both fundamental, social as well as economic implications.

The following theme articles are a sampling of some of the specific strategies undertaken by various cities in their evolution to being truly indigenous winter cities. It is not intended as a definitive survey but more as a smorgasbord for your sampling.

BUILD A SUCCESSFUL WINTER

Valcartier, Quebec, 24 kilometers north of Quebec City, Canada gives an object lesson in how a small northern town can turn itself into a big tourist attraction.

"Village des Sports" a year round sports complex adjacent to the town provides for a growing throng of visitors most of the usual outdoor games and sports and some unusual ones. It has received a number of awards and honors and has been declared to be Canada's largest winter park.

Spreading across several hundred hectares of valley and rolling land the park has both winter and summer seasons so that water slides of summer become ice slides in winter and lake and river thronged by skaters in winter are equally used by swimmers in summer. Total attendance is approximately 300,000 per year and growing quickly.

The park had its beginning in 1963 when Adrien Drouin, a Valcartier resident, built a large toboggan slide for his children and grandchildren on the slopes of valley land he owned nearby.

The children brought their friends, then it became a popular spot for all the town's children. Year by year the toboggan slides became bigger and more popular.

Guy Drouin, Adrien's son, saw the possibilities of developing a sports park for winter and summer use and began to add new attractions also building service facilities such as a restaurant. In 1983 the buildings burned down, but Drouin proceeded to rebuild on a bigger scale than ever.

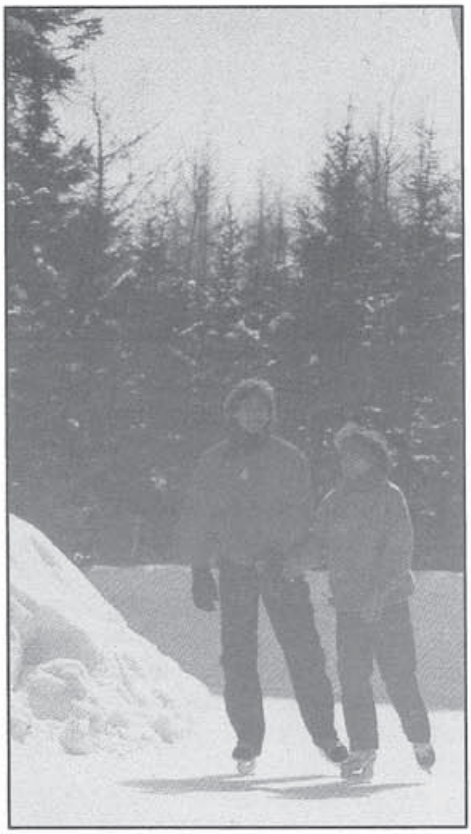
What makes Village des Sports a success is its family emphasis. There are activities for everyone and a range of precautionary measures assure the smallest tots will not get into trouble.

In winter there are toboggan slides with mechanized lifts, skating on a 2.5 kilometer river surface winding through the woods with artificial lighting, cross country skiing on 14 trails extending 114 kilometers, snowshoeing and sleigh riding through the countryside, jingle bells and all. The summer's array of water slides are iced over and patrons slide down them at breakneck speeds on large inner tubes or pieces of carpet. The park has 23 slides, six mechanical lifts, 600 toboggans, 1,000 inner tubes. Skates and cross-country skis can be rented.

Some of the slides are wide enough so that parents can slide down beside their tiny tots. For the teeners there are Go-Karts complete with traffic signals ready for summer, or winter use with the track ice-covered.

The park is open seven days and evenings per week. Prices are reasonable and users may purchase passports entitling unlimited skiing, skating, or sliding. The winter season averages three and a half months from mid-December to the end of March; the summer season is about of equal length. The five or six months between seasons is spent building new features, maintenance and vactions for the staff.

Summer activities are more numerous than winter. There are the water flume, speed water slides and cascades. The lake has wave machines. There are badminton, volleyball, tennis, horseshoes, and a roller trail. There are trampolines, and go-carts and in the lodge a large restaurant, bar-salon and boutiques.



The lodge has received an architectural award. In 1989 the Village des Sports was awarded "Grand Prix du Tourisme Quebecois", also "Laureat regional de l'accueil touristique".

Its motto is "Le Fun au Maximum" and Village des Sports lives up to that motto. Large numbers of French-speaking and also English-speaking visitors have found out at Valcartier just how much fun winter can be. Contact: Village des Sports, 1860 Valcartier Blvd., Valcartier, P.Q., G0A 4S0, (418) 844-3725.

THE LIVABLE TWIN CITIES ...

Unlike many American cities, where several inches of snow or a dip below zero may close down all activity, Minneapolis and St. Paul function without skipping a beat in even the most brutal winter weather. The Twin Cities' 2.5 million metro area residents have not only learned to adapt to winter living, many of them actually revel in the snow and cold.

Though winter officially begins on December 21, winter weather usually makes its presence felt in the area in late November, and lasts through the end of March. Average winter temperatures hover around 20 degrees; average snowfall is approximately 45 inches. Averages are skewed each winter when the thermometer never creeps past the zero degree mark and when the area gets a good snowfall of 6-plus inches in one fell swoop. Also affecting livability is "wind chill", a deadly measurement which combines wind and temperature.

Twin Cities planners, architects, community leaders, business owners, and of course residents, have developed a special sensitivity that has resulted in an urban area that is a model of what the concept of "Winter City" is all about.

In successfully overcoming their climatic limitations, Minneapolis and St. Paul have gone a long way toward solving many of the problems which plague all winter cities.

- Reduced resident mobility, due to snow, ice and related conditions, which can be both inconvenient and unsafe, as well as have a major impact on the community economy;
- Increased energy consumption, reducing consumer spendable income and making businesses less competitive;
- Reduced activity levels and depression associated with long winters and limited light;
- A bleak winter landscape, with minimal or no vegetation color or interest.

Solutions can and must be found if these and other problems associated with winter cities are to be successfully addressed. With more than 500 million people in the world living north of 45 degrees latitude, there is a definite need to discover ways to improve cold-weather living in cities.

THE TWIN CITIES' SOLUTIONS

Maintaining Winter Mobility

Central to maintaining mobility for the winter motorist is an effective street snow removal system. Minneapolis and St. Paul and their suburbs have developed sophisticated procedures for plowing and removing snow. The scale of their operations is revealed by their budgets: the winter operations budget for Minneapolis (population 360,000) for 1989-90 is $4.7 million; For St. Paul (population 268,000), $3.4 million.

To increase effectivenss and speed the process Snow Emergency Routes have been established on widely travelled streets, and have priority in plowing. Tough restrictions on parking after a snowfall are also implemented.

Although these systems do work, improvements are being studied, including a "metro-wide" snow plowing policy with simple, uniform restrictions for both cities.

Improved alley plowing is also needed. The proliferation of snowblowers has made clearing private sidewalks and driveways much easier, except for elderly residents.

Most of the snow removed from the downtown area is carried away and dumped at designated sites. Until recently, the snow was piled on top of the frozen Mississippi River, which runs betwen the two cities. The practice ended in the mid-1970's because of environmental concerns.

Snow along most non-downtown city streets is simply piled along the side of the road. Most of the roadways in the Twin Cities have been designed with sufficient width to handle the snow piles with ease.

Like many Winter Cities, Minneapolis and St. Paul use salt to improve road conditions. Recently, however, there has been more emphasis placed on replacing this highly corrosive mineral with safe alternatives. Salt corrosion not only shortens the lives of automobiles, but also caused a recent parking garage collapse in the Twin Cities — an incident that prompted legislation concerning increased maintenance and inspections for parking garages. Architects and engineers also are recommending design improvements, including provision for easier removal of snow from garages, better coating of garage floors, and improved concrete mixes.

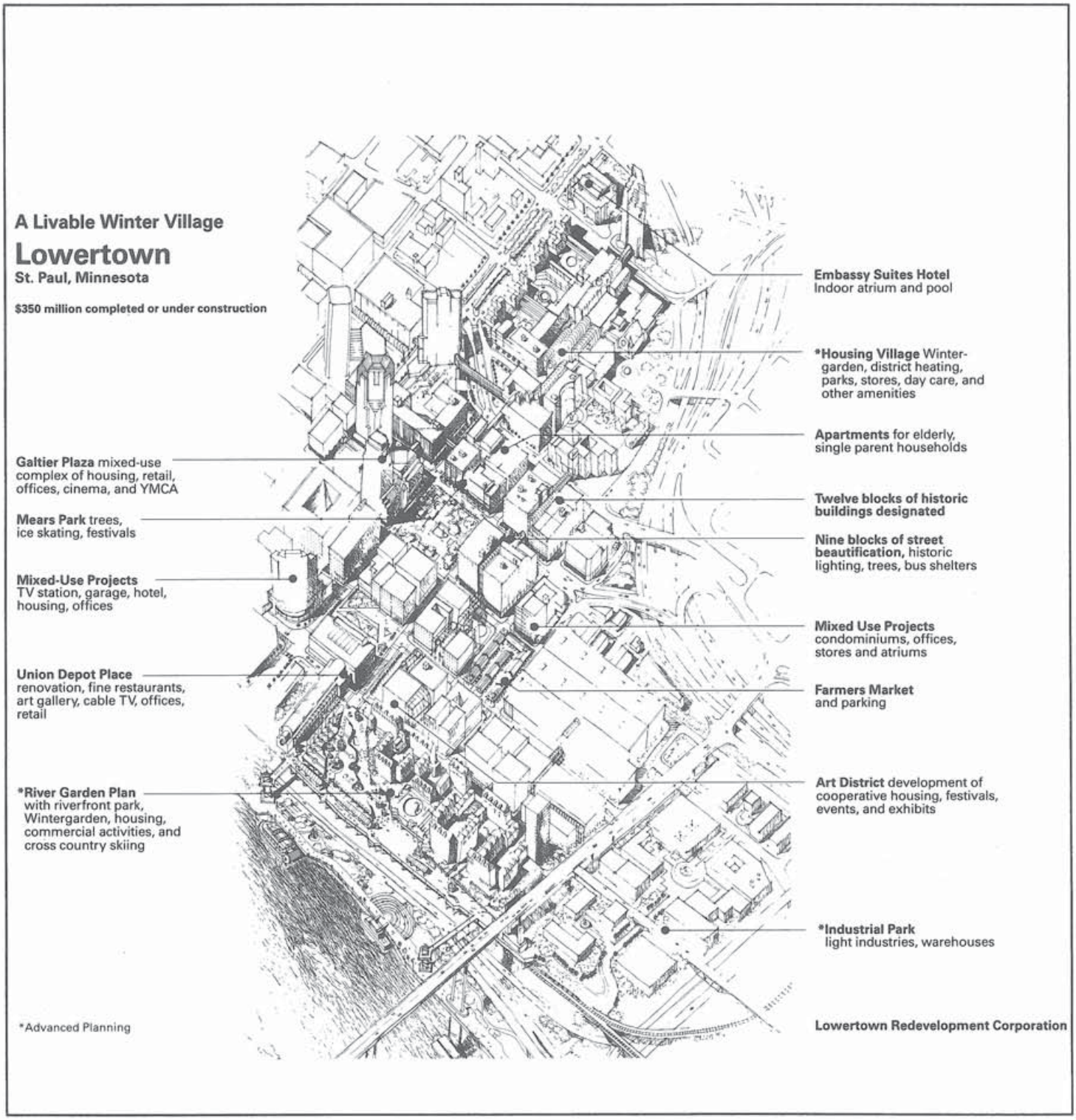
Public Transit

In inclement winter weather, we experience a significant increase in the number of people who take the bus to work. An extensive system of shelters located on most major bus routes throughout the city help public transit users escape the cold. On Nicollet Mall in Minneapolis, city planners have taken the idea one step further by heating some shelters and piping in music.

Light Rail Transit (LRI), a successful form of transportation in other Winter Cities, may be the next step for the Twin Cities. Proposals call for a line to be built connecting Minneapolis and St. Paul along a central corridor, with "feeder buses" serving spokes along the corridor. Such a system would greatly improve winter mobility.

Skyway System

The skyway systems in both Minneapolis and St. Paul are the key to moving pedestrians about once they are downtown. In the 550 acres which make up downtown St. Paul, a network of 41 skyways connects 32 city blocks to provide a climate-controlled convenience. The nearby University of Minnesota, with a large student population,



CHASING AWAY THE "WINTER OF DISCONTENT"

(By Weiming Lu)

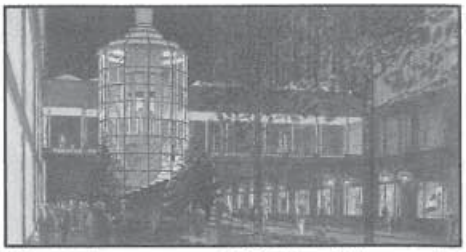
uses a covered pedestrian walkway over a motorway to connect its east and west campuses across the Mississippi River.

In the 1,500 acre downtown Minneapolis area, more than 41 separate skyways connect 38 city blocks. Skyways in Minneapolis are individually designed to complement the architecture of the buildings they connect. In St. Paul, they follow a design standard adopted by the City twenty years ago. Regardless of aesthetics, they have had a significant impact on winter livability for both cities.

Atriums and Indoor Spaces

During the last two decades, an increasing number of atriums have been created in new or renovated buildings. Most dramatic of these are the famous Crystal Court in downtown Minneapolis' IDS Building; the Town Square and the Great Hall in St. Paul. Town Square, sited on top of a shopping mall, serves well as a winter garden, accommodating all kinds of community events and activities.

These atriums, galleries, and winter gardens, connected by skywalks, make the Twin trians even in hot summer days with better landscaping.



Nicollet Mall, Illustration courtesy of BRW Inc., Minneapolis

Edinborough Park, Edina, MN

REVIEW OF EXPERIENCES

However, for northern cities like the Twin Cities, one wonders whether our downtowns would have survived strong suburban competition without skyways, which, along with other planning efforts, have given the two downtowns a remarkable resurgence.

The Skyway system does tend to make the connected blocks in the downtown core more viable, at the expense of unconnected blocks on the downtown fringe. Skyways do not necessarily take people away from the streets, if the street itself is attractive. Minneapolis' Nicollet Mall continues to draw crowds on warm, sunny days. And for building owners, the skyway system improves the value of both street level and skyway level space.

Experience shows that additional improvements could be made in our skyway systems, including:

- Using automatic doors to help move traffic and ease handicap access;
- Extending the hours of operation of the entire system, so the city does not shut down after workers go home;
- Providing directional signage throughout the system;
- Providing better street access to skyways, and improving the two-tiered pedestrian way system.

St. Paul already has an excellent signage system, dating from the beginning of its system, and is installing more automatic doors throughout. Through the cooperation of building owners, hours of operation have been extended to 2 a.m.

Minneapolis has developed a a new signage system, and is planning to provide street access along Nicollect Mall to the skyways.

MAKING THE CITY ENERGY EFFICIENT

Retrofitting. The last decade has taught us much about making our newly constructed buildings more energy efficient. Building owners and developers alike recognize the importance of using proper construction techniques at the outset to save valuable heating and cooling costs for years to come. Architects designing buildings in both Minneapolis and St. Paul have demonstrated a sensitivity to choosing building materials which conserve energy, including pre-fab concrete, styro-insulation, rigid cavity insulation, fiberglass insulations and double or triple pane glass.

Retrofitting of older buildings is common in both cities. In the Lowertown District of St. Paul, a revitalized neighborhood consisting principally of old warehouses, 20 of 39 buildings have already been preserved as historic landmarks, adapted to new uses, and retrofitted to save a considerable amount of energy.

DISTRICT HEATING

District heating is enjoying greater use in both cities, bringing significant reductions in heating cost to user-buildings, compared to those similar buildings being served by individual boiler systems. In St. Paul, 70% of downtown buildings are served by district heating, representing 450 downtown customers and nearly 15 million sq. ft. In Minneapolis, the number stands at nearly 100 customers.

BETTER INSULATION

As with commercial businesses, homeowners in both Minneapolis and St. Paul are committed to making their homes as energy efficient as possible. Better insulated walls and windows are common in new residential construction. In older homes, owners upgrade insulation and install energy efficient windows to reduce their heating bills.

The work and dedication Twin Citians pay to energy conservation seems to have paid off. According to one local utility company, residents living in a 1,200 square foot home, using natural gas fuel, use only 136 MCF of energy at a modest cost of $612, mid-October to mid-April. It would be interesting to compare this with the cost for a summer of cooling a typical house in a southern city such as Dallas or Fort Worth.

EVENTS & ACTIVITIES

Most winter activities in the Twin Cities have been created with the climate in mind. Many cultural events, such as concerts, plays and cinemas, are often held at locations directly connected to parking facilities. Some even sponsor a shuttle bus to take people from their cars to the event location.

Popular community-wide festivals, such as the St. Paul Winter Carnival, were de-

signed not just to capitalize on winter's advantages, but to celebrate the season and all its wonders.

Participatory sports, such as hockey, skating, skiing, ice fishing and snowmobiling, help combat the "Cabin Fever" syndrome. The parks sytem within the Twin Cities is unparalleled. Joggers can be seen taking a few laps around the city lakes daily, all winter long. Orchestra Hall, located on the Nicollet Mall in Minneapolis, floods its plaza each winter to delight urban skaters. Suburban shopping malls have instituted indoor walking programs, designed specifically for the elderly. Skyways in both downtowns serve the same purpose. Public gardens, such as Como Park Conservatory, Minnesota Zoological Gardens, and the Sculpture Garden at Walker Art Center, replicate the tropics and are scattered throughout the cities.

IMPROVING THE WINTER LANDSCAPE

Short days, cloudy skies, and a colorless landscape often make winter bleak or depressing. However, it doesn't need to be so.

Landscaping. In the Twin Cities, landscape architects have begun using more evergreens in their landscape designs, not only in downtown public spaces, but also for parking lots, road medians and private homes.

Lighting can also be effectively used to add interest to winter landscapes. Harsh flourescent streetlights are being replaced with energy efficient sodium vapor lights which cast a warm glow on a dark winter night.

DOWNTOWN SKYLINE.

Illuminating the downtown skyline is another way to add distinction, color and interest to the city. During the winter, residents often go to work and come home in the dark; making the skyline as attractive as possible helps relieve the gloom.

In the early 70's, I directed a downtown plan for Minneapolis which included a special study on the illumination of downtown buildings. We conducted a survey of downtown buildings during the Christmas lighting season, bringing in additional mobile lighting sources to highlight buildings at strategic locations in downtown, and sketching in other probable new high-rise towners in the downtown skyline. We demonstrated how the downtown skyline could be dramatically changed as we add buildings at strategic locations based upon land use and urban design plans, and how the skyline can be effectively illuminated with little impact on energy consumption.

POSITIVE ATTITUDES

It is also important that we think more positively about winter. On a city-wide basis, we can prepare psychologically for winter before its arrival, and celebrate its coming. For example, we might schedule the opening of a popular sporting event with the begining of winter. For art and culture lovers, theatre and concert seasons can be tailored to have some relationship with the winter. For others, a mid-winter break in the southern states is a reasonable solution.

Winter requires us to stay fit and healthy. Otherwise, such simple chores as shoveling snow from sidewalks can be difficult. Staying fit helps us to live long and healthy lives.

Winter also brings out our best social instincts. The incidence of crime falls. Motorists who are stuck in snow can usually count on help from other motorists or pedestrians. Perhaps winter reminds all of us we are all vulnerable, to the weather or other adversaries. We cannot live alone. This understanding helps us to keep our community alive.

The serenity of winter also helps us to reflect more about ourselves and our community. If this helps us to think more about others, living in a Winter City may help us build a stronger, better community.

St. Paul Winter Carnival, A Mid-Winter Festival, Celebrated its 100th Anniversary in 1986 with more than 120 events, including an ice-palace with a tower reaching over 128 feet.

THE WINTER CITY
SPOKANE

In his book, The Nine Nations of North America (Houghton-Mifflin, Boston, 1981), Joel Garreau identifies a fictitious country with boundaries stretching from Colorado to Alaska and encompassing the Rockies and the Great Northern Shield of Canada. He calls the country "The Empty Quarter". Its boundaries are established by sharing common physical and cultural qualities: sparsely populated open space—mountains, forest and tundra; farming and frontier communities composed of rugged individualists; and most significantly climate—hot summers and long, cold winters. Some well-known cities have been established in "The Empty Quarter"—Denver, Salt Lake City, Boise, Calgary, Edmonton, and Anchorage—but there is one city which may not be so well-known, Spokane, Washington.

Spokane, a city of 250,000, lies on the border with Idaho, over 300 miles east of Seattle. Because of Seattle's reputation for rain and temperate climate and Washington's nickname, "The Evergreen State", most people don't recognize that fully two-thirds of Washington's geography is characterized by desert and rolling farm land. Spokane touts itself as the capitol of this "Inland Empire", and as suggested by Garreau, shares far more in common with its neighbor Calgary in the north, than its sister city Seattle to the west. Spokane, in fact, is the largest city between Seattle and Minneapolis, and experiences all of the problems and opportunities of a major winter city.

The city of Spokane was officially represented at the 1988 Winter City Forum/Expo in Edmonton by the City Manager, Director of Planning, and Director of International Management. The city has long been aware of its need to promote Spokane as a "livable winter city", especially when it became evident in the late 1960's that the central downtown was beginning to disintegrate as a consequence of suburbanization and sprawl.

"The site of a World's Fair in 1974 ... was eventually to become the cultural centre of the city."

To raise public consciousness and reestablish a positive image for the downton, the city sponsored a World's Fair in 1974. The site of abandoned railway lands on the Spokane River was reanimated into an international fair which was eventually to become the cultural center of the city. The site which has become a lovely and popular park provides for a myriad of summer activities as well as skating, skiing and sledding in the wintertime.

At the same time, the city reestablished its cultural and recreational heart, it committed to retaining and enriching its retail prominence by creating a skywalk system which connects most of the downtown core with second-level pedestrian bridges. This has been extremely popular, not only as a winter city strategy, but as a device to enlarge the urbane image of the city. Presently, the city is following up with the creation of covered transit terminals in the downtown, which will further complete the physical infrastructure to respond to peoples' needs for comfort, safety and enjoyment.

As the infrastructure has evolved, so has the commitment to winter-specific activities. The diversity and richness of its natural environment allow most Spokaneites to partake in a variety of outdoor winter sports, especially downhill skiing. But winter is also the time when indoor progams really flourish. Convention centers, the opera home, theaters and gymnasia are continuously booked. Winter is actually the busiest in-city time.

One problem Spokane shares with other winter cities is that snow cannot always be counted on as a backdrop and medium for activity. Snow falls almost continuously, but it is often melted away by warm Chinook winds. To compensate for this, the city stays flexible. If the snow comes, sledding hills and cross-country ski trains are immediately opened at nearby parks and golf courses. If not, the city has taken steps to extend "summer" activities into the dead of winter. One device is to locate tennis courts and outdoor basketball/volleyball courts under freeway ramps. The several ice rinks in Spokane are all artificially created and covered. Golf courses stay open up to 1"-2" snow fall and then are converted for sledding/skiing. Sailboating continues on Lake Coeur d'Alene, including an "Icebreaker Race". And when the new "Centennial Trail" is complete, linking Spokane with small towns to the east and west, it will offer cross-country skiing and mountain biking through the heart of the city.

Traditional winter activities are also promoted. A "Winter Carnival", a mini-expo displaying and demonstrating winter recreation equipment, vehicles and clothes; and, weather permitting, sleigh rides, ice carving, and cross-country ski lessons. The Spokane Transit Authority also conducts tours of holiday lights on specially decorated buses for children and seniors.

Like hundreds of cities in the snow-belt, Spokane has begun to recognize the unique opportunities winter has to offer. As a major population center in "The Empty Quarter", it can offer the best of both worlds to its citizens and visitors—access and enjoyment of its natural surroundings coupled with a culturally rewarding urban lifestyle.



ARCTIC HOUSING EXPOSITION TROMSØ 1990

The Arctic Housing Exposition in the Context of City Planning

A good winter city is a compact city. the urban society must be able to afford to implement measures which will make the city a good one - good houses, good work-places and institutions, little traffic congestion, safety for children, less pollution and goodrelationships between neighbours. But the development of Tromsø during the last 20-30 years has headed in the opposite direction. The city is spread out far beyond Tromsø Island to the mainland Kvaloya Island. All this has been costly both to build and to maintain, and the increase is pollution is obvious through the simple fact that a road of 20 km is much more costly to build and keep clean of snow than a road of 2 km. A car that drives 20 km emits much more pollution than one driving only 2 km. And perhaps one does not need a car in order to go only 2 km?

The reason for this development is primarily found in the fact that the cheapest land could be bought far away from the centre, without any thought to the additional costs imposed on the city in the way of new roads, bridges, schools, water supply and sewage as well as transportation. Then comes the fact that a national airport is located near the city centre, and the most attractive land not far from the city centre, have remained vacant because of noise from airplanes.

The Arctic Housing Exposition is located partially within the area that is exposed to noise from the air traffic, but at the same time, it is located only 20 minutes' walk from two major work- place locations in Tromsø, which are the University of Tromsø and Hapet industrial and shopping area. Following the increase in the degree of land-utilization from 75 to 230 homes, we have entered a development towards the compact, easily operated, reasonably priced and friendly winter city. May the Arctic Housing Exposition be the beginning of the end of the costly and meaningless city development of Tromsø during the last 30 years.

Housing expositions have become common in Scandinavia, and the purpose has been to stimulate innovative thinking and create interest in the building of homes in general. In Norway there have been housing expositions in Kristiansand, Baerum and Stavanger. The these has been "Homes for the Future".

It is appropriate and praiseworthy that the attention has been directed towards the new ideas in the construction business, but the housing expositions up to now have been coloured by fragmented and uncoordinated single projects. The homes features have been dominated in part by an exaggerated emphasis on technological solutions, elitist design of large, obtrusive houses which nobody can afford, while economic and social factors in the living environment have been largely ignored. Architects have been allowed to play with people's money, and throughout history, this has been cause for both joy and astonishment. But when houses remain empty and contractors are unemployed, there is perhaps a reason to stop and think for a moment.

In spite of this negative tendency, the Arctic Housing Exposition opened by introducing the topic of climatic adaption. Several foreign architects were invited to present their ideas in a competition where a low degree of land-utilization was preferred, which would lead to a high cost per unit in a decreasing market. Several local architects questioned the possibility for success based on such a starting point, and they were not enthusiastic about taking part in the competition.

The architects who entered projects in the competition had considered adaption to the climate to a large or small degree, and some of them borrowed themes from older Nordic architecture. Others chose to borrow ideas from abroad. Parc de la Villette and the Yuppie-architecture's last convulsions - "deconstructivisms" with an attempt at theoretical construction that to Scandinavians at first sight brings to mind the fairytale "The Emperor's new clothes".

The completion projects had in common that no builders or contractors would touch them. This part of the Arctic Housing Exposition project was thus a failure. As long as the cost of living, and not how we are to get even fancier houses, is on the agenda of the housing policy, this was the obvious result. The signals of the housing market were already quite clear at that time.

DOWN TO EARTH

The finished concept for the Arctic Housing Exposition shows a total of 230 new homes. Of these my office is represented by about 100 homes distributed on four tracts. The original plan presupposed 75 homes for the entire Arctic Exposition project.

In the Fall of 1987, I explained in an article in the daily press the conditions which influenced the cost of living and indicated a few solutions. The solutions suggested a higher degree of land- utilization, smaller and simpler houses, and moire reasonable financing through the state banks. In January 1988, two major local contractors approached me with a suggestion for developing homes for the Exposition fields. Both of them had the very clear presumption that the homes must be able to sell, ie. be adapted to the current market situation, and that all climatic adaptation measures were to be secondary to this.

This deemphasizing of climatic adaptation is not unreasonable. The Gulf Stream provides North Norway with a mild coastal climate, and houses in Tromsø have less demand for heating than houses in e.g. Oslo. Climatic problems in Tromsø mainly involve getting rid of the snow in the winter as well as the cold wind from the northeast on clear summer days.

FROM COSTLY EXPERIMENT TO RESTORATION

Until the drop in the housing market a couple of years ago, large family homes where a livingroom of 40 m2 and three bedrooms were the norm. But changes in population and family structure in Norway as in most other industrialized nations, demand smaller and more reasonably priced homes with mortgages that can be handled by one income, i.e. houses for young people who are setting up their own homes, for single parents, for singles and for the elderly. Large family flats are already abundant on the market.

RESTORATION OF SOCIALLY CONSCIOUS HOMES

The construction of homes today must consider society's needs. It must be adapted to the market, which includes the new categories of people who are in the market for a house.

In tract E1, a flat of 84 m2 with two bedrooms, arranged in terraced houses with 10 units, have been chosen. The size and number of flats are based on the most favourable financing alternative of the Norwegian State Housing Bank. The flats are well suited to families who are setting up their first home, as the house can be extended approximately 25 m2 above the garage, which provides adequate room for an extra bedroom and bathroom.

Tract C1 was originally designated as homes for the elderly. There are 42 flats moistly of 81 m2 each with two bedrooms and lifelong standard (meets the requirements of the elderly handicapped). They are to serve as permanent homes for the elderly, both for couples and singles.

Tract B3 has 25 flats of various kinds, but roughly half of them are of the same kind as in tract E1. There are eight flats of 75 m2 each with two bedrooms, which is even smaller than the flats in tract E1. The other flats are somewhat larger family homes of 100- 120 m2. All flats are presupposed financed through the Norwegian State Housing Bank.

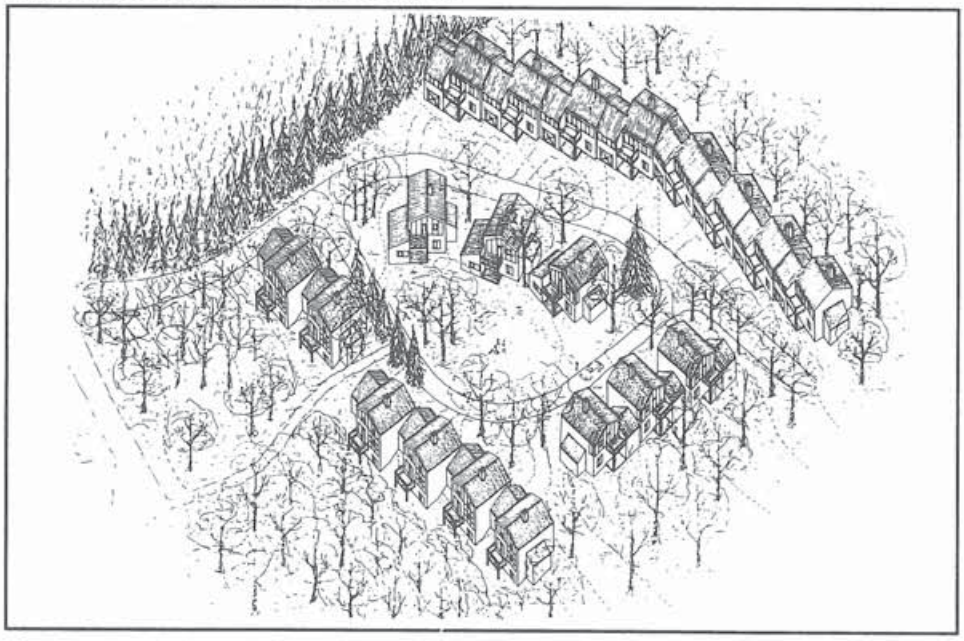
Tract A1 is designed for refugees and applicants for political asylum. These potential occupants have very different needs, and thus flats of a good 40 m2 for singles to larger family flats of nearly 100 m2, 20 flats altogether have been chosen.

An underlying concept that has been used in designing these fields has been to have terraced houses in close proximity to one another, possibly in combination with vegetation which will shield against the cold summer wind from the northeast. Thus, integrated neighbourhood units are established with yards where entrances and outdoor areas face the sunny side. An attempt has been made to limit the number of flats to around 20 in each neighbourhood unit, so that social relations are more easily facilitated. This is important for a community which includes a number of single people. But these ideas are not new. Already in 1968 Ralph Erskine gave lectures on the principles of climatic adaption and neighbourhood units at the NTH (Norwegian Institute of Technology).

The houses in tracts E1 and B3, which are being sold individually on the open market, are freestanding houses. The houses in tracts C1 and A1, which are being sold to institutions, emerge more as a complex, but still have been designed to preserve a human aspect. Details have been adapted to the local workmanship level and the buildings have been given an architectural expression with a clear reference to regional building customs. 100 houses arranged in fields constitute a relatively large part of the local construction activity. The houses are designed for a group of house-hunters that the big housing cooperatives have taken care of up to now, and most of these have been sold. At the same time the local housing cooperative has a large number of unsold flats on their hands. Are private developers now taking over the construction of socially conscious homes?

There are a number of reasons for this, but a private company has a much shorter

MESTURHUS TROMSOBO I NORD FELT B3



OF SOCIALLY CONSCIOUS HOME

treatment period and thus needs a smaller bureaucracy. Another factor may be that a participant in the production of houses, for instance a contractor, takes a profit on the work he performs, and not a provision for providing goods or service. Both housing cooperatives throughout the country as well as real estate agents are having a hard time, while the most competent contractors who have been most successful in adapting to the market, producing and selling homes, are doing well. It may be that the housing market has become so tight that there is no longer room for "free-of-charge passengers", and in addition, a new business moral is emerging: being content with honest pay for honest work, and not exploiting the market to the highest possible degree.

BUILDING TECHNIQUE, ECONOMY AND ENERGY CONSERVATION DURING WINTER

The houses in tracts A1, C1 and E1 are made of wood. Wood is a resource which renews itself. It is easy to work with, it has its own insulating ability, and it is resistant against moisture and is therefore well suited for building in the wintertime. These are important features in a climate where the summer season is short. Apart from that, wood is less expensive than other materials.

Work which is vulnerable to frost damage, like foundation work, casting, masonry work and plastering is preferably done ion the so-called mild season, May-October. If these jobs are to be performed during the winter, this requires securing the ground against frost damage beneath the foundation, heating of water and sand during the casting and covering of masonry work. All these measures contribute to increased costs. In the above mentioned tracts in the Arctic Housing Exposition area, the ground and foundation work was therefore completed in November.

From the beginning the houses were planned with a foundation of concrete plates on the ground, but where the ground conditions require it, the houses have foundations with a full basement. Pole-foundations, resulting in cold basements, have been avoided, as they increase the cold exterior surface of the house, and you lose the advantage of the warm ground utilized through the plate foundation or basement. Cold rooms beneath the houses can make them cold and uncomfortable, and the consumption of energy increases.

No particular measures beyond the ordinary requirements of Scandinavian building techniques have been taken for saving energy. But the flats are small and the building area almost cubic, resulting in a reduction of the exterior surface relative to the interior area. It is obvious that a flat of 84 m2 demands less energy than a flat of 150 m2. At the same time, the windows facing north have been made smaller ion order to limit the amount of heat escaping, while the windows facing south have been made larger, providing a net heat radiation into the flat when using the proper kind of glass. Development of the garage area between each single house in two storeys reduces the exterior surface by an additional 25 per cent, and this too, means energy conservation.

The total cost for the smallest flat of 84 m2 amounts to NOK 630,000, fiscal costs excluded. This is NOK 7,500 per m2. If the winter season can be avoided when starting the work on the ground and foundation, only freight for materials will indicate a higher price on the houses than would be the case in the rest of Scandinavia. But if we compare the costs in Scandinavia to more central parts of Europe, conditions like varying standards of the buildings may affect the prices. A larger Norwegian prefabricated house manufacturer - Block-Watne - tried to introduce Norwegian products on the English market. This was not very successful because well insulated walls and roofs as well as double glazing was considered an unnecessary luxury.

THE ARCTIC HOUSING EXPOSITION IN THE FUTURE

The final plans for the Arctic Housing Exposition are now ready. The plan shows an area with homes for young unestablished people, young people setting up house for the first time, small and large families, elderly people and refugees. In addition, there are some larger freestanding houses with a more expensive design. In the context of housing policy, they may not be of particular interest, but they do help fill in the picture of Norwegian construction activity in the 1990's.

Criticism has been raised that the housing arrangements and the types of flats, whether they are terraced houses or blocks of flats, are already well-known. This is true to a certain degree, but it must not be forgotten that people can afford to buy and live in such houses. This requires a high degree of land utilization, favourable financing and more realistic standard free of (architectural) conceit.

Experimentation and innovative thinking within the building trade is important and exciting, but are the additional costs to be covered by the occupants? Is this not rather a case for researchers and universities? Improved housing conditions would improve life up north. More knowledge on this subject would perhaps lead to a situation where such considerations could be built into the plans on housing and structure without additional costs. The measures taken by the participants in the Arctic Housing Exposition belong mainly in this category.

But the most important aspect of the Arctic Housing Exposition is that the area reflects the reality of today's housing market. And people live there in contract to several of the other Norwegian housing expositions. This is a situation about which Tromsø need have no regrets!

THEME

CALGARY
IN WINTER

Economic diversification are the key words for the provincial economy as Calgary enters the 1990's. In Calgary the key thrust of diversification has been in tourism and high tech industries. Quality of life is much of what sets Calgary apart. By preserving and improving what we have, growth will occur in an orderly fashion. The following are specific areas where we have focused on maintaining and improving our lifestyle as a "Winter City with Warmth".

CALGARY IN WINTER - AN APPROACH TO DESIGN

With the assistance of the Calgary World Winter City Committee, the students of the University of Calgary Advanced Environmental Design Course are preparing a document that is directly concerned with the winter season conditions of the Calgary region.

The information is targeted at people (such as developers, urban planners, or builders) who wish to provide Calgary with buildings which express what it means to live in this environment.

Calgary has a unique winter season in that it is subject to a warm Pacific phenomenon called a "Chinook". This is the warm dry wind that descends the eastern slopes of the Rocky Mountains in the winter and can raise the temperature to more than 34 degrees celsius in one day.

PLUS 15

Calgarians have a uniquely comprehensive environmentally protected pedestrian system called "Plus 15". This is a series of enclosed walkways connecting various buildings in the downtown core. The name "Plus 15" is derived from the fact that the walkways are located 15 feet (4.7 metres) above street level and allow citizens the choice of being able to conduct all aspects of their daily activities in different locations without having to walk outside in unfavourable conditions. Calgary is one of few cities in North America to have such a complete system.

THE LEGACY OF THE OLYMPICS

The XV Olympic Winter Games are memories in most Calgarians' minds but the legacy lives on. The volunteer spirit also lives on, as we saw more than 10,000 volunteers help make the Winter Olympic Games successful.

World class sports facilities are widely used hosting international, national, provincial and local competitions.

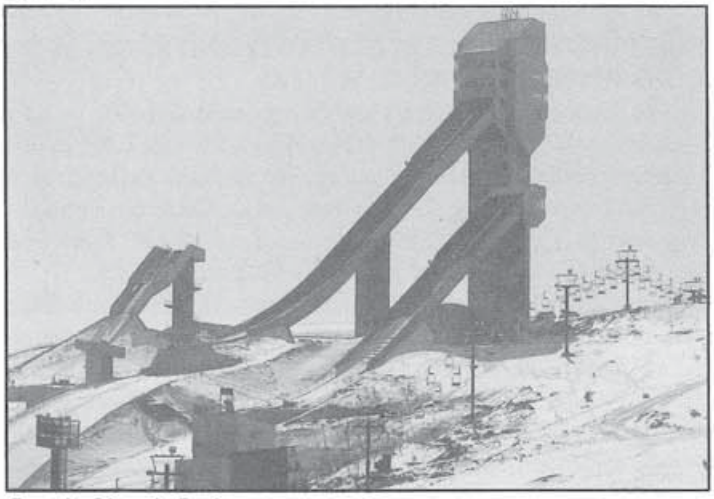
Calgary has also hosted several delegations from other countries which will bid on future Winter Olympic Games who wish to learn from our winter expertise.

The Olympic Plaza, where the athletes received their medals, is now a beautiful skating rink in winter and wading pool in the summer. Concerts are also heard from Olympic Plaza.

Other noteworthy points directly related to the Olympics are:

- The Olympic Hall of Fame has seen over 100,000 visitors since the games.
- One out of every 10 school children in Calgary participate in programs that encourage the development of Olympic Sports.
- International sources of tourism have increased substantially.
- The Olympic Endowment Fund enables Calgary to subsidize the operation of the Olympic facilities, tax free.

The Calgary Olympic Development Association represents the legacy and helps perpetuate the ideals of the Olympic Winter Games.



Canada Olympic Park

THE CALGARY WINTER FESTIVAL

The Calgary Winter Festival was established two years prior to the 1988 Olympic Winter Games leading up to the excitement and magic that the Winter Games would bring. It began by creating awareness in community winter events and ultimately it helped generate more winter activity for the people of Calgary. Some of the events include snow/ice sculpture competitions, luge championships, ice skating presentations, snowman competitions and much more. During the Winter Festival approximately 2,500 volunteers help make the events happen and well over 8,000 Calgarians participate. The Calgary Winter Festival also provides a unique opportunity to promote public discussion on the quality of winter life in Calgary.

The Calgary World Winter City Committee has established five themes to be discussed at The World Winter Cities Round Tables. The themes include: winter art, winter health, winter business, winter design and winter recreation. *(Continued on page 33)*

Winter Cities

FORUM '91

Sault Ste. Marie, Ontario, Canada

Participate In Forum '91! Planning For A Common Future.

"An Economic Conference On Sustainable Development For Winter Cities And Communities"

"A Community Showcase On Responding To Winter's Challenges And Celebrating The Season"

Conference Theme:

The state of the environment is at the top of the public agenda and the issues are becoming more important every day.. Experts say that the 1990's must be the decade of decision—the turnaround decade for the biosphere.

As we plan for future economic growth, winter communities have special environmental concerns. We are high energy consumers, both for heating and for transportation. Often we are closely tied to the extraction of natural resources and to tourism, industries that are both expanding and sometimes in conflict.

The new term for doing business in a way that respects the environment is called sustainable development. This conference will show that the term is not just a buzzword but a pragmatic growth policy for the future. **In other words, sustainable development in winter cities will become a good business practice.**

Location:

Sault Ste. Marie, Ontario, located on the U.S.A. border and at the hub of the Great Lakes in Northern Ontario, provides an ideal setting with indigenous qualities for a conference about winter. Located on the leeward side of Lake Superior, this modern city of 85,000 has a reputation for having a quality winter environment.

Forum '91 will be pleased to send a copy of our complete brochure.

Papers and Submissions are welcome.

For further information please contact:

Winter Cities Forum '91
P.O. Box 787
Sault Ste. Marie, Ontario
CANADA, P6A 5N3

TEL: (705) 945-9986
FAX: (705) 945-7607

January 21-24, 1991 Sault Ste. Marie, Ontario, Canada

Calgary

ALBERTA CANADA

Calgary did a gold medal job of hosting the 1988 Winter Olympics and we're proud of it.

The legacy of the Olympics has given Calgary such world class sports facilities as the Olympic Speed Skating Oval. But Calgary is also a gold medal contender in the world of business. Our dynamic business climate welcomes new companies and investment. So if you're interested in learning more about what Calgary can offer, call, write or visit us. We'll give all the facts about doing business in Calgary and show you that we are competitive in business as well as sports.

CALGARY

Calgary Economic Development Authority, 401 Burns Building, 237 - 8 Avenue S.E., P.O. Box 2100, Station M, Calgary, Alberta, Canada T2P 2M5
Telephone: (403) 268-2771 Fax: (403) 268-1946

CALGARY BUSINESS FOR WINTER CONDITIONS

There are a number of Calgary firms who specifically target for winter sales but most firms doing business in the city provide goods for services suited to winter conditions. A small sample of these would include; automobile service centres (winterizing automobiles); the construction industry in general; and manufacturers of heating systems, winter clothing, all terrain winter vehicles, and cold weather oil extraction and processing technology.

There are also a number of tourism based activities which are specifically geared to winter conditions. some of these would be the Calgary Flames Hockey Club, the Olympic Speedskating Oval, Canada Olympic Park and a number of curling facilities.

THE FACULTY OF DESIGN

The University of Calgary, Environmental School of Design and Winter Cities Research Group here established pilot programs for research and design of building in northern communities. The expertise of the Faculty has been called upon at different times to help in the development of designs that slow the deterioration of buildings in cold climates.

THE ARCTIC INSTITUTE OF NORTH AMERICA

The Arctic Institute is now a wholly owned research institute of the University of Calgary which has operated since 1945. It has a federally legislated mandate that, in a broad sense, covers issues of the north. It acts as the curator of archives in research papers, maps and films. It also serves as the "clearing house" for news and information on the north. It publishes journals and conducts research programs that help people understand the ways of the northern communities. The collection of information and research ranges from the differences in winter building, winter health, to winter travel for those living and working in the north.

CALGARY WINTER RECREATION

The spectacular Rocky Mountains are within an hours' drive from Calgary. This area boasts more than six of the worlds' finest downhill skiing mountains. Numerous cross-country ski trails are used in and around the city, including the world training facility at Canmore where the Olympic Nordic events occurred.

In closing, Alberta's natural attributes, the Olympic exposure and new world class facilities all add to the region four season economic opportunities. But the maintenance of the life style in Calgary and the attitude of Calgarians are what creates the warmth, vitality and ultimately growth for the city.

Downtown Calgary 's Plus 15 System





EDMONTON IN THE BUSINESS OF WINTER

The economic benefits to Edmonton of being a winter city

As one of nature's harshest realities, Winter presents myriad challenges which Edmontonians have learned to manipulate to make life at 53 30'N prosperous, comfortable, and enjoyable.

Edmonton owes its existence to its strategic location. Located in central Alberta and western Canada, Edmonton has been known ment stores downtown makes winter warmer for Edmontonians. This climate controlled pedway system also connects with the Light Rail Transit system and underground tunnels which provide warm access to shops, restaurants, offices, cultural facilities, and parkades. Similarly, city planners have concentrated on the needs of the Edmontonian who uses the transit system. Major bus terminals in the city are covered and heated and there are many small covered shelters which offer similar comfort. Examples of private and public sector cooperation are reflected in the businesses that provide warm entrance ways for waiting transit users. City planners are concerned about the effect of the wind on the safety and comfort of pedestrians and City Council has developed a policy to "ensure that new developments, in their design, do not create adverse wind conditions..."

Building developers in Edmonton are making liberal use of skylights and glass to take advantage of the brilliant sunlight that Edmonton experiences even during the winter. Developers often include atria-climate controlled courtyards filled with tropical plants — in new hotels, office buildings, and hospitals. Notable amongst the many such atria are two which exist in their own right — the Lee Pavilion at the Citadel Theatre located downtown and the magnificent Muttart Conservatory in the river valley.

The ability to construct buildings during the winter has reduced seasonal unemployment throughout Canada. Now, building goes on year round because building sites are enclosed, providing shelter for workers, equipment, and materials. Developments in warm winter clothing enable the workers to continue working on projects despite the weather. Not considering the effects of winter when constructing a building in Edmonton would be as unnatural as not considering an earthquake when building in San Francisco. Cement technology, insulation, energy efficiency, all facets of carpentry, vapour barriers, heating, expansion and contraction of the soil are the concerns of Edmonton builders whose expertise in building in a cold climate is sought by international firms.

However, the costs of construction during the winter are high and builders are developing new ways to lower costs. Clark-Bowler Construction of Edmonton recently began prefabricating, in Edmonton, the exterior panels to an eight-storey parkade to be erected in Yellowknife, Northwest Territories. The company will then truck the completed walls to Yellowknife and complete construction there. Despite the complications involved in constructing buildings 1,519 km from the actual location, Clark- Bowler representatives say that they have save approximately one- third of the cost of construction by prefabricating in Edmonton and they have also saved a significant amount of time.

Federal, provincial, and municipal governments; businesses; and universities throughout Canada have recognized the need and the opportunities that lie with the development of cold weather technology. Organizations are cooperating to assess what was not too long ago a massive frontier that belonged to a small number of people and the wildlife of northern Canada. Developments such as insulated piping, prefabricated houses, insulated windows, snowmobiles, cellular concrete, and technological innovations in the oil and gas industry have opened the door to economic development in the far north. It is expected that the demand for cold climate technologies will increase both in Canada and internationally. In Edmonton, research organizations, the university of Alberta, and private companies are working to meet that demand.

Amongst the many organizations involved in cold climate technology in Edmonton is the Centre for Frontier Engineering Research funded by the Alberta government, the Government of Canada, and the private sector to solve engineering problems related to cold- weather energy developments. The Electronics Test Centre provides testing and evaluation services for electronic and telecommunications products manufacturers. The Centre has four, variable climate-controlled chambers for virtually any product which requires testing in any climate. The University of Alberta, the second largest university of Canada, is also very

much involved with cold weather technology development. Research projects include the development of food products to improve cold resistance in humans, being conducted at the Department of Zoology.

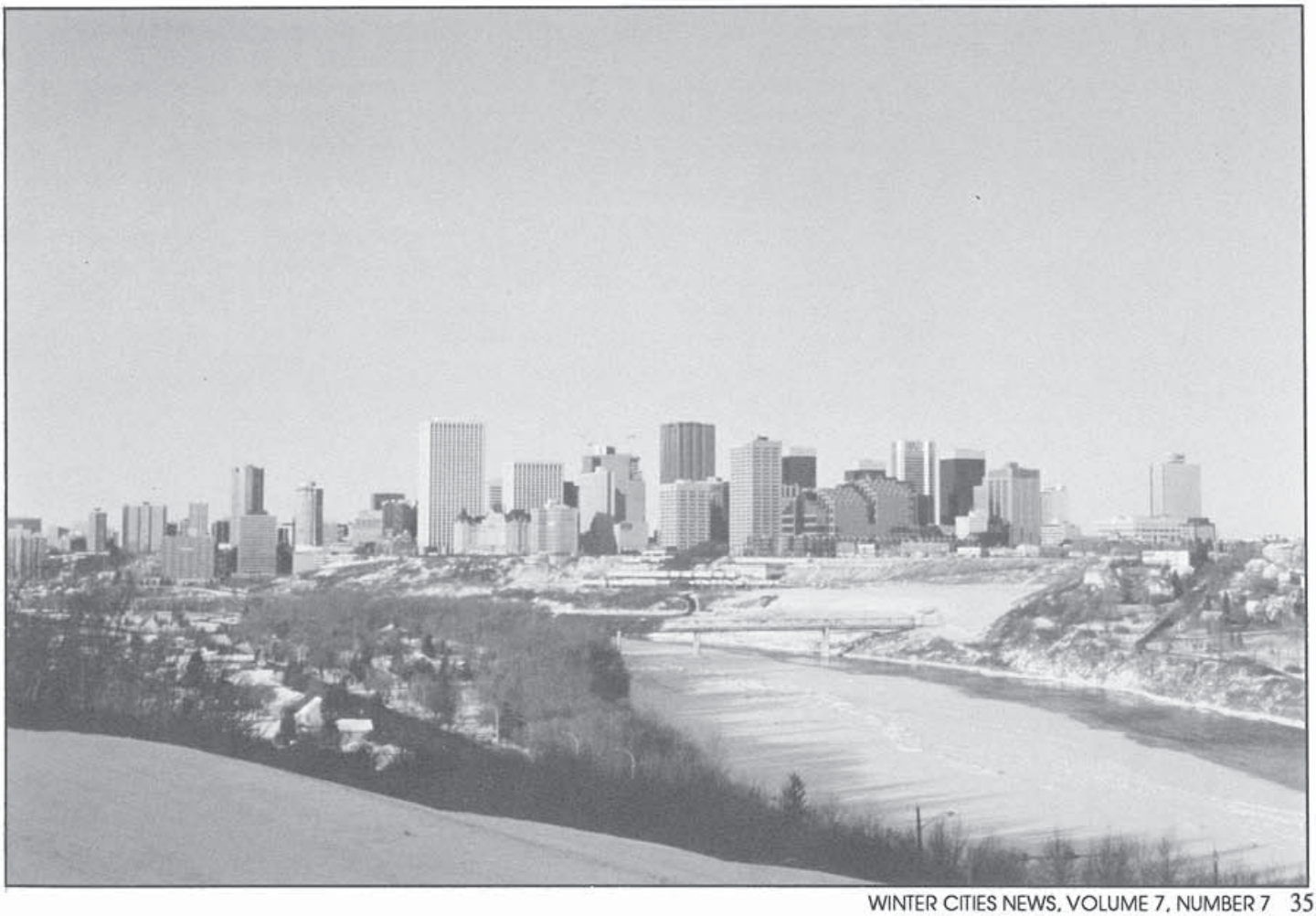
The Department of Mechanical Engineering is intensely involved in various facets of cold weather technology and is working on the development of a thermo-syphon device which is used in the construction industry to maintain frozen ground and to freeze water. As well, a hydro-thermal engine which extracts heat from a large body of water and is then used to provide a fuel free source of electrical power is being developed. The University possesses world-class facilities for the study of ice formation, specifically very large wind and water tunnels.

In 1991, Edmonton in cooperation with Calgary will host the International Symposium on Cold Region Development Conference in cooperation with the Hokkaido Development Engineering Centre of Japan, the Science and Technology Commission of Heilongjiang Provincial Government of China, and the Government of Alberta. The conference will promote the exchange of information on various aspects of cold region developments and enhance the friendship and collaboration of all of the participating nations.

Much of the shopping in Edmonton revolves around covered retail malls. There are 20 major retail malls, with a total of 1.5 million square metres of retail space. The fabulous West Edmonton Mall, the world's largest shopping and entertainment complex, features more than 800 stores and services, 110 food outlets, 19 cinemas, a nightclub, an amusement park, and a hotel. As well, a massive Waterpark, with 22 waterslides and a wave pool plus an indoor lake complete with submarines and a dolphin pool, add to the extraordinary features of this shopping mall.

Edmonton residents are enthusiastic sports fans both as participants and as spectators. Sports facilities of almost any kind are readily available in Edmonton and the City provides outdoor and indoor skating rinks plus miles of cross country skiing trails in the many parks scattered throughout the city. Tobogganing, sleigh and hay rides, and snowshoeing are other outdoor winter activities available to Edmonton's active residents. As Edmonton is built on the banks of the North Saskatchewan River, the city boasts several small downhill ski facilities which provide just enough practice for skiers before they head off to Jasper National Park to experience the thrill of skiing the Rocky Mountains. Jasper is approximately a four hour drive from Edmonton. Amateur and professional sports are an important social aspect to life in Edmonton and the Edmonton Oilers hockey team is known throughout the world as an NHL winner.

Edmonton is a city that embraces the challenges of winter and has committed itself to the Winter Cities movement. In 1986, the Winter Cities Forum was held here and in 1988 the Winter Cities Conference and Showcase. Since these events, Edmonton has committed itself to being the centre for the International Winter Cities Committee Secretariat (IWCC). The Secretariat advises and assists the development of Winter Cities Showcases. As the capital city of the province of Alberta and the most northerly major city in Canada and North America, Edmonton invites the citizens of all other winter cities to come and explore what we have to offer.



QUEBEC'S WINTER "CARNAVAL"

MAJOR EARNER OF COLD CASH

Winter has given Quebec City possibly its most profitable enterprise, and one of its largest. "Le Carnaval", held annually in early February, has become one of the world's largest annual festivals and has earned for Quebec the title": "Snow Capital of the World".

Total annual budget of Le Carnaval Inc., the administrative and operative agency, is roughly $3,000,000 contributed by supporting governments and organizations and earned through "CARNAVAL" activities. Total revenues produced for the city in the form of hospitality and retail earnings and general economic activity is estimated at $29,000,000. a handsome return for nil net outlay.

However, even greater intangible benefits results. The surrounding region gains substantially. Cross-country and downhill ski resorts have multiplied and flourished. Elsewhere in this issue in described the "Village des Sports" a few miles to the north which has turned "winter fun" into very big business. The carnival has built Quebec City's image worldwide as an aggressive and prosperous centre. Already famous as a market place for artists and crafts suppliers, these activities mostly in the Lower Town" become even busier in winter as hordes of visiting skiers, skaters and "winter lovers" descend on the city. Overall economic benefit produced tangibly and intangibly by "Le Carnaval" could add up to several times $29,000,000.

The first "Carnaval" was held in 1894, "a mingling of tradition and rejoicing that helped Quebecers forget winter's harsh realities."

Held at irregular intervals in following years, the carnival has been an annual event since 1954 when a group of local businessmen decided it would be a good way to stimulate a stagnant mid-winter economy and also attract tourists. Snow sculpting and canoe racing in the ice clogged rivers have been key attractions since then.

In 1973, the carnival was extended to 11 days. It is now recognized as the world's biggest winter celebration of its kind, with many unique activities and features. In 1986 it won regional and provincial categories of the "Grand Prix du Tourisme Quebecoise", an award given by the Government of Quebec to the organization that has best succeeded in promoting Quebec province as an important tourist destination.

In 1988, the city received the same award a second time and also the provincial "Prix de l'excellence touristique". These awards affirmed "Le Carnaval" major role in promoting "joie de vivre" image.

The principal symbol of Le Carnaval is a snowman with red toque and multicolored belt in the unique "fleche" design. Bonhomme Carnaval in human form is the host, attends all functions, greets dignitaries and, wherever he is, creates a spirit of liveliness and warmth. he first arrives on the scene on the first Sunday of the year, is greeted by the mayor and devotes the following month to the task of "getting everyone excited" in preparation for the event. He circulates constantly, visits schools, hospitals and the elderly and sponsors a blood clinic.

This clever device is maintained throughout the year. From the date of final ceremonies until the beginning of the following New Year, Bonhomme travels the world to drum up attendance at the coming event.

The largest and most magnificent of many snow structures and statues is The Snow Palace, Bonhomme's official residence, located in recent years adjacent to the Quebec Provincial Buildings, Its construction requires up to 9,000 metric tons of snow which is compacted into blocks and then built to a local artist's design. Construction needs about 15 workers, takes about two months and The final palace can be as high as 21 metres.

Hundreds of Snow statues and structures of all sizes and shapes are to be seen in many city squares, along Grand Allee, an impressive boulevard, and along La Jeunesse, a principal street of the "Lower Town".

The Snow Palace has turrets to climb, battlements to explore and an ice chute to slide down. Place du Palais, an open space in front, is the site of the crowning of the Carnaval Queen and dozens of other activities including the polar bear roll when competitors roll in the snow clad only in bathing suits. There also are held a spectacular sound and light show and the closing ceremonies.

Selection of the Queen is a highlight of the carnival and source of a good deal of its income. Beginning in August each year

seven of the most attractive young women of the city and surrounding area are chosen as "duchesses" in a preliminary contest. Each is assigned to a mythical "duchy" given the name of one of the provinces great pioneers. The seven are; Cartier, Champlain, Frontenac, Laval, Levy, Montcalm and Montmorency.

Over several months each duchess assembles friends, admirers and supporters and competes to lines up support for her candidacy by selling "scratch-and-save" tickets. Seller of the largest number has some advantage in being chosen queen and the receipts go towards the expenses of the "Carnaval". Where the tickets are used nowadays, previously candles were sold by the duchesses and their teams. More than 2,000 volunteers busy themselves selling tickets for their chosen duchess.

To assure fairness, the girl with the largest sales has 40 capsules containing her name placed in a drum. The second ranking girl has 39 capsules with her name and so on down to the lowest with 34. In the draw, the first girl whose name is drawn five times is named Queen. It all creates city wide interest and excitement. The drawing can admittedly on occasion become "a long and extremely nerve-wracking process," but all the more fun.

Bonhomme Carnival crowns the Queen on her throne in the Place de Palais as Carnaval opens. After her 11 day reign her crown and sceptre go into City Hall vaults for another year.

The days are packed with dozens of events: There are night parades February 3 and 10 when some 500,000 line the route to see Bonhomme, the Queen, the duchesses, the brightly lit floats and bands. There is the prestigious Queen's Ball, the Carnival Beach party, the Eccentric Hair-Styling and Make-up Competition, Casino Night, ski demonstrations, hockey games, international snow sculpting competitions, and the spectacular international canoe race from Quebec across the broad St. Lawrence River to Levis on the south side. The latter is a particularly rugged winter sport when the river is half frozen and the race becomes a contest as to who can make their way over the ice and through the floes in fastest time.

Of the Carnaval's 1988-89 budget of close to $3,000,000, 43.3 percent was contributed by the citizens through sale of tickets by the duchesses, a drawing for a condominium, the sale of plastic Bonhomme figures and admission fees for Carnaval events. Private sponsors contributed 23.2 percent; governments, 21.1 percent and Le Carnaval Inc., through manufacture of floats and displays in its workshop earned 8.7 percent.

Quebec City demonstrates how a Winter City can attract a good deal of money and have a lot of winter fun.

INNOVATIONS

C-FER LEADS THE WAY

A KEY TO MAINTAINING ALBERTA, Canada's position in cold regions engineering is the Centre for Frontier Engineering Research (C-FER).

C-FER is currently located on the University of Alberta campus. In 1987, an agreement signed by C-FER and the federal and provincial governments committed funds for an $18-million test facility.

Two features of the new facility are geared to cold regions engineering work: the strong floor - a flexible test bed for large assemblies - and the cold chamber, which will accommodate large assemblies and will have a temperature range of 20 C to -60 C/68 F to -76 F.

"The new lab will be one of the best in the world for the investigation of cold climate problems," says Larry Staples, C-FER's vice-president, research. "But top-notch facilities don't mean anything if you don't have top-notch researchers. C-FER's real strength is its research team. Now we'll be able to leverage that intellectual strength with our new lab."

The new facility will allow for large-scale tests which don't accurately reflect what happens in the real world.

As a result, there's a lot of conservatism in design. Engineers must add in many safety factors because of uncertainty.

"As we push ahead and conduct large-scale tests, which translate directly into design criteria, we can get rid of the layers of safety due to uncertainty. This means more efficient design, construction and operation. The structures themselves will become much less expensive to build.."

"Input from industry keeps our work oriented to projects that will have engineering results," says Staples. "We've also been able to reach into the university system, tap into the highest available technology, and pull it out in a way that's convenient to faculty members.

"Consequently we have the expertise and can turn out research projects in a time frame required by industry. We've got the best of both worlds."

TURNING COLD EXPERTISE INTO COLD CASH

FOR MANY PEOPLE FROM THE PROVINCE OF ALBERTA in Canada, winter is more than snow-capped peaks and frozen lakes. To them, cold weather means business. Alberta companies are major suppliers of products and services to cold regions, and are leaders in cold climate technologies.

The northern and offshore operations of oil and gas companies provided the initial stimulus for cold regions technology development in Alberta. Winter drilling, pipeline construction and operations, and offshore exploration required special products and services, and skilled employees.

The development of these technologies was one of the reasons Detnorske Veritas (Canada) established its Centre for Cold climate Technology in Calgary in 1981. DnV Canada is the Canadian company of Det norske Veritas, an international society which acts as a regulatory body in the classification, certification and quality assurance of ships and offshore exploration and production systems.

There's a growing market for "cold proof" products and services in other sectors. One such company is Edmonton's Datek Industries Ltd., which specializes in the control and measurement of oil and gas flows. Some of its products are designed to operate in temperatures as low as -65 C/-85 F. From its main business in control systems, Datek has branched out into the design and manufacture of a specialized remote unit for avalanche control which is now being used at Alberta's Lake Louise and Sunshine ski areas.

Another example of a cold weather technology with wide application is the Synthetic Aperture Radar (SAR) developed by Calgary's Intera Technologies Ltd. The radar is as good at ice monitoring in the Arctic as it is at mapping in the tropics. It is particularly valuable because it can "see" through clouds. Intera recently won a $58-million contract to provide a comprehensive all-weather ice reconnaissance service to the Canadian government. A challenger jet has been outfitted with two SAR units.

The remote sensing company, Calgary's ITRES Research Ltd., is in the final stages of developing a commercial prototype for its compact airborne spectrographic imager (CASI). Instead of relying on satellite data, CASI will allow companies to do their own remote sensing work from a small plane at low cost. Cold regions applications include monitoring pollution in open water and ice reconnaissance.

All this activity underlines the truism that technologies developed at the extremes, quickly find every day relevancy.

TAMING THE ARCTIC

SWEDISH SCIENTISTS TO EXPLOIT ARCTIC RICHES

BY MICHAEL JEFFRIES

The Arctic regions - the last frontiers on earth promise an abundance of wealth - if only man can exploit them. Developing programs to extract the potential deposits of minerals, coal, gas, and oil that lie as yet untapped below the polar ice caps is powering a competitive drive among nations for new knowledge about low temperature technology.

There are many other prizes to be won. If new oils and lubricants, for instance, could be developed that worked efficiently in deep-freeze conditions, the savings in machinery wear today would be colossal. Most modern machinery and tools - tractors, cars, aircraft, welding equipment, machinery, and hydraulic gear, to name a few - were never designed to operate in Arctic conditions. Nor, for that matter, was man.

Despite this, recent years have seen a rapid expansion of hi-tech industries, particularly around the northern Swedish towns of Lulea and Kiruna. Here the populations live and work normally, despite winter temperatures similar to those inside domestic freezers.

Lulea's scientists there have even developed a major research project, Cold Climate Living, in which they are using the Arctic region as Nature's own low-temperature laboratory for industry. Their innovative minds are turning a cold, spiteful environment into a useful test-bed for designing modern equipment and techniques for use in low temperature regions around the world.

One of Europe's northernmost universities, Lulea, has no less than 35 different research projects under its Coldtech Program carried out in conjunction with industry. And for a very good reason.

Most of the technology used in Sweden is designed and developed for warmer climates such as mid-Europe. Severe cold weather use not only causes many problems; it also adds an estimated 10 percent to running consts of plant and equipment.

Mr. Roger Lindmark, a researcher on the cold climate program, explains: "Cold climate research is increasingly important for many people - not just in Sweden but in many countries around the world which have snow and ice - and there are many". These are Europe, North and South America, and also Russia, China and Japan.

"Low temperatures lead to low efficiency, accidents and other hazards in human workers. It also causes many problems for people living in such environments. Cold affects the building and construction industry. For instance, roads which are solid in winter collapse in summer because the underlying ice melts " Techniques for building roads reinforced with ice which does not sink in the summer melt is eminently exportable to many countries.

The Lulea research also shows that buildings and even housing estates can be planned for better fuel economy and more warmth for the inhabitants by studying the thermodynamic flow patterns of cold winds and blown show on buildings. Then they can be sited facing the "warmest" direction.

"Other studies include brittle fractures in metal and how to weld metal building panels together in low temperatures when there needs to be a minimum heat for the metal surfaces to fuse together," said Lindmark.

With the Baltic's Gulf of Bothnia around Lulea covered with ice for about five months of the year, northern Sweden has been used for many years as a field test area by car and aircraft manufacturers from all over Europe. According to the experts, if it were possible to apply all we already know about lubrication, it would produce a total annual saving in Sweden alone of SEK 5,000 million. Studies being carried out on lubricants by Lelea's scientists in Arctic conditions could lead to major savings in heavy machinery. For instance, since oil thickens at low temperatures, it causes the steel balls in bearings to slide instead of roll with a consequent waste of energy.

Lindmark said: "If the internal friction of an oil increases 40 percent, the life of a bearing could decrease 99 percent." Tests carried out by Volvo and Nynas Petroleum shows that the wear on a diesel engine started up at - 25 degrees C imposes equivalent engine wear to driving about 15,000 kilometers (9,000 miles) in summer. The university's researchers are now working on a tribology program, as it is called, to produce engine lubricants which maintain their normal low friction at Arctic temperatures.

The human internal combustion engine and its neurological pathways are also factors which can be critically affected by deep cold. "Man in an Arctic environment will be exposed to severe physical and psychological hazards and the difference between life and death is very small," says Lindmark. "Apart from needing protective clothing and new techniques for working with tools, the cold slows down the brain's decision-making processes which can lead to serious accidents. Individuals become sick due to the psychological problems of prolonged darkness in northerly latitudes."

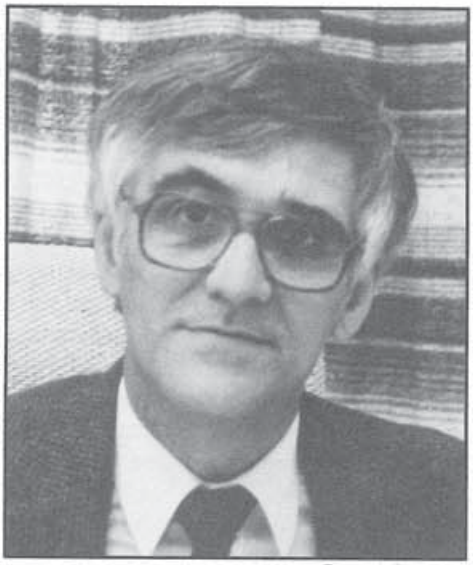
For these reasons northern Sweden is also used for testing the limits of soldiers who might have to fight battles in low temperature climates wearing the right protective clothing and carrying heavy equipment. Dr. Ulf Bergh, senior research officer at the Sweden's National Defense Research Institute explained that at subnormal body temperatures physical performance is reduced due to decreased muscular strength and the fact that any task requires more energy.

"Take a soldier who is naked, and dress him with his uniform, equipment and rifle and you will add 22 kilos (50 lbs) which he has to carry as well," he said. The capacity of the memory at low body core (hypothermic) temperatures is impaired also. Thus soldiers would find it hard to recall recent orders or messages.

To study their performance, the institute's laboratories based in Stockholm have test rooms where army subjects walk on treadmills wearing heavy protective clothing while their heart and body temperatures are monitored. Soldiers stand or walk for 10-60 minutes at a time dressed only in thermal underwear, or battledress, while a large fan blows air over them. "The ultimate aim is to improve the conditions and functions of many in extreme environments," said Dr. Bergh.

"HOW TO MANAGE WINTER"

ROGER GAGNON'S SPECIALTY



Roger Gagnon

Few cities in the world face winter challenges equal to Quebec City, Canada. These include abundant snowfall, a large section with hilly and narrow streets, a large vehicle population and a high living standard producing a high level of citizen expectations.

But the city (pop. some 150,000 city; more than 500,000 metro area) has been renowned for the energy and ingenuity with which it has tackled its problems. Special recognition has come to the Public Works and Maintenance departments, in particular to Roger Gagnon, director Public Works from 1974 to 1987 and currently Director of Maintenance.

Gagnon was a key speaker at a French Government conference in Paris in 1988 exploring the subject, "How to Manage a City in Winter". In 1987 he was named one of the top ten "leaders of the Year" by the American Public Works Association and was feature on the front cover of Public Works magazine in 1988. The Association of Municipal Engineers named him Municipal Engineer of the Year in 1987 and he has received numerous other awards and honours. He has given presentations to a wide variety of national and international municipal organizations and conferences.

Some of the special problems facing Quebec Public Works department are: organizing to clear the streets soon after a snowfall even though many vehicles are still parked on them; clearing snow from sidewalks on streets that may be as little as three meters wide; preventing injury to pedestrians caused by snow and ice falling from roofs; and maintaining a skatable frozen surface on the St. Charles river (a large publicly maintained rink) through most of the winter.

Situated near the 47th parallel of north latitude, Quebec City receives the storm systems resulting from the meeting of Arctic high pressure ridges and cyclones swirling up the Mississippi river. Annual snowfall averages 325 cm (128 inches) and snow cover prevails for four to five months. More than 60 days on average record temperatures as low as -20C. Average ten cycles of frost and thaw add to street maintenance difficulties.

The old city arrayed on the river banks close to the confluence of the St. Lawrence and the St. Charles has many streets that are extremely narrow having been laid out when the city was little more than a trading post. Slopes vary from 10 to 22 percent.

It was found that large pieces of snow removal equipment could not operate in many of the winding historical streets and that normal snow melting chemicals worked poorly in a conventional spreader if used on steep hills. The problem was that the spreaders would speed down the slopes and the salt or other chemicals would be unevenly spread.

Public Works engineers found that it was well to use small graders and tractors in the narrow hilly streets, hauling the snow away in small trucks of no more than 18,000 lbs. ca

Small sidewalk snowblowers, in common use, were found to be unsatisfactory because of the height of their discharge chute and the size of the tractors. Arrangements were made with Laurentide Snow Removal Ltd., of New Glasgow, Quebec, to develop a machine that would overcome these problems. The resulting Snow Blower is mounted on a cased tractor, model W11B, is a quick-connected type, Model A-74, tradenamed "Blanchet". Its capacity is 116 h.p.; its cut 74 in. wide and the height of loading clearance, 121 inches (see illustration).

The difficulty of operating chemical spreaders at even speeds on the steep hills called for further ingenuity. Traffic, being light, gives little help in spreading the salt. The spreaders often repeat coverage resulting in waste of salt and unnecessary damage to streetside landscaping. The solution is a new type of spreader equipped with a belt conveyor, a grinder, a salt proportioning device (salt calcium) and an electronic control. The flow, by this device, is coordinated with the speed of the vehicle rather than the R.P.M, of the spreader engine.

Snow disposal is an increasing problem. Two snow dumps near residential areas were closed in recent years and two large new dumps are taking their place, one of these has been constructed, the other will be opened in the near future.

The completed dump, one of the largest tin North America, is surrounded by an earth bank six metres high which both hides the dump and restricts seepage. There are two accesses allowing dumping by 360 trucks per hour (3,000 per eight hour day). At the summit of the embankment - which is pleasantly landscaped - is an access road and dumping ramp. Some snow is still being dumped in the adjacent rivers but city authorities realize this practice must soon be discontinued.

Snow clearing contracts include removal and also the spreading of salt and sand. Tenders are called for an assumed total annual snowfall of 320cm (126 in.) and prices are adjacent to 0.3125% for every variation of one centimetre with a minimum guarantee of 85 percent of the tender amount. Contracts vary in size from 100,000 to 180,000 square meters and spread over three seasons. Each season begins Nov. 1 and ends April 30. Contractors must own a specified list of equipment.

Orange flashers on key intersections are a warning to motorists that snow removal operations are due to take place. Cars still parked when snow clearing begins are impounded. There are 900 flashers covering most of the central area of the city and are

turned on five hours before the snow blowers start working.

Sidewalk clearing has become a major operation with realization that pedestrians and particularly the elderly and handicapped need to get out and exercise in winter. The department has adopted five goals: . To assure sidewalks are cleared during snowstorms; . To avoid slippery sidewalks; . To avoid using too much salt or sand; . To eliminate slush; . To avoid damage to private property. These goals obviously cannot be attained under all circumstances and city engineering staff found it necessary to classify sidewalks in order to establish priorities.

Class 1 sidewalks, about two percent of the total, should always be free of snow, ice and slush using all necessary means.

Class 11, about 22 percent and including some of the busiest sidewalks, are maintained as a flat surface of hardened snow, avoiding slopes, and sand and salt spreading. Between snowfalls these walks are graded to remove layers of snow and slush.

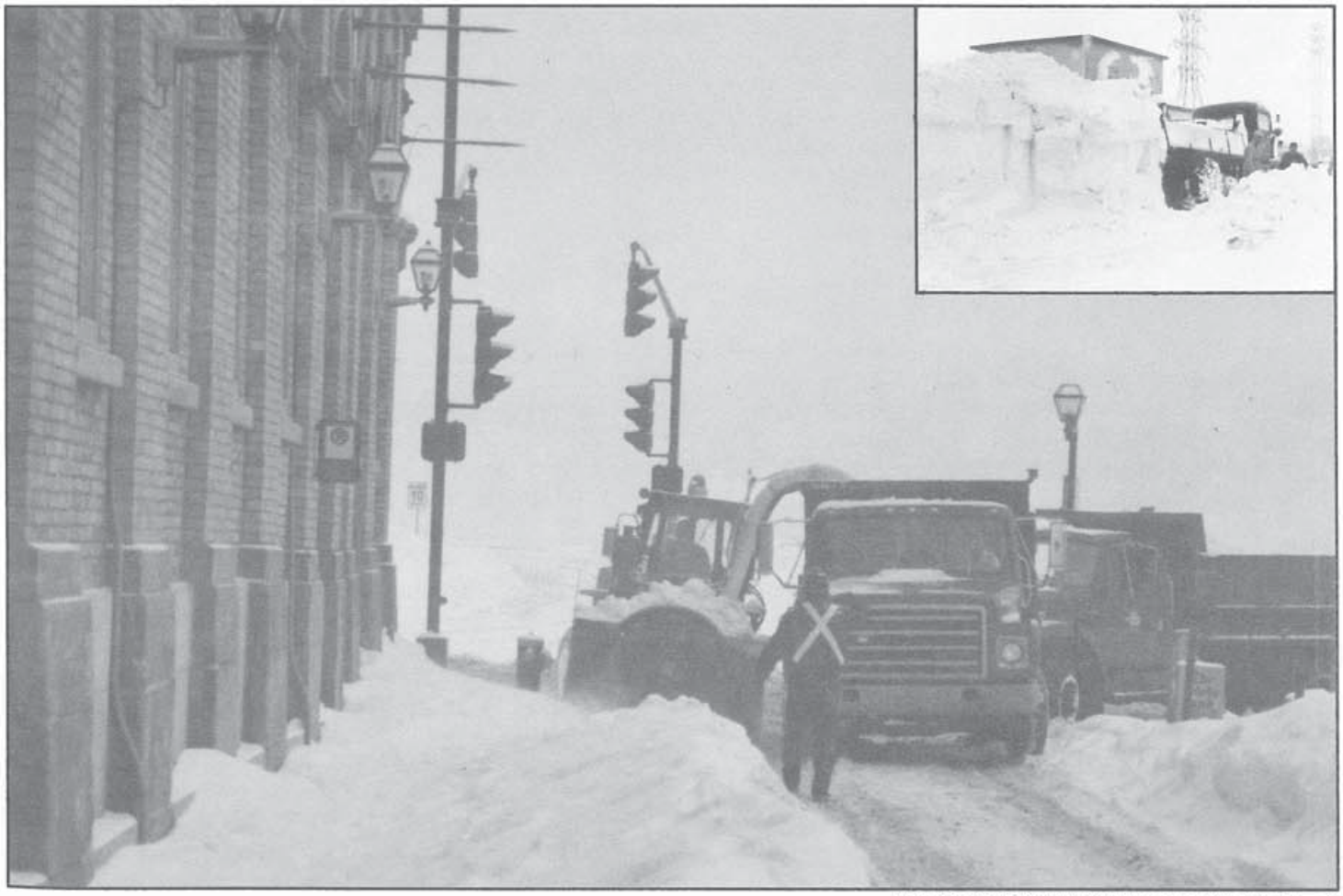
All other walks are cleared during snowfalls. Walks at bus stops and in front of schools are maintained clear. Snow banks are levelled and icy sections salted or sanded. Because of risk of damage to walks, grass and bushes by mechanical equipment, salt is often preferred and equipment speeds are kept down. Well-trained operators are an important key so staff turnover is avoided as much as possible.

Maintaining a 3 kilometre skating rink on the surface of the St. Charles river is another responsibility of the Public Works department. Again some ingenuity has been required. Since the thickness of the ice is important for the safety of both skaters and work crews, a Bombardier snowmobile was equipped with floats.

This machine can test the ice for thickness without risking any lives, can also be used for snow clearing when needed. Total winter snow removal and maintenance budget is currently about $15,000,000 more than double summer maintenance to serve 554 km. of streets and 489 km of sidewalks. Total snow removal operations are rated at $38,000 per hour. Average cost of clearing one kilometre of streets if $27,000; cost for dealing with one centimetre of snowfall averages $46,000. Both city crews and contractors carry on the work. In salt and sand spreading city crews handle an average of 16,000 metric tonnes of salt and 4,000 metric tonnes of sand while contractors spread 20,000 metric tonnes of salt and 8,000 metric tonnes of sand.

Reviewing the city's winter programs, Roger Gagnon stresses the importance of careful planning, of ingenuity in solving difficulties and dedicated service to the citizens. "Particularly since winter is our longest season and we do have some unusual problems".

Modern Day snow management techniques. (Inset Snow management techniques December 10, 1949)



WIND RESEARCH

Soaring human population and concurrent skyrocketing of land prices have produced clusters of skyscrapers in many parts of the world. This uniquely 20th century crop is predicted to spread and grow taller in the 21st century.

Gifted scientists at University of Western Ontario, London, have played a key role in evolving the technology that makes the highrise forests possible. Their instrument is one of the world's largest and best equipped Bounday Layer Wind Tunnel facilities.

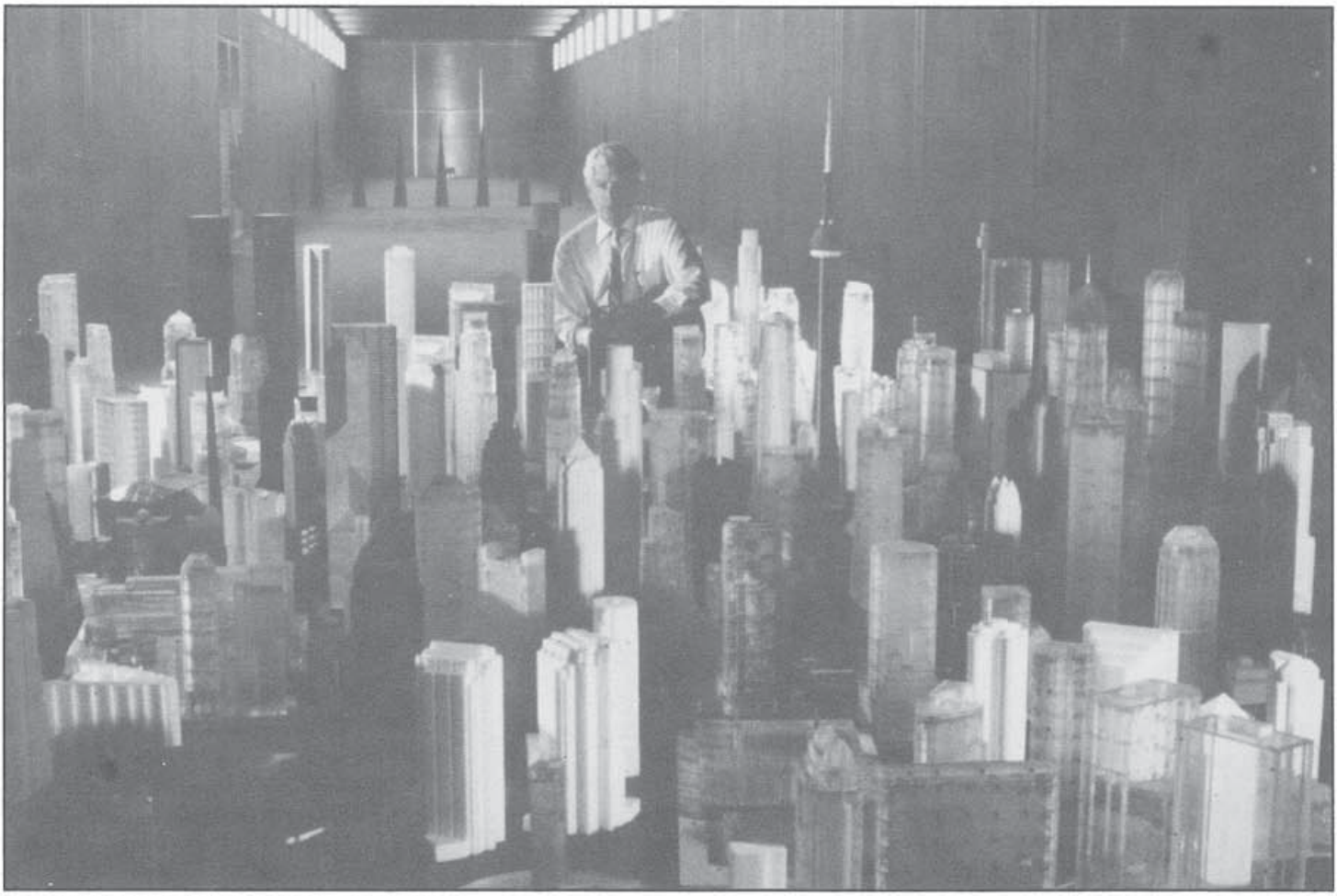
("Boundary Layer" wind tunnels are designed to study effects of wind blowing over uneven surfaces, and therefore with turbulence. In contrast, aeronautical wind tunnels study passage of winds or air over smooth surfaces and therefore with minimum turbulence.)

Western's three wind tunnels have been used for solving design problems for some two thirds of the world's tallest buildings including Toronto's CN Tower (the world's tallest free standing structure.)

Much of the credit for the existence and success of the laboratory rests with Dr. Allen G. Davenport who founded the facility and has been the Director and shaper of its policies.

"Boundary Layer" wind technology is important for winter cities because winds are a major natural influence on human activities and the livability of cities. In winter latitudes, winds are -20 and -30 degrees C., create a considerably different problem than warmer winds because of freezing and chill factors. And snow becomes part of the problem.

Good design of tall buildings is necessary, not only to assure their satisfactory performance as structures, but also because they affect the environment by diverting winds and blocking out sunlight.



WORLDWIDE

Dr. Davenport, with degrees from Cambridge University in England and University of Toronto, elected to attend Bristol University in England in order to work with Sir Alfred Pugsley in obtaining his Doctorate. Sir Alfred had been associated with the development of British wartime aircraft, but Davenport realized that while aeronautical wind research was well advanced, little work had been done on Boundary Layer research. He made this the subject of his Doctoral thesis.

Appointed to the Engineering Faculty of the University of Western Ontario in 1961, he promptly became involved in wind research projects, and in 1965 persuaded the university to fund the first wind tunnel.

With this facility, he and his co-workers helped pioneer a new understanding of wind action on tall structures. It was used in the design of Sears Tower in Chicago, the World Trade Center in New York and many other outstanding buildings.

In 1984 a second complex of wind tunnels was added. This was a closed-circuit system occupying 1,170 square meters with high speed and low speed testing sections in parallel. In effect it was two parallel tunnels, joined at the ends, incorporating a large fan capable of generating winds up to 100 km/hr. In the high speed tunnel is a computer-operated system creating desired roughness similar to that produced by the irregular buildings of a city (see illustration). The low-speed section is suitable for studying problems involving low wind speeds and the floor can be elevated to open a water tank 52 meters in length in which wind and wave studies can be carried out. Low speed winds are required in tests of dispersion of pollutants, studies involving the influence of the terrain and studies for long-span bridges.

Wind problems for one of the world's largest bridge projects are now being researched in the laboratory. It is a 3,300 m. span to be built across Messina strait joining Italy and Sicily. Other current projects are wind impact studies for a section of the City of London (England) and high rise tower in Hong Kong. More than 90 percent of the projects undertaken are non-Canadian and the facility is booked well into the future.

Asked for his view of the future of skyscrapers, Dr. Davenport predicted rising land prices will continue to build the need for them, "I agree with those who say it is preferable to live in human-scale four-or-five story buildings. But with the world's population increasing by some 90,000,000 each year land prices will rise and the alternative to tall buildings would be very expensive cities and expanding urban developing covering some of our best lands.

Research done in the laboratory indicate high rise buildings can be surprisingly successful. The slim twin-towers of the World Trade Center, New York, surprised researchers by demonstrating how much strength and resilience can be incorporated within a small horizontal dimension. All tall buildings are designed to sway under extreme wind pressure but this effect can be created without resulting in deterioration. Paris' Eiffel Tower, now in its second century shows little sign of wear and tear.

The University of Western Ontario facility has recorded numerous important scientific firsts, most of a highly technical nature. One invention, an "Ultra Sensitive Base Balance", will register wind changes to slight as the effect of a cough eight or ten feet away. Dr. Davenport has worked in meterology, environmental loads structural dynamics and earthwake loading. He developed the first statistically based seismic zoning map for Canada.

In an increasing technological world, the variety of challenges to be brought to Western's Wind Tunnel laboratory will include many of an unusual and unexpected nature. But Dr. Davenport would like to continue to be involved in environmental studies — "dispersion of pollutants, snow drifting, wind energy, wind'wave loading and other phenomena affected by the turbulent "boundary/layer" of the wind near the earth's surface".

LOUIS-EDMOND HAMELIN

"WE MUST BEAR NORTHWARD ... MUST SET OUT ON A TRUE MARCH TOWARDS A REAL COUNTRY".

By: Jack Royle

Louis-Edmond Hammelin

DR. LOUIS-EDMOND HAMELIN HAS RESEARCHED "THE NORTH" (AND PARTICULARLY THE CANADIAN NORTH) IN EVERY SENSE — geographically, culturally and politically. No adventuring explorer, no scientist with his instruments, has sought harder to probe The North's mysteries to understand its "themes of location, dimension and regionalization", and to sort out its future.

Now semi-retired and living in a modest home in Sillery, a suburb of Quebec City, Dr. Hamelin has devoted most of his life to his Northern interests. he has written profusely — some 200 books and other works — has taught and spoken extensively on the subject. The list of resulting recognitions and honors would more than fill this page. To select a few: He served as president of the Societe de Geographie de Quebec, as a member of the Societe Royale de Canada' he received the Governor General's Award, the Order of Canada, the Medaille of Universite of Liege, Belgique; he won the Molson Foundation Prize and received Doctorates in Environmental Studies and other disciplines at the Universities of Waterloo, McGill and Ottawa. In 1989 he was one of few leading world figures to be named Correspondent to the prestigious Institute de France.

Dr. Hamelin set out early in life to identify and delineate "The North". His exhaustive study of history disclosed there was little of either written opinion or agreement on the subject. In the Canadian context he settled on a region pyramiding to the Pole and broadening southward to middle Canada. The North, by his definition does not include the well developed strip along the U.S. border where most Canadian live. This strip he defines as "base Canada" and looks for its inhabitants to be aware that their hope and future lies with "The North". These southern Canadians must develop increased understanding and common purpose with the vast generally misunderstood and untapped hinterland. All Canadians must develop "a true Northern Personality".

In "Forces", a publication of Hydro Quebec, Dr. Hamelin recently wrote: "There stems the necessity for a real effort to initiate a mental taming of "The North". Nordicity does not come of its own to anyone, particularly the southern urban dwellers. These polar differences, once recognized, could create desire to establish communication, closeness and interdependence between North and South (base Canada) resulting in an increase in value for both ... Let us hope that resolving North and Base Canada differences will extend beyond the national borders to create a circumpolar globalism."

Fast moving events of these times are quickly giving substance to Dr. Hamelin's insight. Winter Cities movement leaders have frequently expressed the view that "mentally taming the North" is essential in making winter cities more livable and viable. How else can we be aware of who and what we are and begin to truly appreciate the wonders and blessings that come to us with winter's snow and cold. The movement (and the Winter Cities Association) have spread like wildfire around the northern world from China to Finland in the last decade so that Dr. Hamelin's globalism view has already come to pass. To complete the circle the Soviets will be participating at Winter Cities Tromsø '90 and doubtless in future events. (Dr. Hamelin is a member of the Winter Cities Association).

As he travelled through The North and lectured and wrote about it, Dr. Hamelin found it was

necessary to evolve or adapt new words to describe the reality. He thus gave credence to such words as "nordology", a study of the north in all its aspects; "nordicity", the degree of northerness applying to a particular location; "nordism", attitudes or activities indicating commitment to the north; "Polarology", total study of the cold zones of both hemispheres; and "VAPO", shortened form of "Valeurs polaires" or Polar Values. This is a unit of measurement for calculating an index of Nordicity which Dr. Hamelin created as an expression of the geographical northerness of a given place.

In "Nordicite Canadienne," published in French in 1975 and 1980 and English in 1979, Dr. Hamelin described a method of assigning a "Nordicity" rating to northern communities and regions. After extensive research at the Scott Polar Institute, Cambridge, England into past attempts at "northern indexing" he settled on ten "significant convergent factors", some geographic, some relating to human activities, as the most important criteria in determining degree of northerness.

The ten factors chosen: latitude, highest and lowest temperature ranges, presence of ice, precipitation, vegitation cover, surface accessibility, access by air services, population and economic activity. The North Pole was assigned 1,000 total VAPO rating and other localities were scaled according to their percentage out of 100 points for each factor.

Localities with total rating over 500, Dr. Hamelin classified as "Extreme North"; those with 200 to 500 VAPO were rated as "Far North"; below 200 were dubbed "Middle North". Below this category was Base Canada. Lines on the map could link communities of equal "nordicity" and give a basis for comparisons.

Fairbanks, Alaska, rated at 337 VAPO but Ellesmere Island at 956 was highest. Keewatin Interior, west of Hudson's Bay came in at 792 VAPO, colder and more severe than Spitzbergen which lies close to the 80th parallel of north latitude and rated 737 VAPO. Base Canada is the area below 200 VAPO.

In his writings, Dr. Hamelin notes that "The North", as defined, is shrinking as soaring world population increases the need for living space and resources. "The Canada of the South came about by digesting the most accessible and least harsh northern territories," and the process continues. Thus parts of Newfoundland, the north shore of the St. Lawrence and a slice of the upper half of the prairie provinces have experienced a reduction in VAPO rating and become part of Base Canada.

In 1971, the Government of Canada chose Hamelin to serve on the Council of the Northwest Territories at a time of discussion as to what form the Territorial Government should take. In five years of service on the Council he came to favor election of an Assembly. This would be a 2 step process first home rule and ultimate self-determination. He also urged native groups in the Territories to become involved in the political process and begin to speak up for their rights, constitutional and personal. for this work he was presented with the Massey Medal by the Canadian Geographical Society and the Grand Prix of the Societe de Geographie de Paris.

Born on a Quebec farm, Dr. Hamelin early developed a keen interest in nature and travels through northern regions sparked his curiosity as to what uses might be found for these empty spaces and what steps might be taken to prevent their despoiling. As a student at McGill university he received a Rockefeller grant (1948-1951) to permit him to study geography at Grenoble University, France.

Appointed to a professorship in Geography at Laval University, Quebec in 1951, he persuaded the university management to permit him to create a Centre for Northern Studies of which he was made Director. Subsequently, he was second Rector of the Universite de Quebec at Trois Rivieres.

Louis-Edmond Hamelin prefers an adventurous and active life. One of his great joys comes on winter weekends when he meets with friends in a sugaring-off cabin on land he owns a few kilometers from Quebec City. The group lights a roaring fire and prepares food, then heads off for two or three hours cross-country skiing before coming back refreshed and stimulated to enjoy the meal.

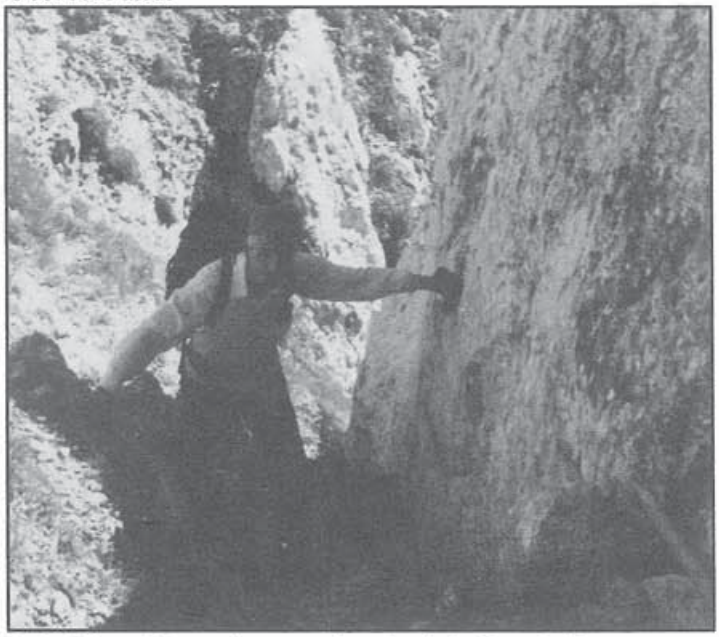
Favorite interests are mountain climbing and photography. He will shortly publish a "mystery book" with a factual base. A charter plane flying some years ago from Rome to Montreal crashed in the Alps and 58 Canadians lost their lives. Little attention was paid to the event at the time, but Dr. Hamelin visited the site when on a mountaineering expedition and discovered documents indicating foul play. His book giving his theories as to the cause of the crash should pique international interest. His wife, born in France and also a "professor of geography shares enthusiastically in his interests.

Dr. Hamelin's message to Canadians included in his article in "Forces".

"We must bear northward, face our problems squarely and not lose ground in nostalgic longing for idyllic warm-weather vacations; we must set out in a true march towards a real country. Then, perhaps Canada or Quebec could receive the prize proposed in Oslo in 1986 to be awarded to sufficiently econologically-minded nations.

There are four objectives we would need to pace the way for such a Northern Renaissance: First would be cultural respect for the north and its historic inhabitants. Second would be respect for the natural environment, more fragile than in many parts of the world. this would be "respect for regionality that would foster interdependence amongst the main northern entities" thus reducing or eliminating regional disparity.

The last objective concerns the vision of Canada as a whole. Once The North becomes a real preoccupation of the country, Pan-Canadian affairs could no longer decided solely on the mainstream of Canadian citizens. Our sense of 'national' (the country as whole) would cease to be confused with 'mainstream' or the South (Base Canada) where a majority of the influential and electoral population is concentrated."



Louis-Edmond Hammelin mountaineering in the French Alps August 19, 1987

FIRE AND ICE

We have written about the particular difficulties that the physically handicapped and the elderly are confronted with in winter but we seldom consider the difficulties that various professionals have to endure in the routine and sometimes dangerous performance of their job in the severe cold. In a recent article in Western Living, Lindor Reynolds interviewed Winnipeg's No. 8 Firehall district chief, Jim Wiebe. "We pulled up to this building one day and a guy says, "What does it take to get on the fire department!" "Oh," I say, "first you gotta be a little bit crazy." He kinda looks at me and says, "Whaddya talkin' about?" And I say, "Well, when I pull up to a building, the people are comin' out, the rats are comin' out, the cockroaches are comin' out, and I'm going in. You gotta be a little crazy to go in."

You're on a high. When you leave the station, the ride itself prepares you because it's fast, lots of noise, and there's chatter on the radio. By the time you arrive at the scene, your adrenaline is already starting. When you see the smoke or the flames or people starting to scream and holler that just pumps you up a little higher."

"In winter, the danger increases due to the fact that if you use ladders and stuff, you're more likely to slip because of the water and the ice. It's a lot more treacherous. In the summer, if you have protective gear on, you have to worry about becoming dehydrated. You really sweat a lot. Those are the main differences.

At a winter fire, the water turns to ice, and that's not time to be playing in water. Years ago, when we pulled up to the scene of a fire, how the heck we even functioned sometimes, I don't know, because it was cold. When I started on here, I worked out on Number 1 Station downtown, and we have three pumpers in there. Two of them were what we called convertibles, with no cabs on them. Those units were built for California weather, not for Winnipeg weather. The new Hush pumpers have a completely enclosed cab.

Sometimes the water will start freezing onto the sides of the building. Now if you have a major fire, in a highrise, say, you could lose the whole damn thing. The walls start to crack from the floors falling in, and with a buildup of ice pulling on the walls, we're lucky if we don't get killed. And it does happen.

Some of these homes we tend to aren't exactly kept up to the best condition. The stairs might be sloping a little bit. Sometimes you come sliding out of there, the water's running over the ice, and you slip and land on your butt. It starts to tell on you after a while. The injuries that you used to shrug off, they don't want to shrug off anymore.

Firefighter Jim Wiebe

After the fire, you can't take your clothes off 'til you get back in the station. We use the hydrant key [a large wrench] to knock the ice off our clips so we can undo them. What they have in a lot of stations now is a shower; water falls all over you and then the ice comes off. The same thing with the hose. If it gets real cold, it starts to freeze up on us once we start shutting down, and we have to take it back in full lengths. And they're 50-foot lengths. We take them to the station and hang them up in a hose tower. Every once in a while you hear a crash! and the ice comes falling out.

BOOK REVIEWS

OUR COMMON FUTURE:

THE REPORT OF THE WORLD COMMISSION ESTABLISHED BY THE UNITED NATIONS (under the Chairmanship of Gro Harlem Brundtland) to formulate "a global agenda for change" is the central theme is "sustainable development".

"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts: - the concept of "needs", in particular the essential needs of the world's poor, to which overriding priority should be given; and - the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs."

Perhaps what renders this concept a departure from a lot of previous thinking on "conservation" is that, instead of a "think small - less is more" philosophy, the Commission advocates that societies meet human needs both by increasing productive potential and by ensuring equitable opportunities. The Commission concedes that economic growth and development obviously involve changes in the physical ecosystem.

Chapter 4 deals with the Urban Challenges. Even though the urban population growth rate in developing countries has been falling (5.2% per year in the late 1950's to 3.4% per year in the 1980's), these countries will have to increase their capacity to manage their urban infrastructure by 65% just to maintain present conditions. As a solution, the Commission calls for national urban strategies.

"A national urban strategy could provide an explicit set of goals and priorities for the development of a nation's urban system and the large, intermediate, and small centres within it. Such a strategy must go beyond physical or spatial planning. It requires that governments take a much broader view of urban policy than has been traditional.

A NUMBER OF IMPORTANT LESSONS ABOUT STRATEGIES FOR SUSTAINED URBAN DEVELOPMENT ARE HIGHLIGHTED:

- The available evidence suggests that most attempts by central governments to balance spatial development have been both expensive and ineffective
- Urban development cannot be based on standardized models, imported or indigenous. - Nothing much short of coercion will prevent the growth of major cities in the early stages of development.
- The key to successful intervention is timing, to encourage deconcentration only when the advantages of concentration are diminishing.
- Policy interventions that increase the attractiveness of the major city should be avoided, particularly subsidies on food and energy, overly generous provisions of urban infrastructure and other services, and excessive concentration of administrative power in the capital.
- To become key agents of development, city governments need enhanced political, institutional, and financial capacity - notably access to more of the wealth generated in the city.

Only in this way can cities adapt and deploy some of the vast array of tools available to address urban problems - tools such as land title registration, land use control, and tax sharing. The Report is generally well written and the central thesis well developed. There is a wealth of facts and figures. Some of the most forceful (and poignant) parts come from the submissions of those who appeared at Commission hearings. It is amazing that a project this ambitious could result in a piece of work this good. This report is more significant than the 1972 Stockholm Conference on the environment.The conclusions contained in this book are being adopted by a number of international agencies, notably the World Bank.

LIFE BETWEEN BUILDINGS: USING PUBLIC SPACE

Jan Gehl

Van Nostrand Reinhold/New York/Toronto:
Macmillan 1987, 202 pp., illustrated,
with a foreword by Ralph Erskine

JAN GEHL IS AN ARCHITECT and senior instructor in Urban Design at the Danish Royal Academy Architecture School, Copenhagen. This very readable and profusely illustrated book includes four chapters, a bibliography and preference. Ralph Erskine provides an enthusiastic forward.

CHAPTER ONE PRESENTS THE SCOPE AND RATIONALE OF THE BOOK. Gehl observes that low intensity, interpersonal contacts do not occur when spaces between buildings offer no artifacts or other design-based inducements to human "activities". He presents three main classes of activities in public space: necessary activities, or those pursuits which people perform on a regular basis; optional activities, or those things which people can choose to do if time and place permit; and social activities, which result from, but are not necessarily fully defined by, the preceding two classes of activities. Those activities which are particularly dependent on the quality of public outdoor spaces are "the optional, recreational activities and by implication, a considerable part of the social activities". In particular, Gehl shows that there is a close relationship between the qualitative characteristics of streets and the human activities occurring along them.

Gehl also provides a succinct historical overview of the application of aesthetic and functionalist planning principles since the Renaissance, and he illustrates the limitations of both sets of principles in contemporary design contexts.

CHAPTER TWO PRESENTS FIVE CONTRASTING DEVICES by which architects and urban designers can aid or inhibit interpersonal contact in public spaces:

Isolation	Contact
walls	no walls
long distances	short distances
high speeds	low speeds
multiple levels	one level
orientation away from others	orientation toward others

Using various examples of the transformation of streets from vehicular to pedestrian traffic, Gehl shows how "life between buildings is potentially a self-reinforcing project". In this respect, it is not the number of people or events that defines the quality of activities in public space, but the number and duration of individual events. Speed of movement is also an important factor: the slower the movement, the greater the potential for qualitative interactions and other personal satisfactions - aesthetic, emotive, tactile, etc.

IN THE THIRD AND FOURTH CHAPTERS, Gehl addresses the full range of design issues, from city and site planning to the detailed planning of entrances to houses. His central doctrine is scale: "the battle for quality is won or lost at the small scale". By examining principles of assembly and dispersal, encapsulation or nonintegration and segregation, and invitation or repulsion, it becomes clear that the aims of applying these sets of principles to people and events may be equally relevant across the range of settings. Gehl stresses, however, that such principles cannot be equated with planning concepts such as site ratio, floor areas and building density, because these concepts do not indicate whether human activities and events are concentrated or dispersed, integrated or segregated. In other words - and this is what winter city planners should by now understand - two- dimensional policy abstractions rooted in zoning maps and word- guidelines are impotent urban design instruments.

Gehl develops an argument that people should be brought together during the course of their daily activities. He rejects monofunctional areas at the scale of neighbourhoods, city blocks and the ground floor level of specific buildings (like shopping malls). For example, Gehl discusses the crucial role of transition spaces as a means for regulating interpersonal contact between public and private domains. He develops the notion of "soft edges" seen as one of several characteristics of a qualitative definition of built environments. Soft edges create physical, functional, psychological and symbolic transitions between inside and outside, and between public and private. With well chosen examples from various cultures, the author illustrates how soft edges can enable long-lasting activities which catalyze an enriched life between buildings. We can see how Gehl works from the elementary sensitivities, expectations and satisfactions of the person outwards toward the de-

signed environment. Krier begins with the symbolic role of architecture, classical "truths" and the metaphysic of space, and then works his way back to people.

Using a careful selection of reference sources, a strong conceptual framework and a vivid account of daily life, Life Between Buildings is a most welcome handbook as well as intellectual contribution to the fields of architecture, urban design, town planning, urban geography and environmental psychology. It bridges the applicability gap between theory, research and practice. This book should mark a milestone for studies of the way people attribute meaning to and use public space in many countries.

HARNESSING SCIENCE AND TECHNOLOGY FOR COLD REGIONS

Available from the Publications Office of the Science Council, In Touch, Science Council of Canada 100 Metcalfe Street, Ottawa, Ontario K1P 5M1 (613) 992-1142.

Canada is a leader in many polar technologies. Virtually every nation active in Antarctica, for example, uses Canadian vehicles, housing, clothing and machinery.

Yet, although individual Canadian firms have achieved an international reputation in the field, much of the development of Canadian cold-climate technologies has been piecemeal and directed to specific short-term uses. The hundreds of small companies providing goods and services centred on cold-climate technologies are widely distributed and do not have information about one another or about market opportunities. Nor do they always have the resources to exploit openings, particularly in export markets.

This lack of coordination and of resources is of pressing concern because international markets and international collaboration in science and technology are growing rapidly. Many in the international community think that Canada should play a leading role in the exchange of polar technologies. At the same time, Canada must ensure its own interests in any cooperative venture. But progress is

thwarted by the lack of a clear, comprehensive picture of this country's existing research and industrial capacity in cold-climate technologies.

These are the issues addressed in a new Science Council statement, Harnessing Science and Technology for Cold Regions. It is about the need for us as Canadians to accept the challenge of our geography and to recognize the special opportunity and responsibility that geography offers. it argues that Canadians can use science and technology to serve both domestic and global interests.

The statement's 10 specific recommendations address not only gaps in research infrastructure and funding but also the gamut of problems that beset the development of any new industrial sector. Together, the proposals are a first step to ensuring the growth of a dynamic cold-climate technology industry.

BULLETIN BOARD

ARCTIC AND ANTARCTIC REGIONS DATABASE

The University of Calgary library has received a demonstration bibliographic database on compact disk - CD-ROM. This disk includes the complete contents of the Antarctic Bibliography and of the CRREL Bibliography. On CD, all years can be searched at once, by keyword, author, language, etc., and keywords can be combined in a search strategy to focus the scope of a search to more accurately reflect researcher needs.

The contents of the Antarctic Bibliography and of the CRREL Bibliography are virtually entirely of a scientific/technical nature. However, if other negotiations currently underway are fruitful, the contents of the ASTIS Bibliography, the Boreal Institute's database, and possibly others, will be added to the CD. This will give the CD much more usefulness.

This CD can have a very positive impact on the research process, since polar research tends to be interdisciplinary in nature, and polar bibliographic records get scattered in a wide variety of bibliographic indexes and databases. This CD brings together into one place, access to a large amount of bibliographic information.

For further information call Michael Brydges at (403) 220-5650, Calgary, Canada.

THE 1990 ARCTIC WINTER GAMES IN YELLOWKNIFE, MARCH 11-17.

Team Alberta North is participating in the 1990 Arctic Winter Games in Yellowknife, March 11-17. Other groups participating are the Arctic Winter Games Corporation, the Host Society, Team Alaska, Team Yukon, Team Northwest Territories and Team Alberta North. All join together in the spirit of openness and friendship, bringing athletes from Team Alberta North in contact with athletes from other communities in the Arctic.

For more information, please contact:

Steve Pritchard
Team Alberta North, Arctic Winter Games
9th Floor, Standard Life Centre
10405 Jasper Avenue
Edmonton, AB
T5J 3N4

SAULT STE. MARIE PRESENTS FORUM '91

By: Karen Lapointe

NEWS OF FORUM '91 is spreading fast through the regional and international network of winter cities and communities.

Forum '91 will bring together over 500 delegates with diverse backgrounds in government, community administration, business, engineering, architecture, urban planning, recreation, health and environment under one theme "Winter Cities and Communities and Sustainable Development" during January 21-25, 1991.

Delegates will be given the opportunity to investigate ideas in making life more pleasant during the winter while reaping winter's economic, recreational and cultural opportunities. In six concurrent sub-theme categories will address sustainable development in the context of winter cities and communities: Energy Efficiency and the Environment; Waste Management Strategies to Reduce Air, Water and Land Pollution; Transportation and Communication; Livability: Recreation and Tourism; Urban Planning and Architecture in Cold Climates; and Long-term Strategies for Land, Water and Natural Resource Use.

Delegates will also be able to attend the Community Showcase where participating communities will reveal their methods of new opportunities for economic growth associated with winter; the implementation techniques for enhancing the quality of life in winter; New ideas and concepts for administration of winter communities; and Strategies or demonstrations for energy conservation and sustainable winter cities of the future. A business opportunity Tradeshow will also compliment programs.

A memorable northern hospitality experience has been designed for delegates based on a "Northern Reveillon" theme and an "international" theme.

Call (705) 945-9986 for more information or write:
Winter Cities Association Forum '91,
P.O. Box 787
Sault Ste. Marie, Ontario
P6A 5N3.

BULLETIN BOARD

"NEW TRENDS IN NORTHERN RESEARCH IN THE 1990S," ROVANIEMI, FINLAND

THIS NORTHERN POPULATION WORKSHOP, to be held 15-17 June 1990, is co-sponsored by the Arctic Centre in Rovaniemi, the Northern Population Research Committee, Universite de Montreal, and the Arctic Institute of North America and will follow the 13TH POLAR LIBRARIES COLLOQUY, 10-14 JUNE 1990.

The theme is Man's Future in Arctic Areas. Participants will be northern residents and administrators, scientists and researchers who wish to take part in an exchange of research results and experiences with colleagues and people working in related fields from other countries.

Interested participants should forward their submissions (title of paper and abstract, 1/2-1 page) not later than Jan. 15, 1990 to:

Mr. K. de la Barre,
Coordinator, Northern Population Workshop,
c/o AINA.
The Arctic Institute
11th Floor, Library Tower
The University of Calgary
2500 University Drive
Calgary, AB T2N 1N4

PUBLIC AND PRIVATE LIGHT IN NORTHERN CLIMATES

THE WINTER CITIES ASSOCIATION OF MINNESOTA AND THE MINNESOTA ENERGY COUNCIL are organzing a two-day conference and exhibit in early 1991 on lighting for public and private places, with emphasis on the winter season in northern climates. Improved lighting can enhance the livability, health, personal safety and security. Efficient lighting is important for energy conservation.

The first day will discuss use of natural daylight to the greatest extent possible, with atria, sunrooms, skylights, and stategically oriented window areas, to enhance daytime light in public commercial buildings. Natural light as a factor in urban design will be discussed, for spaces open to the weather and enclosed spaces. High-performance insulting glazing will be emphasized in the technical sessions.

On the second day use of high-efficiency electric lighting of streets, sidewalks, outdoor public places, indoor community and private spaces, will be discussed.

Multi-media presentations are invited to show outstanding projects and examples in the United States, Scandinavia, northern Europe, Canada, Soviet Union, Japan and other northern nations. Urban designers, architects, glazing experts and lighting engineers are invited to prepare presentations.

Manufacturers of related products are invited to exhibit. To receive Request for Papers, or invitation to exhibit contact:

Winter Light,
Minnesota Energy Council,
Box 76070,
St. Paul, MN 55175.

CITY LAUNCHES CONTEST TO DESIGN HOUSING AND MAINSTREET

excerpted from Toronto Star by Jim Byers

THE CITY OF TORONTO recently kicked off an international $50,000 competition for architects to design new buildings that would add more housing on major streets. The idea could create homes for 100,000 people in Toronto alone.

The competition will consist of designing mixed-use residential/commercial buildings on several typical streets, blocks and lot types. The selected sites will represent a wide range of prototypical conditions found around the City.

It is hoped the new designs will encourage redevelopment of much of the land bordering major streets. "Some streets like the Golden Mile in Scarborough are crying out for development of this kind", Metro Councillor Richard Gilbert told a news conference.

Ultimately the program could affect almost one-quarter of the main streets in the city about 41 kilometers, Toronto Mayor Art Eggleton said.

Adding more housing on top of existing stores and building new projects would help ease the housing crunch, contribute to the vitality of the city streets, make for a safer city and slow urban sprawl. Higher density development in proximity to existing parks, transit lines, schools and other services will also reduce cost and increase convenience. All are features of a good winter city. Units would range from 600 to 1,500 square feet to be attractive to various household types. The competition is open to submissions from architects, graduates and students of architecture, and architect-led teams.

For further information contact:

City of Toronto,
Planning and Development Department,
M5H 2N2.

On June 27, 1990 there will be the Awards and Public Forum.