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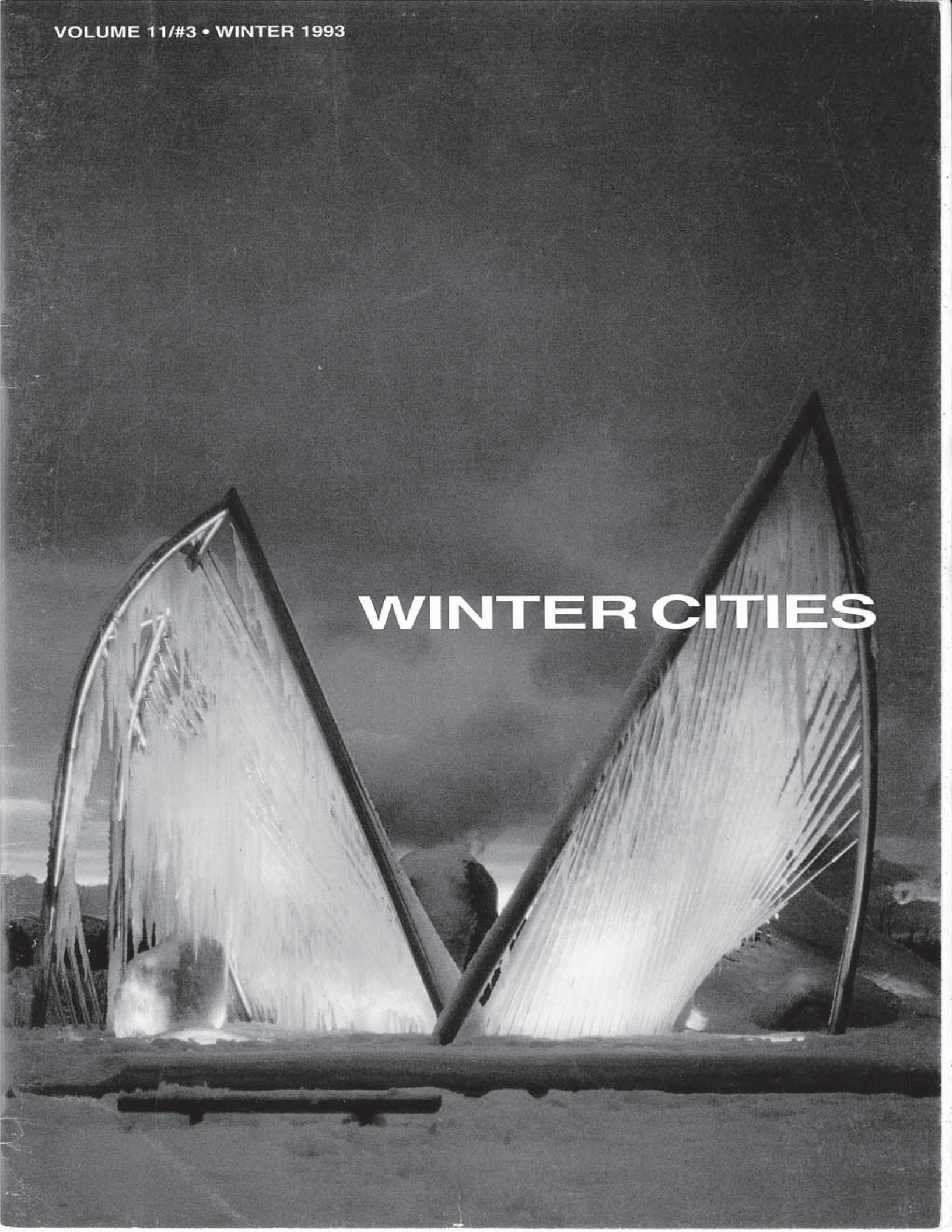


WINTER CITIES

WINTER

FEATURES

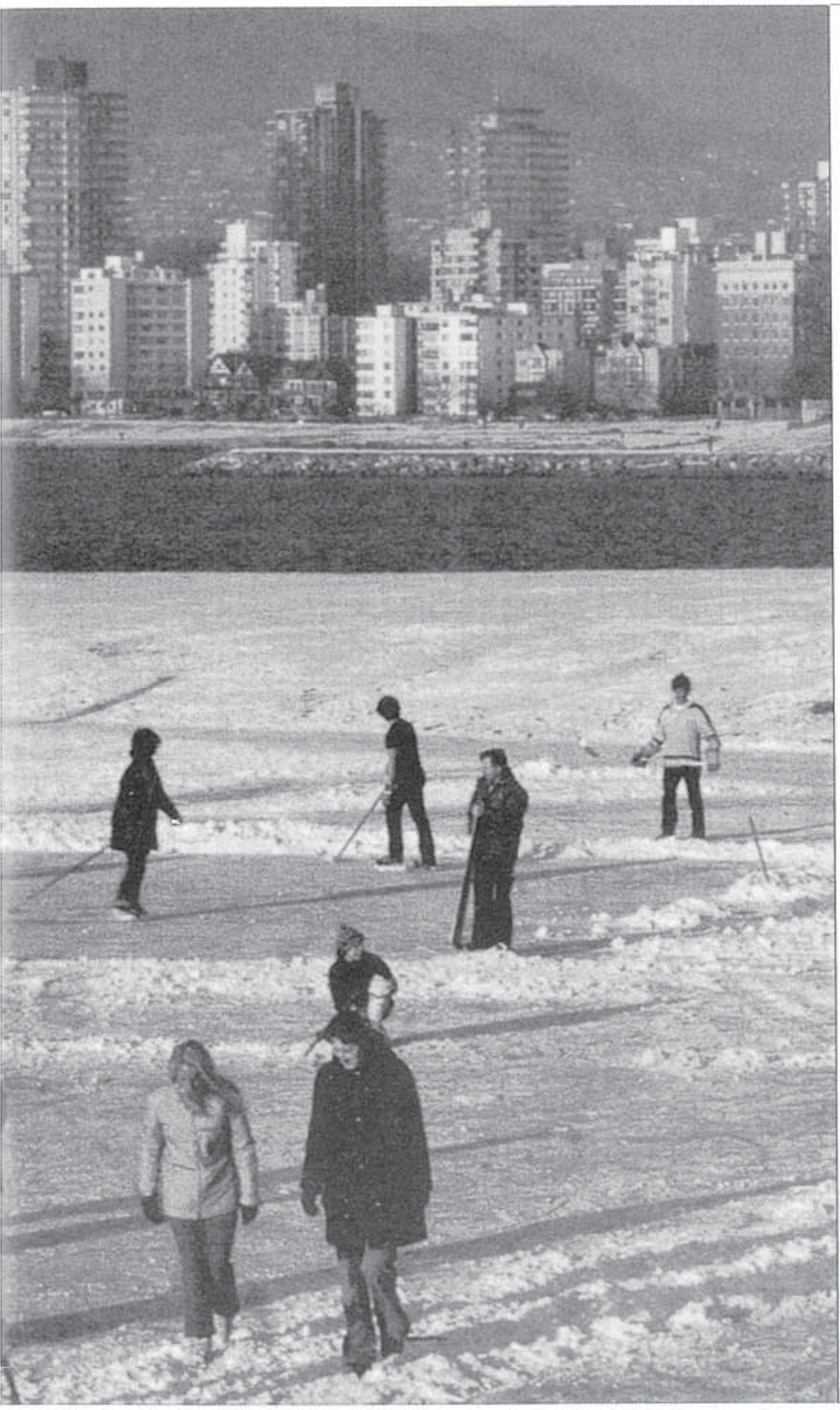
Winter Celebration

Anchorage

DEPARTMENTS

On the Cover: This spectacular frozen ice fountain welcomes us to the home of Winter Cities '94, Anchorage, Alaska.
Photo by: Bryce Klug

CITIES



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Winter Cities Association
is dedicated to realizing the unique potentials of all northern communities. Through publishing, networking, organizing conferences, facilitating research and other means, the Association seeks to make available solutions and to promote awareness of opportunities associated with the winter season.

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editorial

Three Ring Circus

P.T Barnum and the Winter Cities Movement

The Winter Olympics are all about promotion. They use winter to sell tickets, commercial space and merchandise.

Winter Cities '94 in Anchorage is also promoting. They are putting great effort into ensuring that their event will gain the recognition and merit it deserves.

In these days of global Hollywoodification it is necessary to hoop and holler in order to get any attention. This fact may seem a bit distasteful to us northerners. We are used to being humble about our unique existance, if in fact we mention it at all. Let the southerners raise the ruckus, they always have.

But there is competition out there. If multi-season regions don't start tooting their own horn then someone else will. Ironically, temperate regions are beginning to see our strengths and are more than willing to capitalize on them. If we don't wish to see southern based winter tourism, manufacturing, etc. become the norm then we must take control.

Simple pride goes along way. If we are proud of our communities and take the time to say so then we are half way there.

"Come visit our cities, buy our goods, invest in us!" The strength we derive through seasonality puts us at an advantage. Why not utilize and advertise this position.

Tourists should flock to our vacation spots. Buyers should be chomping at the bit to purchase our quality wares. Investors should be gobbling up stock in our future.

Of course, none of this will happen if nobody knows that we are out there.

The fear of being crass should not outweigh the need for awareness. Winter by nature is noble and understated. Approaching promotion with tact and sensitivity seems the northern route to go.

This does not mean that we should not be aggressive or strong, just sensible.

A showman such as Barnum would have jumped on the opportunity to sell the wonders of the north. We just need to turn down the hype a few notches and go about making sure that the rest of the world knows what we have to offer.

Success: Russia and Canada Link up

Dimitra Katsuris manager of the Canada-Russia Business Council's oil and gas section has provided some current insights on doing business more efficiently in Russia.

"Russians still have a problem with profit - it's an ingrained thing. Quite often the central government will take a look at the contracts that have been worked out with the regional authorities and want to rewrite them."

Despite the challenges, Canadian businesses continue to play a major role in the new Russian economy, with Alberta's oil and gas industry leading the way.

The council pegs overall Canadian investment in post-communist Russia at about $400 million. Of that, more than $250 million can be attributed to the oil and gas industry. Canada leads the world in investment on a per-capita basis and according to the council's studies, Canadian investment has shown the greatest success ratio.

While the success of such major players as Canadian Foremost, Canadian Fracmaster Ltd. and Gulf Canada Resources Ltd. have received a lot of attention, Katsuris said a number of smaller Alberta companies also have success stories to tell.

Among those businesses are Clark - Bowler Construction of Edmonton, which built a modular village at Yakutia using techniques it pioneered in Canada's North; and PTI Group Inc.

PTI supplies accommodation and catering services to the oil and gas industry and is a partner in a hotel in Vladivostock. This weekend it will open a new 120 room hotel in Nizhnevartovsk, a major oil and gas centre with about 300,000 residents.

The hotel will contain a business centre designed to meet the needs of the oil and gas industry, as well as a medical centre. The medical centre will be operated by Arctic Exploration Services.

We have a number of advantages working in our favour. The cold climate, cold-weather technology and similar geology.

Winter's icy grip feared

Thousands of Muslims face the risk of freezing to death this winter in a Canadian protected Bosnian enclave still menaced by Serb forces six months after being declared a UN "safe area", relief officials say.

An estimated 44,000 people, most of them refugees from eastern towns overrun by the Serbs, are packed into Srebrenica, where 25,000 lived before the war.

A report by the top UN humanitarian agency said conditions in Srebrenica were the worst of three east Bosnian Muslim enclaves because of severe refugee over-crowding and a lack of insulated shelter. "The chief headache is not food but the terrible shelter conditions. People face the prospect of freezing to death this winter rather than starving to death", said a UN report.

"Many people will try to survive the winter in exposed, draughty and cold structures. The old and very young face a high risk of freezing to death," it said. A small number of peacekeeping soldiers, food and medical aid convoys reach all three pockets every week.

"The UNHCR report described Srebrenica's population as "extremely frustrated and demoralized", people spend days walking dazedly up and down the streets. The majority live in partially destroyed buildings, in rooms infested with lice.

People face the prospect of freezing this winter rather than starving

Glacier Bottom-up Master Plan

One of the largest master planning efforts in the United States is currently underway in Flathead County, Montana, an area larger than the state of Connecticut and contains half of Glacier National Park. Flathead County experienced the hottest real estate market in the country in the last three years. Growth outstripped the resources of county government and made the county's 15-year old master plan ineffective. As a result, in the fall of 1992 a grass-roots organization formed the Cooperative Planning Coalition, a diverse group of citizens concerned with the significant growth occurring in Flathead County threatening their quality of life. The population in Flathead County has grown 14% in the last ten years to a total population of over 64,000. Many local residents feel that the rapid growth caused by migration of historic proportions will continue unabated into the future, irrevocably changing the unique character of the valley, unless a master plan can be developed to adequately plan and guide growth in a sustainable manner. The comprehensive nature of the master plan faces almost every major planning issue in the west.

The Cooperative Planning Coalition and its fund-raising board have found an overwhelming positive response from the private sector and have currently raised over $350,000, primarily in private donations, to fund the first known privately sponsored public planning process involving thousands of residents. Design Workshop, a landscape architecture and planning firm from Aspen, Colorado, has been hired to tackle the 3.4 million acre master plan with an expected completion date of May of 1994.

In addition to the grass-roots organization raising funds for the project and the bottom up planning process being advocated in the plan, a number of other aspects in the Flathead County Master Plan Update are unique and unprecedented in master planning history.

There will be nine rounds of public meetings in 8-10 neighbourhoods (a total of over 80 public meetings) to give local citizens numerous opportunities to comment on the plan throughout the process.

In an effort to gain as much public input as possible, a land use survey was sent to every household in Flathead County (over 33,000) to get feedback from individuals who may not be able to attend the public meetings.

A GIS (Geographic Information System) database has been developed for all of the private and public land in the county gathering enormous amounts of information from vegetation, wetlands, and wildlife to transportation, utilities, and cultural and historic sites. For the first time, the county will have a document and database with which sustainable decisions for the future can be made based on natural and cultural resources.

Over twenty five work groups comprised of "locally knowledgeable" experts in the areas of ecosystem management, land use law, demographics, and affordable housing, have been formed, in many cases for the first time, to verify the database information and help write the master plan document. These groups will continue to meet after the master plan has been completed to update the plan and ensure that proper implementation occurs.

The seven step master plan process of: data gathering, analysis, developing plan alternatives, public comment, plan revisions, plan adoption, and code adoption will undergo a sign off at the completion of each step of the process by the county commissioners. This will ensure all aspects of the county's needs are addressed throughout the planning.

The final product will be a country-wide master plan providing a flexible framework within which neighbourhood plans will address specific needs of areas. This enables the plan to cater to communities needs unique to each area of the county.

To date, over 40 public meetings have taken place, over 165 communities have been contacted, 4000 surveys have been tabulated, and over 800 residents have received monthly newsletters. The sheer size of the planning area and the amount of public involvement in the plan have established a new way Americans are getting involved and addressing the significant changes taking place in their communities accompanying the recent resettlement of the American west. This grass-roots, bottom up planning process is starting to find common ground in a land where once rugged individualism is now seeking the advantages of cooperation and coordination at the Flathead Master Plan.

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200,000 YEARS OF CLIMATIC HISTORY

Jim Heimann knocked back an early morning scotch with the crew and cranked up Beethoven's Eroica. It had been a long night of drilling under the perpetual summer sun.

"Only 14 people on Earth know how to run our drill," Heimann said. "You've got to be good, part of a team."

Out on Greenland's vast glacial desert, a snowmobile buzzed by. No roads or TV, trees or wildlife. Supplies are flown in on ski-planes.

Heimann, a large Texan with a face as tough as beef jerky, has drilled for oil around the globe. This time, 600 kilometres above the Arctic Circle, he's got an unusual drill site; ice 3 kilometres deep jammed with clues to the Earth's environmental past all the way down to prehistory and bedrock.

The fragile ice core Heimann's crew pulls up is incalculably rich in secrets of ancient ice ages, global warming, life and death on the planet through 200,000 years.

The five-year Greenland Ice Sheet Project 2 is costing American taxpayers $20 million US, less than a single F-16 fighter plane. Scientists say it will yield the most comprehensive record even of greenhouse gas levels, precipitation rates, volcanic, solar and other climatic activity through time.

Drillers so far have tunnelled almost two kilometres down, drawing out 5.8 metre-long lengths of ice not much wider than Heimann's hand.

Trapped in each layer of ice, like rings of a tree, is pristine evidence of Earth's every climatic twitch, from Chernobyl in 1986 to the Great Dust Bowl of the 1930s to the enormous eruption of Vesuvius that buried Pompeii.

The U.S. Greenland project, to finish next year, is venturing 40,000 years further back than a Soviet-French project in the 1980s at Antarctica.

Conditions are harsh on the icecap that covers 80 per cent of Greenland. At 3,350 metres and -60C, altitude sickness and frostbite are constant dangers.

Still, about 50 American scientists, drillers and support crew make their way up to the summit outpost each summer.

"What we're getting together here is a time line," said glaciologist Paul Mayewski, chief scientist on the project, financed by the U.S. National Science Foundation. "And when it's done, I believe the scientific impact will be as great as the first time we got a look at Earth from outer space."

The camp's subterranean lab, carved from the glacier with chain saws, glistens like quartz. Scientists dressed in thermal white stamp their feet to stay warm.

Samples can be tested immediately for the gases, particles, physical and electrical properties that reveal 2,000 centuries of climatic history.

I believe the scientific impact will be as great as the first time we got a look at Earth from outer space

HAVE SNOWMOBILE, WILL TRAVEL

What versatile Canadian invention is used in Lapland to round up reindeer herds? The snowmobile, created by Joseph-Armand Bombardier, serves world-wide.

Bombardier was born in 1908 and grew up in the small community of Valcourt, Que. Throughout his childhood he enjoyed constructing machinery.

In 1922 he built his first snowmobile. His father had given him an automobile, and the teenaged Bombardier promptly removed its engine. He mounted the motor on the family sleigh and attached an aeroplane propeller in place of the radiator fan.

To the astonishment of his neighbours, Bombardier drove his primitive snowmobile through the centre of Valcourt. It was a dangerous contraption, but the young mechanical genius became convinced that it was possible for a man and a machine to conquer snow transportation.

In 1934, his infant son, Yvon, died following an attack of appendicitis during a bitter snow storm.

Roads were closed and it was impossible to transport the child to the hospital. Bombardier focused in earnest on the invention he had dreamed of since childhood.

The following year he designed and built a rubber-cushioned drive-wheel and track. Two years later he was granted his first patent for a snowmobile called B7-B for Bombardier and 7 for the number of passengers it could carry. Full scale manufacturing began in 1942.

The snowmobile was in immediate success, and Bombardier's invention was soon utilized by medical rescue crews. During the Second World War and vehicle was modified for military purposes and a 23 passenger model gained international acceptance.

In 1959, Bombardier introduced a sport model. He considered calling the two-passenger version the "ski-dog", before settling on the now famous "Ski-Doo".

By the late 1960s, Ski-Dooing had captured the popular imagination. It literally transformed the social life of Inuit and Arctic communities.

Competing brands of snowmobiles threatened to overwhelm the family firm in the early 1970s. Bombardier, Inc. diversified and entered the public transit business, manufacturing 423 subway cars for the city of Montreal in 1974.

Eight years later, Bombardier signed a multi-million dollar contract to supply subway cars to New York City.

Subsequently, the corporation expanded into the aeronautics with its purchase of Canadair. Recreational activities remain at the forefront of operations.

In 1988, the company introduced the Sea-Doo, which demonstrates the same agility on the water as its snow conquering counterpart.

Hokkaido Heat

In frigid Sapporo, capital of Japan's northernmost island of Hokkaido, road workers are busy expanding the city's 17km collection of heated roads and sidewalks. More than 150 slippery curves, gradients of more than four degrees, tunnel exits, heavily trafficked intersections and accident black spots are included in the comprehensive heating plan.

Three energy sources are used to heat road surface -electric wires, hot water pipes using conventional fuels, and heat pumps using relatively low temperature heat sources such as groundwater, hot springs and landfills.

The hot springs water source is the cheapest by far - there are no fuel costs and annual maintenance is a fraction of that required by electrical wiring. At present, about 130,000 square feet of curves and sidewalks in Sapporo are heated by water from local hot springs, circulated by pipeline grids beneath the surfaces of roads and sidewalks.

Sapporo's road heating systems are controlled automatically at each site by sensors that measure snowfall, road surface moisture, ice buildup, ambient and road surface temperature. The sensors and automatic controls save up to a quarter of the energy required by previously used methods which measured road surface temperature only.

Back to Grass Roofs

English architects and conservationists are becoming aware of something Norwegian farmers have known for centuries: growing grass on the roof helps cut heating costs drastically.

In south-central Ontario, a new natural science school near the town of Shelburne has a sodded roof. Grass roofs are in vogue in some parts of Germany. And on the outskirts of Brighton in England, amateur builders are constructing nine timer houses with grass on the roof.

"Can you try to avoid the wildflowers?" site manager Michael Bailey asked after a reporter climbed the scaffolding to the pitched roof to inspect the newly laid turf.

On the roofs, wildflowers such as bird's- foot trefoil, ox-eye daisies, tufted vetch and scabious grow in the meadow grass cut from the rolling hills of the nearby Sussex Downs.

The rooftop grass is planted in a layer of soil mixed with seaweed to help retain moisture. It will be left to grow shaggy and wild to provide a habitat for insects and seed-carrying birds.

Under the turf is a waterproof membrane to prevent moisture leaking through into the houses. The houses were designed by the London firm Architype.

Heating bills for the largest three-bedroom houses will be equivalent of about $55 a year, a fraction of the annual heating bill for the average home.

ENERGY EFFICIENT NOVTEC HOUSE

A house which consumes one quarter of the energy and one half the water of a traditional house was opened to the public September 19 in Ste-Dorothee, Laval, Que.

The project, part of Energy, Mines and Resources Canada's Advanced Houses program, was sponsored by National Resources-Canada. Siricon, an affiliate to the Building Studies Centre of the University of Concordia, and Celfortec, Valleyfield, Que. manufacturer of extruded polystyrene insulation, and about 40 other contributors.

The NOVTEC house features 10 innovations designed to improve construction techniques to conserve energy and be environmentally responsible. These innovations result in reduced water consumption and energy usage.

They include exterior "outsulation" and air-barrier sandwich walls; no basement; prototype ground-source heat pump with electronically commutated motor for air distribution; two heat pumps in series to maximize heating, cooling and domestic hot water heating performance; exhaust air and solar gains integrated with ground-source heat pump; reverse osmosis unit and carbon filter to treat drinking water; indoor plants for air purification; home automation system; roofing system using recycled materials; composting toilet with a small electric heater.

The energy and air systems, as well as lighting household appliances and security are controlled by a state-of-the-art computer system developed by a team of engineers in Montreal.

The main sponsor of the project, Celfortec, provided a new type of wall assembly. The innovative wall design built with 30 mm x 89 mm (2" x 4") studs is only 200 mm (8") thick but delivers an RSI value of 5.46 (R-31). Wall cavities are filled with glass fibre batts containing up to 30 per cent recycled bottle glass.

This relatively new insulation, marketed by Manville Canada, has a thermal resistance of RSI-2.46 (R-14), in an 89 mm (3.5") batt.

This completely integrated system provides home security and ensures that home heating and lighting equipment, as well as other household appliances, operate with greater efficiency

The air-tight wall design allowed the traditional polyethylene vapor barrier to be replaced by a vapor diffusion resistant paint applied to the interior gypsum finish. The wall exterior is sheathed with two layers of CFC-free extruded polystyrene insulation separated by plywood.

The exterior finish consists of 12.5mm (.5") thick clay bricks affixed to a vacuum-formed polymer facing laminated to the outer layer of rigid insulation. The roof insulation in the attic space is mainly comprised of glass fibre batts, similar to that used in the walls, and provides a thermal resistance of RSI-9.15 (R-52).

To achieve the highest levels of indoor air quality, the construction of a basement was ruled out, thus eliminating the associated problems of soil gas infiltration, poor natural lighting and high humidity levels. In lieu of a basement, the design team opted to add a third floor mezzanine to the home.

The house rests on a concrete slab, insulated with extruded polystyrene.

The concrete floor slab enclosed a system of pipes that circulate hot water. The heated slab then radiates uniform heat to the home.

The design team chose to install a ground-source heat pump system which will reduce heating, cooling and domestic hot water costs. The system uses additional heat from passive solar gains and other household sources, then redistributes it to areas where it is required.

To maximize energy efficiency, the house is equipped with an advanced home automation technology. The Secant home automation system includes a central control module, programmable switches and numerous pairs of magnetic contacts.

This completely integrated system provides home security and ensures that home heating and lighting equipment, as well as other household appliances, operate with greater efficiency. For example, the system can determine whether the windows in a room are open or closed and adjust or turn off the heating or air conditioning.

Residents any distance from home can use a telephone to control the security system and even turn individual lamps or appliances on and off.

Care was also taken to ensure that landscaping design helped reduce energy consumption. Strategically placed broad-leaved trees shield the building from wind, noise and sunlight in order to minimize temperature fluctuations inside the home.

SIRICON will monitor the performance of the NOVTEC House over a period of two years. Approximately 40 performance factors and individual components will be tested and studied.

Sensors have been installed in the house in order to evaluate the efficiency of the principal technological innovations. The study will also provide information about the environmental impacts of products used in the construction of the house.

Preliminary results of this analysis will be made available in the spring of 1994, although testing and data collection will continue for a longer period of time.

The data collected from this project is expected to give both builders and the public a means of evaluating the cost effectiveness and ease of construction against the performance advantages of the building concepts employed in the house.

GEORADAR DETECTS DAMAGE

A georadar-based monitoring vehicle developed by Sweden's Lund University has substantially improved current technology in detecting damage and the risk of damage in concrete bridge and road pavements.

Built with research grants from several Swedish government groups by the Nordic Construction Company and operated by the Engineering Department of Lund University, the measuring system uses a van-mounted series of five 500 Mhz georadar aerials to inspect bridge decks and road surfaces.

In operation over the past three years, the georadar equipment has provided an effective alternative to invasive inspections of bridge decks to pinpoint corrosion. Georadar inspections save money and cause less disruption to traffic since the inspection vehicle can be driven at speeds of 35 mph, while storing 160 radar pulses per second in the memory of the onboard computer. The aerials are placed on a frame behind the van, scanning a strip 2.5 meters (8.2 ft) wide, covering an entire traffic lane. In road use, the system provides information on the state of the pavement and the character of subsurface erosions. Data is also provided on the mechanism of soil settlement, which allows engineers to plot corrective soil mechanics measures.

FARMING IN INFLATABLE DOMES

Even though we live in penny-pinching times, there is a fortune waiting to be scooped up out there.

All it takes is an entrepreneur with the funds and the understanding, said Dr. Peter Glockner, professor of civil and mechanical engineering at the University of Calgary.

"I have this idea that Alberta with all its cheap energy can grow ... all the market garden vegetables we need," he said.

Vegetables, such as tomatoes, cucumbers, cauliflower and radishes, could be grown in inflatable greenhouses heated by energy from waste.

Inflatable greenhouses, or plastic membranes supported by internal pressure, are cheaper to construct than concrete or glass structures, Glockner said.

Waste energy could be used from shallow gas field sources like Suffield, where warm air resulting from cooling gas is expended.

This way of producing vegetables will cut costs and will result in more competitive pricing of Alberta-grown vegetables, he said.

"We should be able to get our tomatoes into Safeway as cheaply as they ship them up from Mexico."

Buying tomatoes at the Crossroads farmers market three weeks ago, Glockner found tomatoes from British Columbia (B.C.) were more expensive than those imported from Mexico. But Kevin Highberg, general manager at the National Farmers Market, said although tomato prices fluctuate with changes in supply and demand, B.C. tomatoes are usually cheaper.

Glockner's theory has sprung from 25 years of research into the stability behaviour of inflatable structures. He was the first to research ponding instability caused by rain or snow accumulating in a depression in inflatable domes.

For example, a lamp hanging from a dome could cause a depression. This research was prompted by the collapse of inflatable sport arenas in Michigan and Minnesota in 1975 and in 1976 because of heavy snowfall.

He received the Moisseiff award from the American Society of Civil Engineers for this work in 1983.

Glockner is also researching ice domes. These are inflatable domes sprayed with water to generate an ice cover. The structures could be used as temporary workplace at exploration or mining sites, storage areas and recreational and sport facilities in cold climates, he said.

"The big advantage is that you're using indigenous materials (water and cold temperature). You don't have to fly in any heavy equipment."

"We should be able to get our tomatoes into Safeway as cheaply as they ship them up from Mexico"

Porous Asphalt: The European Wonder Mix

The U.K. pioneered the use of porous asphalt (PA) more than forty years ago to deal with skidding on wet runways by aircraft, but regular highway applications are still negligible, though several trials are currently underway.

British road authorities are very conservative, but greater use is expected with lobbying by MPs, engineering societies and interest groups. In continental Europe, on the other hand, PA use now equals or exceeds that of the conventional surfacing materials for highly trafficked roads.

Porous asphalt, also known as pervious macadam, has a number of distinct advantages: It results in a dramatic reduction of skidding (aquaplaning) and the near total elimination of spray in wet weather, as well as the reduction in glare from oncoming headlights.

The texture of porous asphalt is a little like that of Swiss cheese; it has a flat, smooth surface with interconnecting voids into which rainwater disperses quickly. An additional benefit is noise reduction.

Tests have shown that porous asphalt is quieter by one decibel in dry weather and by as much as 8dB(A) under wet conditions than hot rolled asphalt, and even more when compared with brushed concrete mixes. Appropriately, Germans call the material "Fluesterasphalt" or "whispering asphalt". In addition to the traffic noise heard outside, the noise nuisance inside vehicles is reduced dramatically, an advantage often overlooked, but which has significant safety implications. In addition, the 'wonder mix', as it has been described, reduces fuel consumption and tire wear.

An international meeting, organized in London earlier this year, heard from national road authorities on the continent that PA has now overtaken other forms of surfacing on many major highways and expressways.

John Pippich of Asphalt and Beton (Vienna) reported that PA use in his country had increased 200 fold from the first 30,000 square meters laid in 1984 to the present 6.5 million square meters of motorways covered by the noise reducing, skid resistant substance.

French representative Francois Chagnon, who works for Colas Merignac, explained that PA is now used routinely for both national highways and major toll roads.

An innovative French application is the use of PA as a rainwater reservoir.

The technique involves the application of a thicker layer than normal to absorb heavy and persistent rain, in order to release the rainwater into the drainage system at a steady rate to avoid flash floods.

The representative of the Dutch water authority, Dr. van Westerop reported that a cost/ benefits assessment two years ago led the Netherlands Transport Ministry to a policy decision: all national roads are to be surfaced with porous asphalt by 2010.

At present, about 2.5 million square meters of PA are laid every year and about 15% of the Dutch motorways network is already covered by the wonder mix.

Warmfoot

Inventor Norm Reniak hopes to turn homeowners on to the benefits of cheap, easy to install subflooring designed to overcome cold basement floors.

Warmfoot is the name of the product, a multi-dimpled polystyrene surface with a felt-like, recycled sound-deadening fabric on the bottom. The entire product is less than a half-inch in height.

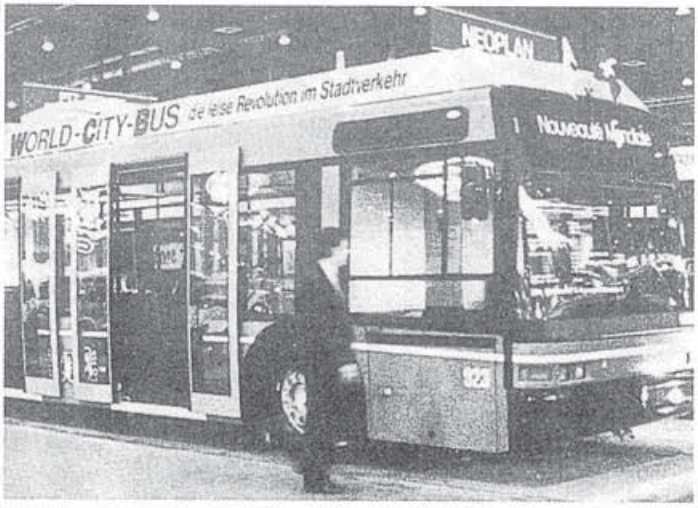
"If you put a rubber mat on concrete, it just transmits cold through," points out Reniak, "So what you really need is a thermal barrier of air, the same way windows work."

Retailing for around $1.60/ sq. ft. Warmfoot is far cheaper than other methods designed to make basement floors comfortable.

The product is designed to be installed in four steps - starting with cleaning the concrete surface, then rolling Warmfoot over it, cuttinmg to size with a utility knife and finally laying a surface board on top.

"It's definitely for the do-it-yourselfers," says Reniak. "I maintain that if I can install this, then anyone can. Plus the product will probably last longer than I'll live."

Reniak invented Warmfoot after seeing Versitiles. The idea was to package subflooring in sizes larger than tiles and to bring down the cost. This Canadian product is manufactured in Chicago due to production costs.



Swiss Arctic Trolleybus

A low floor articulated trolleybus, designed specifically to replace Basel's aging trolleybus fleet, has made its appearance in the Swiss city and is being looked at closely by other Swiss and European transit agencies. The Neoplan "World City Bus" is powered by four multiple magnetic electric motors and features a new type articulation, sliding doors for easy access, a floor height of only 320 mm (12.6 in) and an efficient brake energy recovery system. Due to its energy recovery feature, the new trolleybus can be operated with energy savings of about 25% over the model it is replacing. Also new is its separate driver cabin, the air conditioning system and its 147 passenger capacity. The production prototype is new being tested in revenue service and 11 more units will be delivered next year.

essays

Climate and Environment

A Cross Cultural Examination

Norman Pressman

Climate has often been called upon to explain personality, especially in extreme settings. It is believed, by many, to shape national character and even to define a common identity. Drastic shifts in weather systems affect human behaviour to more than simply a limited extent - in both hot and cold circumstances where dramatic seasonal variations prevail.

Climate has also served as a modifying or determining force in architectural and urban design. Urban form, particularly in its vernacular expression, often bears testimony to cultural and climatic influences. The essence of the vernacular approach is the application of local materials and building techniques carefully adapted to topography and climate. The result is usually a harmonious composition which balance unity and diversity.

From the point of view of energy and comfort, different climates require varying building and urban forms. In hot climates, shaded and cool, airy spaces - such as verandas, arcade streets, and courtyards - are desirable. Much traditional warm-region architecture exhibits such design gestures.

The labyrinth-like urban form, shared by virtually all cities in the Islamic world, is an excellent example. With its narrow streets providing access to private court-yard dwellings - protected from the hot sunshine it is the dialectic opposite of the Western rationality and efficiency of the gridiron plan's organization. Invariably more intriguing and interesting than the checkboard pattern, it is significantly more climate sensitive, with its "introverted" form.

Its spatial pattern derives largely from climate, common religious values, a strict legal code, and consequent life-styles. Various traditional materials and natural cooling arrangements promote indigenous forms such as ventilated roofs and high thermal capacity mudbrick buildings -farther south in the Sahara.

It is well known that the effects of climatic changes upon human behaviour are considerable, both under extremes of heat and cold, as well as humidity. Northern Latitude communities, such as Reykjavik, Tromso, or Yellowknife, suffer from a lack of daylight especially during the period of mid-winter. These dark, gloomy months induce a severe melancholy which Stockholmers call Lapp-sickness. Mental health problems increase, particularly depression - accompanied by alcoholism, violence and suicide. Brightness or light intensity is known to have major effects on human response - with intense light evoking increased activity; and low brightness being associated with relaxation, fatigue and sleep.

Special winds can have an impact on behaviourial responses - usually of a negative nature - of regional populations subjected to them.

One such wind is the "foehn" (hot winds supposedly originating in the Sahara, blowing from the south of Europe across Italy and down the northern valleys of the Alpine ranges). The "foehn" is a complex phenomenon acting on the human organism at various levels.

Its influence is clearly measurable through the physical reactions it induces with psychological effects also present. People are known to have reported discomfort, short tempers, and a range of weather-related complaints.

Human mobility is affected by weather especially where it has a tendency to be adverse. Comfort levels around and between buildings are a function of wind turbulence and can be improved as a result of built form and proper siting. There are chronic diseases which can be affected by weather

conditions, notably heart and circulatory ailments. Although weather, per se, may not be a causal factor, it has the ability to aggravated or ameliorate the course of such ailments.

Differences in social behaviour patterns have frequently been ascribed to climatic influences. Northerners are often described as "cool", while southerners are labelled "fiery". Speculation has created stereotyping that has only recently been receiving scientific scrutiny. In 1918, R.D. Ward, in the book *Climate*, reported that in both the United States and Europe northerners are serious, industrious, enterprising, pessimistic and mature, whereas southerners are cheerful, impulsive, generous, lazy and easy-going.

Such characteristics - whether partially accurate or not - have largely been attributed to culture and climate. Theories have been proposed suggesting that the harsh winters which shaped northern European and Canadian cultures may have encouraged conservative behaviour since life was dangerous and challenging, and too much social arousal and involvement could shift the balance against survival. Ideas have been put forth, for instance, that the reserve found amongst northerners has little to do with genetically conditioned characteristics but rather with learned ones.

This reserve reflects the attempt (most likely at sub-conscious level) of northern inhabitants to conserve physical and mental energies which are already taxed by environmental stressors. The attempt to "conserve" is echoed in reduced emotional investment and expression or affect.

It becomes clear that linear cause and effect relations are not simple to identify since most variables can hypothetically serve as either cause or effect.

The environmentally deterministic view believes that physical environment affects behaviour - and cultural norms. Topography and climate may play important roles but cultural practices and attitudes can override these factors so that people in the same environment may display cultural practices which vary widely. Although it is held that traditional cultures and the vernacular solutions which they spawned were always ecologically sound and climatically sensitive, this has not always been the case - and examples can be found which seem to work badly in response to climate -reinforcing the sometimes overriding importance of socio-cultural factors. This suggests that life-style, beliefs, identity and other forces - together - may be more powerful than climatic ones in the creation of built form. However, to ignore climate particularly under harsh conditions, would not be an advisable course to adopt.

Climatic factors have been ignored or swept under the rug for far too long. In so doing, there has been a destruction both of cultural traditions and regionalism in design. Diverse private interests are replacing public culture which is slowly disintegrating. Collective well-being no longer seems to be in the forefront of political concern. If urban design is to be user-responsive it will have to confront climatic elements head-on. Design will also have to derive inspiration from cultural and climatic contexts to instill deep aesthetic and sensory meaning. A richness which can evolve from a climate sensitive perspective can also assist in heightening the quality of life. Towns should be conceived to function equally well in all seasons, and the harsher the conditions the greater will be to pay more attention to climatic imperatives.

If urban design is to be user-responsive it will have to confront climatic elements head-on

Coordination among all the disciplines involved in ameliorating urban life under harsh conditions will be absolutely essential. Boundaries which have traditionally isolated disciplines, e.g. architectural and industrial design, landscape architecture, applied climatology, social policy development, and urban planning, will have to be removed with increasing information exchange occurring if real progress is to result.

Design and policy decisions should be related to the behaviourial sciences - particularly environmental sociology and psychology. Nourishment received from these sources can make noteworthy strides toward improving winter living. Through interdisciplinary collaboration, planners, designers and policy analysts have the possibility of becoming more socially responsible. Reciprocally, behaviourial experts will have greater opportunities in the realm of applying their findings in more practical ways. With such joint activity, those working in the gap between social needs and design responses - dealing with the interactions of people, society and the built environment -can more meaningfully contribute to developing the knowledge base affecting these concerns.

In order to advance knowledge and actions in the face of severe climate, we must understand how to harness the decisive forces behind most private and public decision-making in all sectors of urban and regional development. Problems will have to be viewed within a context which integrates management and planning of existing urban systems from the spatial and temporal angles.

Last but not least, the quality of urban living will have to be improved continuously, community and individual consciousness must be increased, and urban dwellers will have to be well informed so that they may participate meaningfully in collective decisions influencing their lives.

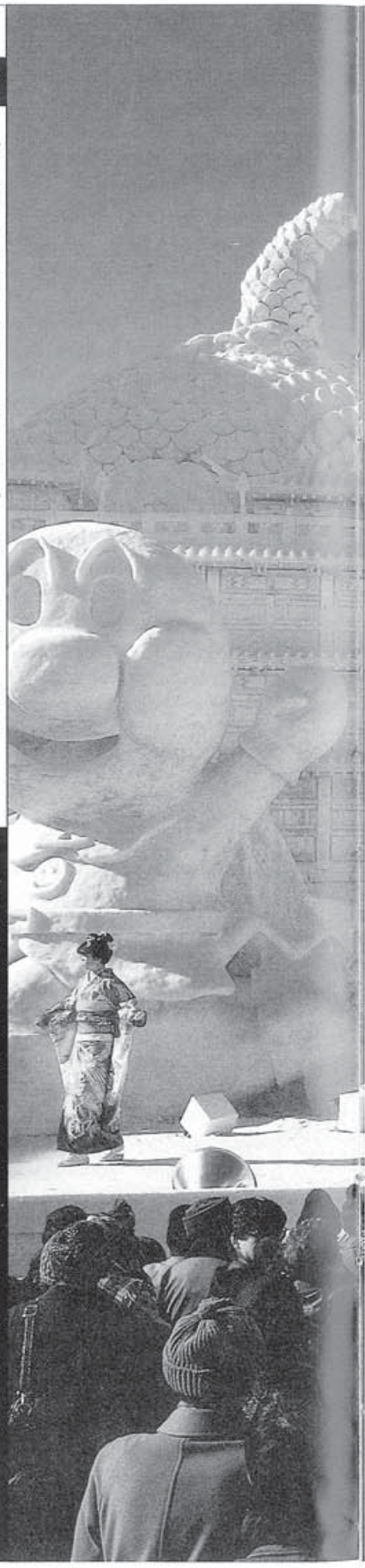
Norman Pressman is a professor at the school of Urban and Regional Planning at the University of Waterloo.

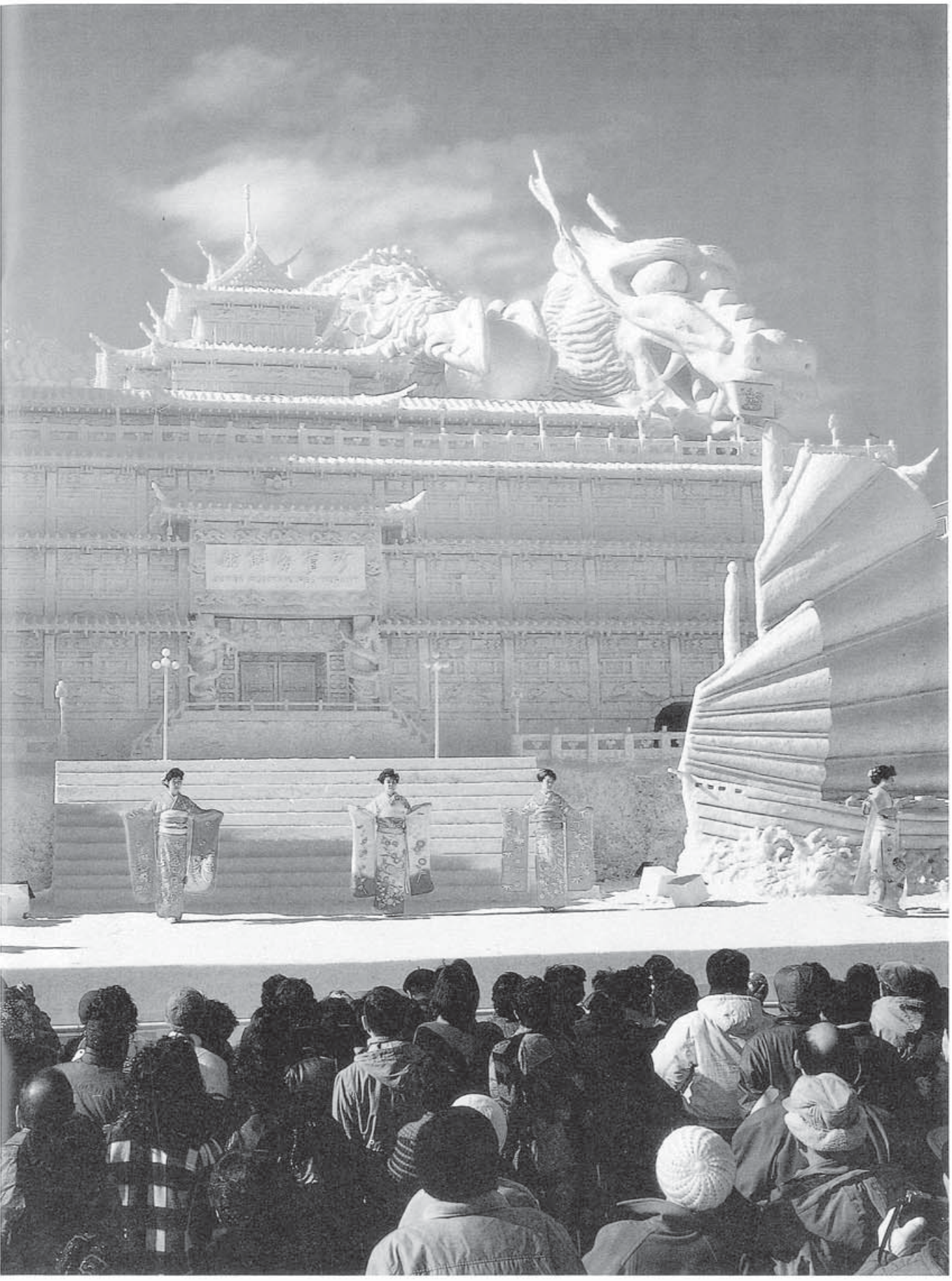
feature

DOUBLE FEATURE
WINTER CELEBRATION ANCHORAGE

Winter is a cause for celebration. You would have to look long and hard to find a Spring Carnival or a Rain Festival, yet rejoicing in the cold and snow happens pretty well everywhere the seasons change. The ritual, structure and organization of winter celebration personifies northern existence and puts forth an image for the temperate world to behold. What do we have to offer and what can be learned?

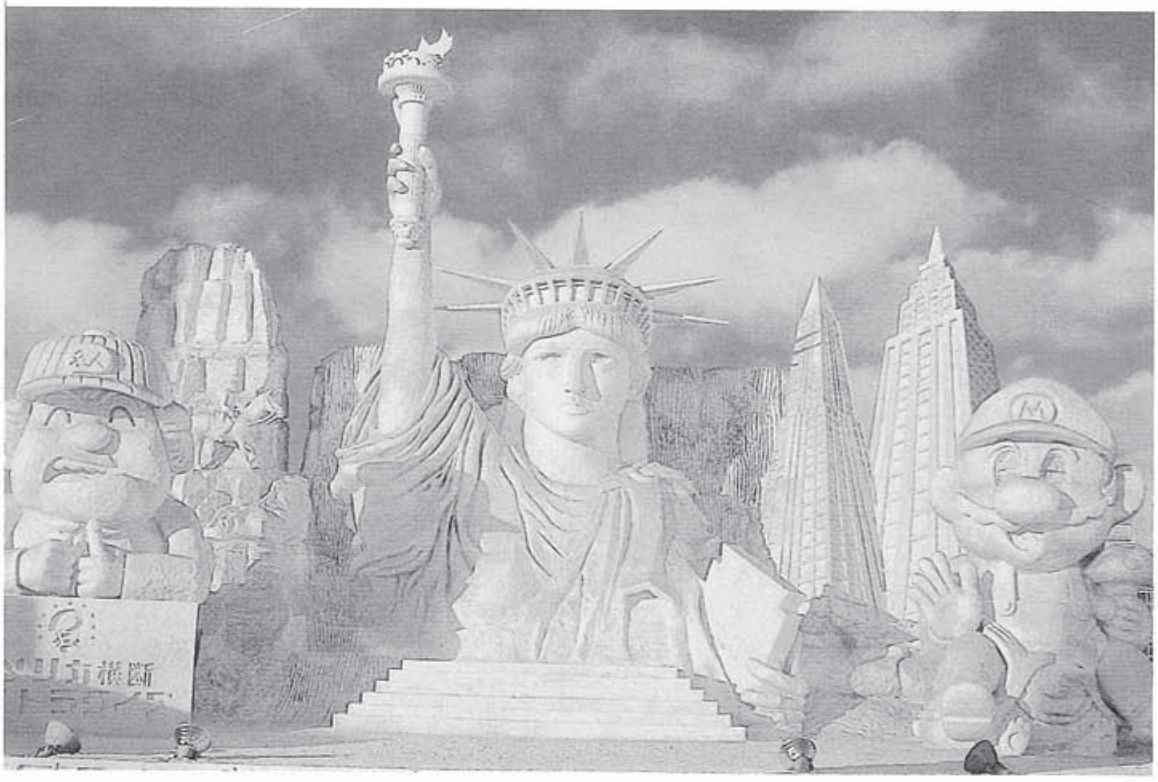
Anchorage is to be host of the 1994 Winter Cities Forum in March. Although this is an accomplishment in itself, the city is at the center of more than just conferences. As a leader of the Winter Cities Movement and a thriving cold climate municipality Anchorage has much to offer on a variety of levels. Come explore the land and meet the people who are fostering new visions and attititudes towards multi-season cities.





CELEBRATE

SHAPE THE SNOW



WCA UPDATE

WINTER CITIES ASSOCIATION NEWSLETTER ISSUE NUMBER 9

ANCHORAGE AFFILIATE

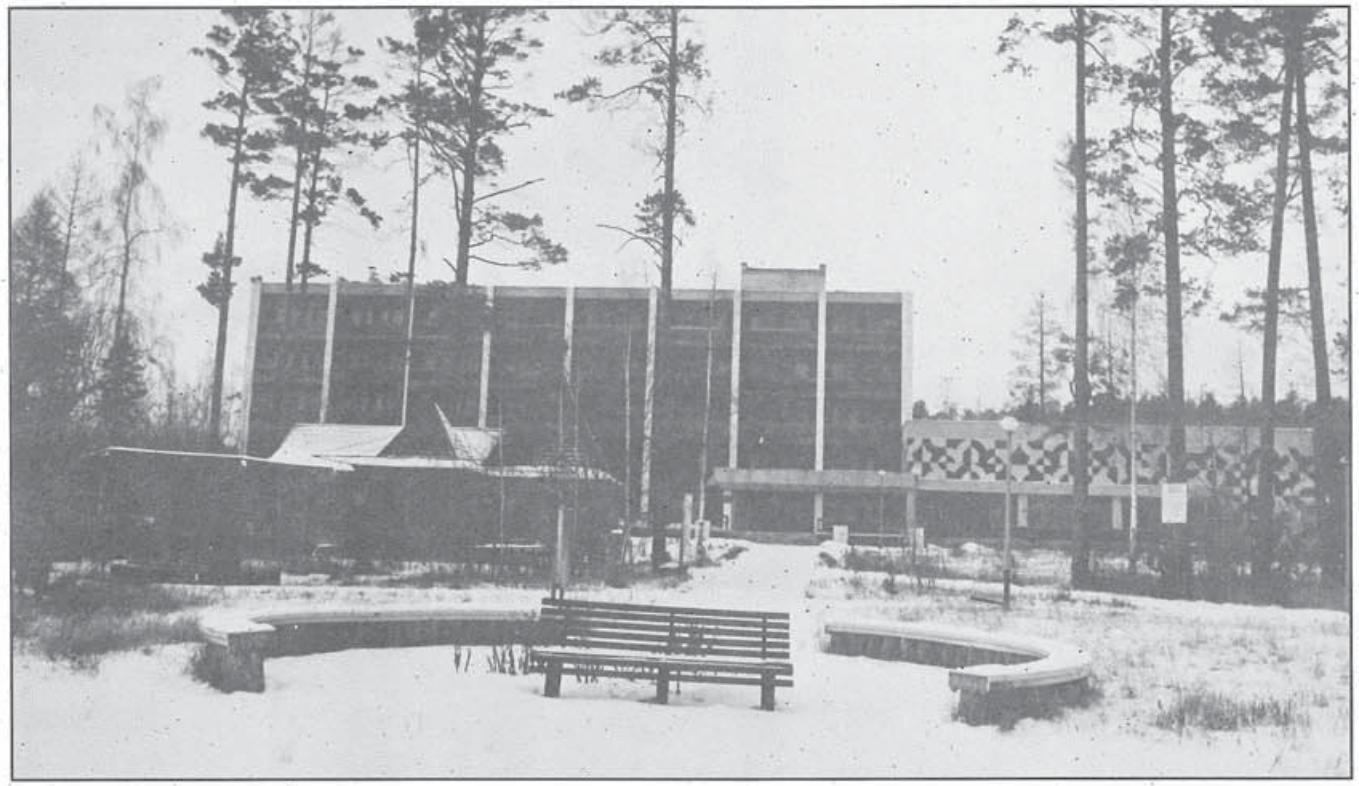
Setting the Pace for the Winter Cities Movement

The Anchorage affiliate of the Winter Cities Association, which operates under the name Anchorage Winter Cities Association, was founded in 1989. David Bryant, Allen Kemplen and Bryce Klug were the major organizers of the affiliate.

The Affiliate over the years has promoted the ideals of a winter city in many ways. Monthly meetings during the winter season have had presentations on topics such as the Alaskan Craftsman Home Program, Seasonal Affective Disorder, and the Northern Regions forum. Three feature articles in Anchorage's newspaper have focused on the AWCA. In 1991, the affiliate sponsored an entry in the snow sculptures contest during the 'Fur Rendezvous' (Anchorage's winter carnival). "Clear them and they will come" was the title of the piece which portrayed an urban street scene.

The affiliate has co-sponsored two community roundtables. In 1991 AWCA held one on 'Winter Mobility', focusing on transportation issues. In 1992 the roundtable focused on community planning and land use. The AWCA was a co-sponsor also of the 1992 Alaska Environmental Assembly which had "Beyond Roads: Transportation and Land Use in the Far North" as its theme. Norman Pressman was a speaker through the efforts of the AWCA.

Currently the affiliate is still rather 'fledging', with only two officers; Bryce Klug as president and Allen Kemplen as vice-president. However the AWCA is actively involved. Allen represents the affiliate on a new organization: 'Alaskans' for Responsible Transportation', which plans to improve transportation planning with an emphasis on alternative transportation methods such as buses, mass transit and trails. Bryce Klug is a member of the Winter Cities Anchorage '94 Board of Directors and serving on the Forum Committee. Several members of the AWCA are also serving as volunteers on various committees planning for the Winter Cities Anchorage '94 conference.



BRATSK BACKGROUND

Get to Know the Host of Winter Cities 1995

Bratsk is 600 km from Irkutsk (just an hour's flight by a modern airliner).

An American public figure remarked upon visiting Siberia that any educated man who hasn't seen the Bratsk hydropower station can hardly consider his education complete.

The dam of the Bratsk hydropower station is 125 metres high and more than 5 kilometres long. The amount of the concrete poured into the dam could make a wall 2 metres high and 0.5 metres wide that would stretch all the way from Bratsk to Moscow.

The dam withstands the pressure of a manmade sea which, when it reaches the planned level, will hold 169,000 million cubic metres of water. It will be over 100 metres deep in places.

The Bratsk hydropower station has 18 generating sets of 250,000 kW capacity each; the turbines of water per second. The hydropower station generates 22,000 million kW of electricity a year.

Bratsk is an amazing city. It is a conglomerate of urban-type settlements brought to life by the construction of the Bratsk hydropower station, an aluminium factory and a timber bill. This modern city is only 25 years old. The older settlement built here by Russian Cossacks back in the 17th century is now on the bottom of the Bratsk reservoir. Its only relics are two log watch-towers - one is still standing on the shore of the Bratsk man-made sea, and the other is now in the Kolomenskoye Museum, Moscow.

The road from the airport to Bratsk runs through the taiga and divides the city into districts. But one can see at a glance that urban civilization is well established here; the highway is busy with cars and trucks, and in the taiga are a holiday homes, recreation facilities, a Young Pioneer camp and a bobsleigh track, one of the country's best. The Siberian forest nestles the region with its mighty cedar trees, its birches and silver frost, bright flowers and fragrant raspberries, wild strawberries and currants.

Modern apartment blocks with well-appointed flats grew up in Bratsk over a short period. More than 100,000 sq. metres of housing are built in the city annually. Like any Soviet city, Bratsk offers its residents every condition for work, study and recreation. It has many general and specialized secondary schools, vocational schools, cinemas, libraries, a polytechnical institute, a puppet theatre, a local lore museum and its own television centre.

The birth rate in Bratsk is about the highest in

the country. It is no wonder, therefore, that the need for kindergartens and day-care nurseries is especially urgent here. Their number keeps increasing.

The residents in Bratsk are keen on sport; they frequent the Bratsk sports club in Padun, the indoor swimming pool of the Solnechny sports complex in Energetic settlement. Gyms, tracks and courts throb with life for most of each day.

Foreign tourists coming to this remote part of Siberia find a lot to see not only in Bratsk proper but outside its limits as well. The city's environs are remarkable for their scenic beauty. The Angara River is a fantastic sight, especially in summer. One can spend hours feasting one's eyes on the glittering expenses of its crystal-clear waters and drinking in the resinous air of the pine groves on its banks.

The city of Bratsk has a great future. Come, and you will see for yourself. Bratsk is connected with other cities by rail, air, road and sea routes and has direct air service to Moscow.

PRESIDENT'S MESSAGE

I would like to take this opportunity to extend to all of you best wishes for the New Year.

I also want to let you know that as a result of meetings which I arranged and attended in Moscow and Bratsk last September, I can confirm that the Russian Winter Cities organizers are well on their way to acheiving an excellent conference in Bratsk in 1995.

Sincerely,
Pat McMahon
President, Winter Cities Association

DAQING WATER TREATMENT PLANT

A Preview

This July saw the official opening of China's first building based on modern winter city principles. The Daqing water treatment facility was the result of co-operation and friendship between politicians, architects and engineers from the two northern oil-based cities of Calgary, Canada and Daqing, both WCA affiliates.

The result is not minimetric Chinese historicism or stereotypical reduction modernism. But rather has a richness of reference included in its throughly practical northern building considerations and site selection.

A detailed report on this facility will be included in a future issue featuring Winter Cities of China.

BRATSK

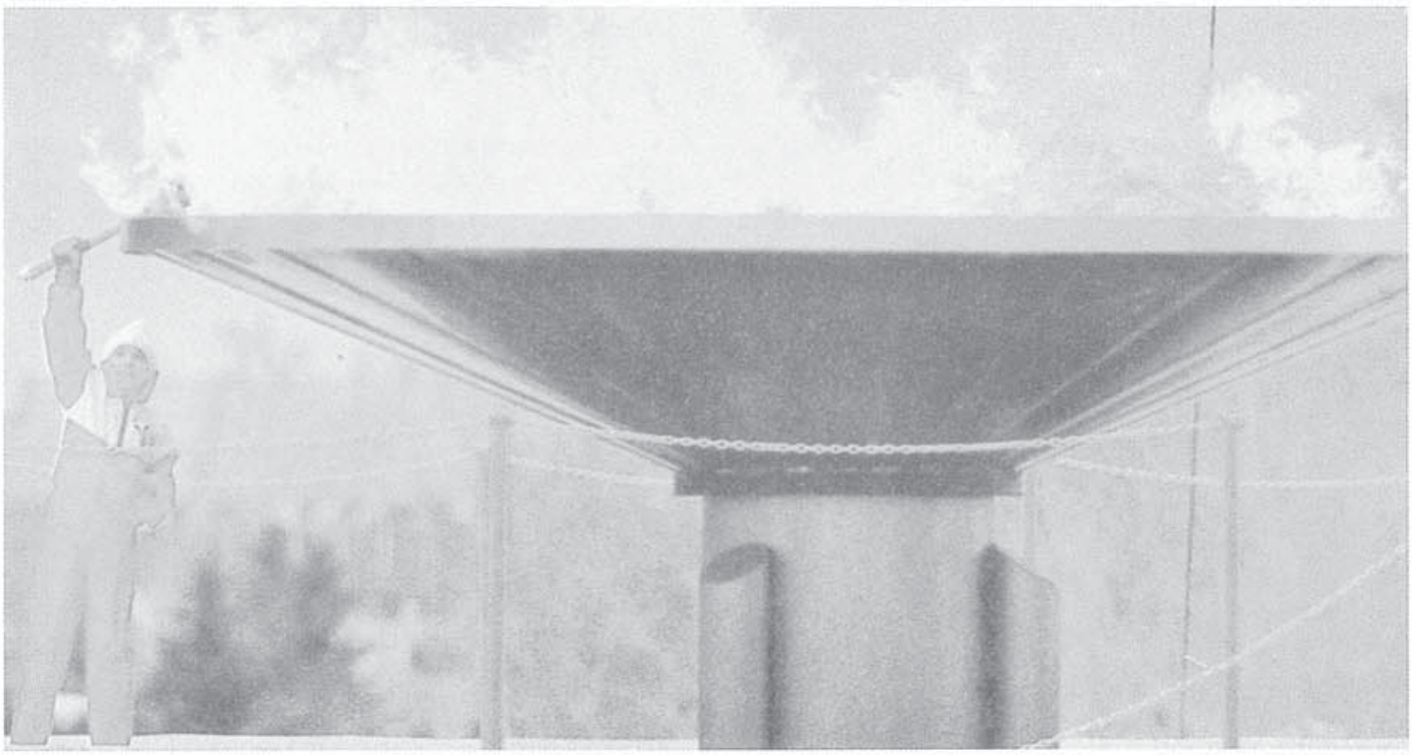
Winter Cities Forum '95

CELEBRATE

MOVE

DANCE

PLAY



OLYMPIC WINTER FESTIVAL

WHAT CAN BE LEARNED FROM THE GAMES

HAROLD HANEN & GREG LIBURD

The Winter Olympics is the largest global expression of winter celebration. For better or for worse, the majority of people in temperate regions see the Games as being the definitive winter experience. In addition, northerners undoubtedly compare their reality to that being portrayed on a larger than life scale.

If the Olympics is the ultimate winter celebration, then it is of value to examine its impact. Do the Games authentically portray the life and spirit of northern regions? What can be learned through the management of this event? Do the Olympics reflect global trends in the celebration of winter? Is this necessarily the best example to follow?

Unlike the Summer Games, the Winter Olympics have grown to showcase the cold climate culture of the host country. The Summer Olympics tend to explore the entire community without really exploring the relation to seasonality. Conversely, the Games of Winter continually use the season as a reference point. Perhaps it is because that winter is foreign to many. All one has to do is glance back at the themes of recent Olympiads. Remember the turn-of-the century pioneer ceremonies of the Games in Calgary or the futuristic Euro-ice circus in Albertville. Obviously, the athletics are a focal point, but the winter character of the region invariably provides a context for the entire event.

This attention on winter tends to be, for the most part, positive. Of course, the host country is at its best behavior and the media coverage is sugar coated, but true insight to local communities still manages to shine through.

The controversies that lurk beneath the glossy surface tend to be political. The huge costs of the Games, media manipulation, environmental damage, white elephant legacies and treatment of aboriginal peoples are issues that attatch themselves to both the Summer and Winter Olympics. These problems normally stem from the politicians, administrators and deal makers for whom the event represents a business opportunity.

In this regard, the use of winter as a sales pitch is a reality. Nonetheless, it falls into the "there is no such thing as bad

publicity" category. The millions of viewers of the Games are exposed to seasonality as a generally positive experience that is enabling a community to have the eyes of the world upon it. This is one of the first lessons to be learned, exposure is a key to expanding the Winter Cities Movement.

However, to what extent should winter values be exploited in order to promote an event? On the enormous scale of the Olympics it is next to impossible to provide an intimate and completely accurate exposure to any community. Considering this aspect, the event still does a good job.

From a Winter Cities perspective the Games start to fail when they create a situation where the local population suffers. Promoting winter is great, but forcing people to shoulder a lifelong burden is not. Any large scale celebration needs to be planned in accordance with the needs and wishes of the area's citizens. In retrospect, most of the negative legacies of the Games have been left behind when the powers that be focused on the short term, external factors instead of the long term, internal considerations. This aspect is applicable from a community snow carnival to a county wide winter week.

The Games, however, do generally continually succeed in other areas. By planning ahead and utilizing community spirit the Olympics generate well organized, proud volunteer corps. These people are invaluable and can make or break the whole event. On any level it is essential to provide a volunteer infrastructure that creates benefits in both directions.

Olympic organizers are famous for lobbying and, though they can be excessive, they show the value of self promotion. Winter Cities have to stand proud and tell the world what they have to offer. The "build it and they will come" mentality only works in the movies. The Games create their own means through aggressively seeking public and private sponsorship and there is no reason that this should not happen for any other winter event.

Careful planning and management can ensure that winter celebration, on any level can succeed. Essentially the emphasis just needs to be switched from entertaining the masses to celebrating the indigenous culture and people.

A local winter celebration should demand the same respect and esteem as any larger event. A sense of importance and dignity should percolate down from the organizers to the volunteers, participants and sponsors. Just as in the Games, everyone needs to know that they are part of something important, relevant and special.

Since the celebration of winter is, in effect, the celebration of regional individuality instilling a feeling of pride should be an easy sell. Seasonal character is borne of strength, uniqueness and energy. These are aspects that people want to display. Create an infectious positive attitude and everyone wil want to be a part of it.

The Winter Olympics create an awareness of cold climate communities and show the global evolution towards recognition of the north. It shows the potential that all northern regions can realize with planning and concentrated efforts. The pitfalls encountered on a large scale illustrate that designing a successful winter celebration is an exercise in locally sensitive problem solving.

Harold Hanen and Greg Liburd are editors of Winter Cities.

Sapporo Snow Festival

The Sapporo Snow Festival, one of Japan's biggest winter events, is attracting a growing number of visitors from abroad. Over two million people came to the annual event last year to see hundreds of beautiful snow statutes and ice sculptures which lined Odori Park, the grounds of the Self Defense Force Base in Makomanai and the main street in Susukino. The figures, large and small, turn Sapporo into a winter dreamland of crystal and white for seven days every February.

The Festival began in 1950 when senior high school students of the city made six snow statues in Odori Park. In 1955, the Self Defense Force joined in and built massive snow statues also. The Festival has grown from these humble beginnings to become the biggest and most well-known of Hokkaido's winter events and a snow festival of international calibre.

The Executive Committee of the Snow Festival tries to incorporate citizens' ideas each year as they plan the statue themes. They collect suggestions for themes from elementary school students and use them to reflect the citizens' ingenuity.

Due to the shortage of snow in the immediate area of the festival sites, massive volumes of snow, as much as 6,400 five-ton truckloads, are carried in from the suburbs. This work begins up to three weeks before the festival.

A single giant snow statue generally requires 2,000 cubic meters of snow. First, a wooden frame is built and filled with tightly packed snow. When the snow has hardened, the frame panels are removed and the carving is carefully begun. Shovels are used for the rough shaping of the statue and eventually, many special tools are required to add all of the finishing touches.

Festival du Voyager

The inspiration and leadership for Festival du Voyageur, Western Canada's largest annual mid-winter historic pageant and festivity, comes from Saint-Boniface, the French-speaking partner in the Winnipeg "Unicity" Metropolis. For some years Festival du Voyageur was primarily a historical celebration. It has now become a celebration of winter as well and ranks in total attendance only behind Quebec's Carnival and Ottawa's Winterlude, both who operate in larger market places.

No other major gala in Canada focuses so directly on the nation's early history. It is a powerful reminder of Manitoba's French traditions, but at the same time exemplifies the "Western Spirit", blending energy, inventiveness and respect for traditions. The Festival keeps alive the legends and mystique of the voyageurs, those untameable entrepreneurs who explored much of the continent, undaunted by harsh climate, physical hardship and the frictions between settlements and tribes.

The Festival is undoubtedly Winnipeg's and Manitoba's biggest winter tourist event with 24% of its 200,000 average attendance coming from out of the city, 5% from out of the province. It is also certainly a commercial success.

Festival brings psychological as well as economic benefits, giving Winnipeg and Manitoba a short in the arm at the "blahs" time of year. It is an occasion for fun and revelry with a huge agenda of winter games and contests, music, dancing and sumptuous food and drink wherever you turn.

There is a strong cultural emphasis with historic displays, arts and crafts and dozens of non-local performers coming from Quebec, Acadia, the Cajun region of U.S. and Western Canada. Native groups take part enthusiastically and Manitoba's diverse ethnic community joins in the fun.

Festival du Voyageur is a major event for Winnipeg schools. More than 15,000 students from pre-school to the 12th grade visit the Festival sites and can partake in the more than 40 different activities including beadworking, finger weaving, folk dancing and performances.

This is not only useful historical education offered in an exciting atmosphere of fun but it also draws the youngsters and their parents to join in the festivities.

Inuit Celebration

Indigenous Insight

F.W Peacock

The Inuit celebrate the winter and summer solstice around December 21st when they gather for games, dances, songs, competitions and feasting. This festival was called the Festival of the Sun but should be more properly called The Bladder Festival. At this time the Inuit arrived to one place the bladders of all the seals, whales, walrus and polar bear they had taken in the hunt. Collected together the bladders remained in that place for several days before being pushed through a hole in the ice.

The purpose of this exercise was to ensure plenty of game for it was believed that after the bladders are pushed into the sea the animals would be reborn as seals. At this time the angakut would take the opportunity to put on performances of their skills in communicating with the spirits for the benefit of the gathered Inuit. The latter would also take advantage of the presence of a number of angakut to use their skills of healing and divination and of course to measure their own local angakut against others.

The weather would not normally be ideal for outdoor sports so the festivities were confined mostly to song and storytelling and some drum dances which were so strenuous that they might be termed feats of endurance.

Celebration was also called for when the Inuit discovered a whale that had been grounded. When this happened feasting with its accompanying sideshows went on for days and nights.

At such festivals and celebrations old dislikes, disputes and animosities were settled, some by reference to the angakut, others by engaging in mocking songs.

The protagonists in the contest of song would attack one another with mockery, each one taking a turn. When the vilification of the opponent was exhausted the singers were permitted to verbally attack with song the other's ancestry. This continued until one of the two was unable to reply and this failure was sufficient acknowledgement of defeat.

This does not mean that fights never took place, they did and sometimes ended in killing. In this event feuds were born leading to even more deaths. Sometimes murderers were stoned to death as a punishment for their crime. Far more often however the mocking song was sufficient to satisfy honour.

At all celebrations the story tellers told of heroic exploits of great hunters of the past and the wondrous journeys of the angakut as they visited lands above and below the earth. In a world peopled by good and evil spirits, observance of the customs and practices at the festivals had to be followed rigidly lest errors be made and the spirits be offended.

Mount Alyeska

NORTH TO THE FUTURE

A MESSAGE THE WORLD SHOULD HEED

JACK ROYLE

"North to the Future", theme and slogan for Anchorage's 6th Northern Intercities Conference and Winter Cities forum and Showcase, is a timely message for an uncertain world. The event is to be held March 5-10, 1994.

While leading demographers forecast with near certainty that the world's present five and a half billion population will double within a century or less, we are nearing the point of overcrowding and overpolluting the northern temperature zone, historic site of the dominant civilizations and home to a large proportion of humans.

To provide living space for an additional five billion people within a century will undoubtedly necessitate populating lands that hereto have been relatively empty - but are habitable, and rich in resources. A glance at the map shows that most such lands lie to the north of the northern temperate zone. To the south, oceans, deserts, mountains, hot equatorial lands, and ice-covered Antarctica take up most of the map. "North to the Future".

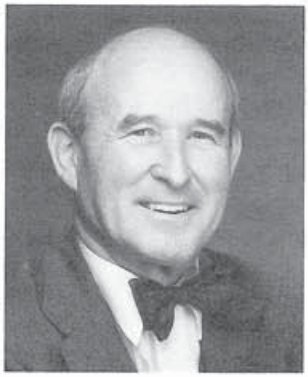
Anchorage has many advantages that make it a leading northern city.

With a population of more than 230,000, it is Alaska's largest city and commercial and financial centre. Located on the hinge between Eurasia and North America it has been accurately described as "Air Crossroads of the World". Its international airport is the busiest cargo airport in North America. Its seaport, much of it newly-constructed and presently being expanded, is rated as one of the most efficient container ports in the West Coast.

Anchorage is the hub of the state's economic activities. Alaska's fisheries, mines and forests generate a two-way flow of trade - resource products out, equipment and supplies in. The Prudhoe Bay oilfields pump vast amounts of crude oil and gas and also pump large sums into the state's economy as royalties. A portion of these are paid out as dividends to residents, more than offsetting income taxes for many. There are no sales or personal state income taxes and living costs overall are in line with most American cities.

Tourism is a principal Anchorage industry now and destined to be much more important in the future. North American and Asian tourists come by the cruiseship-load to see the spectacular glaciers and fish in the pristine rivers in the warm months, and to ski and enjoy winter games. Alyeska resort, a 70 470-acre mountainside 40 miles southeast of Anchorage is being developed as one of North America's top rated resorts. Portions are already in use and when complete in 1994 will provide a long list of activities for all seasons. A central feature will be a large and luxurious

Mayor Tom Fink



Growing Bond Between Northern Cities Key to Continued "Winter Cities Growth"

Anchorage Mayor Tom Fink sees two main elements assuring continued rapid "Winter Cities" growth. "The first is continued dialogue on Winter Cities issues and discussion of common problems. There is much to be learned from the other cities and their mayors which can be of benefit to Anchorage residents. The second element is the increasing bond between participating cities. We have, for example, a tremendous history of contact with Sapporo, and improving relations with Edmnoton and Tromso.

"The Winter Cities Conference," declares the Mayor, "has grown in scope and complexity each time it has met, Beginning about a dozen years ago. It attracts new participants at each meeting. With the participation of Anchorage and other U.S and worldwide cities, the growth will assuredly continue."

Mayor Fink personally headed the delegation to Tromso, Norway that won for Anchorage the right to host the 6th International Winter Cities Biennial and has energetically supported preparations for the event. In an interview conducted by fax, he told Winter Cities Magazine why he believes his city is happy to give leadership to the pro-northern cause.

"First of all," he stated, "Anchorage is truly a WINTER city. That is we have winter conditions for six months a year. The problems which are viewed as 'winter' problems, road maintenance, darkness, building construction, etc., are serious problems for our city and its residents.

"Secondly, Anchorage is seeking a more substantial international role than existed in the past. We are a rapidly growing city. We want to expand our international markets. Our involvement (in the Winter Cities Movement) is simply a good fit for this community."

The "North to the Future" theme, in the Mayor's view, implies a hopeful rather than negative attitude towards the north's wealth of resources and opportunities. "Winter need not be viewed as just a problem. It is an asset as well. Look at the tremendous opportunities in winter sports and recreation...,. Our rapidly expanding winter tourism industry is another example."

The March 5-10 Biennial event will offer "a tremendously broad range of speakers at both the Mayors' Conference and the Forum. For the mayors discussion will cover such topics as telecommunications, air transportation and changing climate. Down the street at the Forum they will have four major topic areas: "business in winter", "communications/ transportation in winter", "living in winter" and "health in winter"."

The showcase and exhibition adds the mayor will provide the mayor a "complete package for the delegates individual interests". With all of this there is Anchorage's famous hospitality. "North to the Future".

Prince hotel. There will also be an inn and numerous other amenities including condominiums for 130 occupants. The resort is unique in that it is located near sea level but the upper half of Mount Alyeska is above the timberline. It all adds up to high adventure for thousands of tourists flocking to Anchorage from half the world.

The maritime climate is remarkably benign. Winter mean temperatures are comparable with Minneapolis; precipitation averages are about the same as Los Angeles. Overall the climate is varied and energizing and a long list of community activities keeps citizens on the go through every month. Two of the most notable are Fur Rendezvous, in February, one of the world's largest carnivals and the world famous Iditarod Sled Dog race in early March.

Anchorage residents enjoy a lifestyle that is the envy of those constricted by asphalt, smog and traffic. The city encompasses more than 2,000 square miles of wilderness, glaciers and wildlife. Outstanding- hunting, fishing, skiing and mountain climbing not to mention dog mushing and "sightseeing" are readily at hand. There is also a well-rounded cultural life with two major universities and numerous arts and festivals activities. For history buffs there are sites linked with early Russian culture and native peoples.

"North to the Future" has been a note frequently struck in the short history of the Winter Cities Movement but Anchorage has been the first to proclaim it was a theme for a major international events.

The north-looking line of thinking and argument apparently dates back to about 1950 and Ralph Erskine a leading Swedish architect. He pointed out that northerners do themselves a disservice when they depend too much on technologies and idea imported from the temperate zone. Solutions not appropriate to the north, said Erskine, are costly and delay progress.

On the opposite side of the globe, twenty years later and with no knowledge of Erskine's ideas, political leaders of Hokkaido, northernmost island prefecture of Japan, developed the concept of "Hoppoken" which argues that northerners need to work together and share ideas to take best advantage of their cold and snow environment.

In 1972, the late Takeshi Itagaki, then mayor of Sapporo, Hokkaid's capital city, tested the concept by calling together the first Northern Intercity Conference. Among the nine cities represented was

Anchorage in the persons of City Assemblyman Rick Mystrom and Arne Michaelsen, chairman of Anchorage Port Commission. Thus began Anchorage's key role in the Winter Cities Movement.

The idea that the north needs greater self-confidence and self awareness next emerged in Minneapolis where Dr. William C. Rogers, Director of the World Affairs Center of University of Minnesota, took up the cause. In 1979 he organized the first of two "livable Winter City" conferences having in mind the drab and dreary conditions of his city in winter months.

From there the idea spread to Canada where a "Livable Winter City Association" was spearheaded by Jack Royle. In 1986, the City of Edmonton with the assistance of this new association, hosted the first "International Winter Cities Forum and Showcase". Mayor Itagaki participated and it was agreed that henceforth the Northern Intercity Conferences and the Winter Cities forum/ Showcases would be held jointly and biennially.

The number of participating cities increased with each event reaching a total of 48 cities all major northern nations and regions at Montreal in 1992. An earlier Inter-city Conference had been held at Shenyang, China. Some smaller cities such as Sault Ste Marie and Yellowknife in Canada and Bratsk in Russia decided to hold conferences. "Winter Cities Associations" and affiliates were formed in China, Scandinavia and Russia under the aegis of Winter Cities Association based in Calgary.

Most of these events have occurred in the last twenty years. Rarely, ever, has any movement swept the world so quickly indicating broad and enthusiastic support for Anchorage's, "North to the Future".

Official sponsor of the event is Winter Cities Anchorage '94 Inc., directed by a board consisting of 21 community leaders. Represented are the state's largest firms, universities and agencies. Key positions are held by Assemblyman Jim Kubitz, board chairman and Dick Stallone, president.

Deserving special mention is Bryce Klug, president of the Anchorage Winter Cities Association, who has labored for a decade to support the Winter Cities cause.

Since government of the largest northern nations must also serve sizeable temperate areas and populations, the role of leadership in the pro-northern movement has largely devolved on its cities and municipalities. In hosting the 1994 international biennial event Anchorage now joins the elite group of large northern cities - including Sapporo, Edmonton, Tromso and Montreal - that are prepared to assume the leadership mantle. All northerners should realize it is to their advantage to support and participate.

Cities and communities have hosted the international and regional "Intercities" and "Winter Cities" conferences and are committed to stage more of these in the next several years. Federal and state or provincial governments have played a lesser role perhaps because the most powerful of them must also share their attention with sizeable temperate areas and populations.

So Anchorage joins an elite group of large northern cities that have assumed the leadership mantle in the pro-northern cause. It is they who have the primary role in developing solutions in areas of habitat, design, economic strategies and life styles.

The burden of supporting, networking, promoting and researching falls largely on the Winter Cities Associations and operative committees and affiliates

All northerners should realize the whole movement is for their benefit and that their support and participation is needed to assure that "North to the Future" becomes a reality.

Jack Royle is a Winter Cities Association founder, past president and Editor Emeritus of Winter Cities

"Deserving special mention is Bryce Klug, president of the Anchorage Winter Cities Association, who has labored for a decade to support the Winter Cities cause"

ANCHORAGE INGENUITY

MUNICIPALITY OF ANCHORAGE POINT CAMPBELL/KINCAID PARK SKI WARMING FACILITY,

This busy, day lodge facility was originally a Nike Missile Bunker. USKH was commissioned to provide professional Architectural and Engineering design services and construction administration for this major renovation project. Key design elements include:

- Warming area to relax and enjoy the view
- Rest room facilities
- Locker facilities
- Snack bar and eating area
- Large open area for ski waxing or conferences/receptions
- Large rooftop court yard for taking in the views and sun

Today, the day lodge facility ties into the existing Nordic Ski trails and also provides a terrific viewing area of Cook Inlet. Site development and utilities were a part of the contract. The review process required participation with UDS, Parks and Recreation, Planning and Zoning, and the Anchorage Assembly.

Land Design North has extensive knowledge of this area and has been a part of the Kincaid Park Winter Recreation Park Study as well as the Kincaid Park Winter Recreation Area Improvements which included roads, water and sewer, grading, drainage, sports fields, ski trails, parking, and signage. The firm provided the revegetation and grading work for the reclamation design with USKH.

Microwave Heating

New Technology Could Have the Building Industry Cooking

Derek J. Croome
Hanna Swaid

The incentives for introducing microwave technology for heating of buildings relate to common objectives in the design of the built environment.

(i) energy conservation
(ii) improved indoor air quality and comfort
(iii) implementation of high technologies in the building industry.

Most energy-saving systems in low-energy buildings rely mainly on thermal insulation and draft proofing. The thermal inertia of a building is much more difficult to handle. It is still impossible to heat a room without also heating a substantial fraction of its structure, heat that cannot be recovered once the room is unoccupied (although it helps to alleviate condensation in some cases).

Moreover, there is some heat loss through ventilation. Do we really need changes of air per hour, or would it be equally effective and healthy to replace only the CO_2 with clean oxygen? (Dust and other undesirable products would be removed using filters).

For many non-continuously occupied buildings an 'ideal' heating system would provide a high degree of cheap thermal insulation, fast response, and low thermal capacity, thus enabling an effective control of the system from 'off' to 'on'.

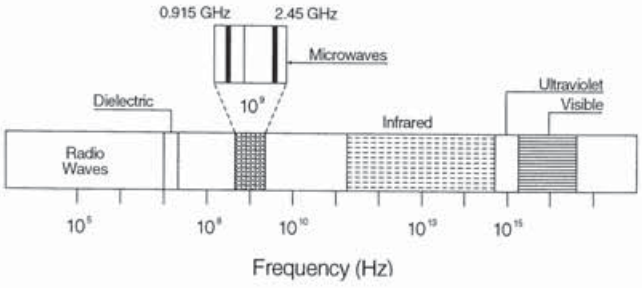
Heating buildings by using microwaves fulfils, almost completely, all of the basic requirements for an 'ideal' system and has additional intrinsic features that no other system can match.

Microwaves

Microwaves occupy the region of the electromagnetic spectrum between radio waves and infrared. The main advantage of using microwaves is that they can penetrate deeply into a material and heat almost the whole volume simultaneously, in contrast to infrared, which heats only the surface. The interior is heated gradually by conduction, which is a much slower process. This is why microwave ovens cooks faster than conventional methods.

For industrial applications, the magnetron is the most efficient microwave generator, with around 70% efficiency; the rest of the energy is dissipated in the magnetron shell, which is water or air cooled.

Magnetrons operate at relatively high voltages, between 4 and 6 kV, but the necessary power supply is relatively cheap and very safe. The typical life of an industrial magnetron is about 2000 hours. Since the present application is only intended for low-energy buildings, the magnetron will operate intermittently.



Microwaves in the Electromagnetic Spectrum

Microwave Heating of Panels

Heating a building or a room by direct irradiation with microwaves is not practical for the following reasons:

(i) even under uniform irradiation, various parts of a human body would not absorb microwaves at the same rate, resulting in uneven heating and

probably discomfort;

(ii) point (i) applies equally to all objects in a room; in addition, metallic objects could cause sparking and hence represent a fire hazard;

(iii) there is some evidence that all high-frequency radiation, unless very weak, represents a biological hazard and, therefore, is unacceptable above certain safety limits.

Clearly then, the microwave heating method has to be indirect. This can be achieved quite easily by lining selected walls with large panels which are internally heated by microwaves.

Microwaves from one or more magnetrons are injected into the panel cavity at convenient points with minimum power reflections. A metal skin prevents the interaction of microwave fields with the supporting wall. Microwaves travel through thermal insulation into the absorber sheet, which forms the other side of the microwave cavity. All microwave energy would be dissipated in the absorber layer, thereby increasing its temperature. Microwave leakage into the room from a microwave absorber layer is prevented by ensuring that the fields in the absorber are evanescent, decaying rapidly towards the outer surface. As an additional precaution, a conductive finish is applied to the surface of the microwave absorber.

For optimum comfort and energy utilization, the panel temperature would be highest at floor level, progressively falling off towards the ceiling. The overall input power level can also be varied by changing the duty cycle (the time intervals a magnetron is 'on' and 'off'). Furthermore, hot air from the magnetron cooling circuit can be ducted into the room, thus improving overall efficiency even more.

Clearly, the thermal inertia of a panel is very low, because only the thin layer of the microwave absorber is heated. Since panel surfaces are heated directly, air circulation due to thermal gradients is reduced. Energy is also saved by suitably adjusting the vertical heating profile of panels.

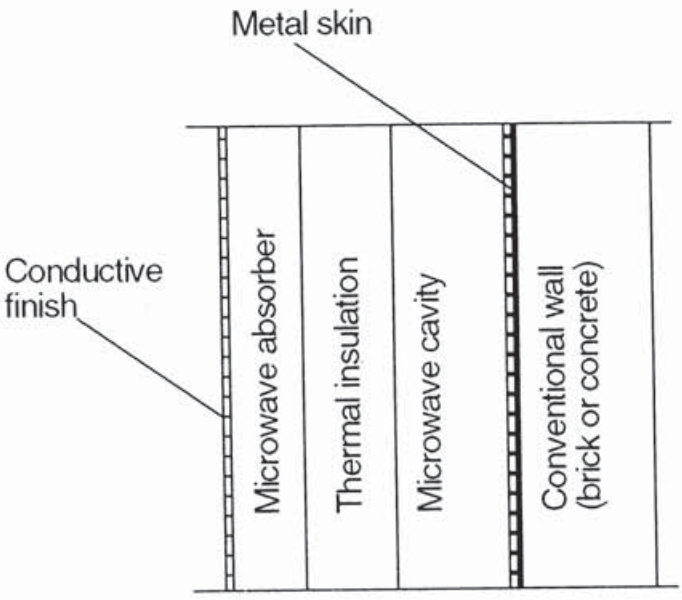
The response of this system is almost instantaneous; it can be electronically controlled and also set to respond to external ambient conditions, thus utilizing energy more efficiently.

Microwave Absorption and Heating Response

Though our knowledge is limited about the dielectric properties of common building materials, we do know that they have low absorptivity to microwaves in the 0.915- and 2.45-GHz frequency bands. The amount of energy a material absorbs at radio and microwave frequencies is known as the loss factor.

The rate of energy absorption in a heated substance is linearly proportional to its loss factor and the frequency of the radiation. The loss factor is itself frequency and temperature dependent. Water is particularly receptive to dielectric heating and has very high loss factors of 18 and 100 for frequencies of 3000 MHz and 10 MHz, respectively.

Little is known about the loss factors of building materials. For comparison, dry sandy soil has poor loss factors of 0.016 at 3000 MHz and 0.04 at 10 MHz. It is possible to modify a low-loss-factor material without altering its other properties by using suitable additives, which must themselves have extremely high loss factors.



Cross Section of a Microwave Panel

The development of such efficient microwave absorbers is essential for the efficiency of microwave heating of buildings.

Calculation of the heating response of a microwave panel indicates that the microwave absorber should be as thin as possible. However, there is a minimum thickness, which has to be determined by the field analysis of the complete panel cavity.

Unlike any existing system, the microwave heating method meets most of the requirements of an 'ideal' system. It can provide the highest degree of comfort by suitably setting the heating profile of each panel; it offers fast response and is very flexible; it is capable of automatic electronic control, taking into account the external ambient temperatures. It uses low-thermal-inertia panels which, being integrated with thermal insulating, can result in negligible energy losses from the building. The panel can be installed without any costly structural modifications.

There are some disadvantages, such as the relatively high capital cost of suitable magnetrons. Industrial magnetrons of 3kW or more are much more expensive, as they are manufactured in considerably smaller numbers, and hence the price could drop if the demand were substantially increased. The increased capital cost of the magnetron is offset by low maintenance costs and a substantial saving in plant room space.

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Machines Churn Out Winter Wonderlands

Snow Makers Draw Skiers to Indoor Slopes

Competition among artificial snowmakers in Japan is heating up, with significant improvements in artificial snow machines that enable skiers to ski anywhere, anytime. Matsushita Investment and Development Co. has introduced a new type of artificial snow, made from superabsorbent resin, at its new indoor "perm-snow slope" in Tsudanuma, Chiba Prefecture.

The indoor ski facility is called "Skiing in Isudanuma." Although the company claims the facility is the first to offer "almost-real" resin snow in Japan, Atsushi Yamashita, a Skiing in Tsudanuma official explained, "We didn't expect to have this many visitors. We opened here initially to demonstrate the snow-making technology of Permsnow (Australia) Ltd. for sales promotion in Japan," Yamashita said.

The success of Matsushita Investment and Development's resin snow has encouraged several resort-development firms to carry out similar plans, Yamashita said. Apart from the resin-based artificial snow, the most popular variety of artificial snow comes from pressurized-air machines, which crystallize water with chilled, pressurized air. "Recent mild winters have caused serious shortages of snow at ski parks," Kaiko Yamaura, executive director of Kashiyama Industry Co., a Tokyo-based domestic snow-machine manufacturer, "Sales have soared in the last three years."

Mitsui Fudosan Co., using the snowmaking system of NKK Corp., is now building a year-round indoor ski facility in Funabashi, Chiba Prefecture, scheduled to open in July 1993, a company spokesman said. The indoor ski park, SSAWS, will feature a 490-meter long slope, equipped with NKK's air-pressure snow guns on the ceiling to maintain ideal powder snow, the spokesman said. Isomura Industry Corp., a Tokyo-based leisure-products sales-and-development company, has been marketing snow-making machines since 1970. The firm's machines can produce enough snow to cover 60 sq. meters per hour, company engineer, Hisayuki Nagai, said. The company recently released a new model, Hustle Husky IS-2000, which uses one engine and produces less noise and vibration than previous ones, Nagai said. This year, Isomura Industry expects to sell 20 snow machines, priced between Y20 million and Y21 million each.

Crushed-ice snow

Pressurized-air snow machines require below-zero temperatures to work well. However, the crushed-ice snow making system, developed before the pressurized-air machines, has advantages in this sense. Kotobiki Forest Park in Shimane Prefecture is an outdoor ski slope using 100% crushed-ice artificial snow.

The Aero High Snow System, which was recently developed from ice manufacturing technology utilized by fish markets, can produce snow in relatively high-temperature conditions. Basically the system makes tiny ice flakes that are broken into smaller pieces like real powder snow in the process of emission, according to the company's senior research engineer, Takeo Kiba. "As we make ice first of all, we don't have to worry about temperature - unlike other snow making machines" Kiba said. "It's possible to make snow even during summer. And with this technology, we constructed a ski park in Shimane Prefecture," he said.

Such crushed-ice snow machines are not only for use in ski resorts. Jaspa Corp, an Osaka-based event-planning company, has been utilizing snow machines for decorating events since 1979. "The hottest months of July and August are when we have the most demand for snow decorations," company President Tsuguya Nakazawa said. "Besides the snow festival in the Kansai district, demand for artificial snow has been increasing for mood-making effects in department stores," Nakazawa said.

To meet growing demand in overseas markets, such as Taiwan, Malaysia, Thailand and the U.S., the company is now studying prospects of marketing its snow machines abroad, Makazawa said.

Artificial Snow: Environmental Hazard?

Innsbruck Studies the Effects of Snow-Making Facilities

Local concern over the environmental impact of a plan by Innsbruck, Austria to supplement snowfall on the Patscherkofel with artificial snow has clashed with economic concerns in Innsbruck, a winter city that has always been a center of alpinism and winter sports. The need for artificial snow has arisen because there is often insufficient snow on some of the ski slopes due to snow drifting, and also because winters have been growing milder and milder in the area. The following are findings of the study, which was initiated in 1989.

A positive feature of the use of artificial snow is that the mountain vegetation may be protected against damage caused by skis or mechanical equipment even if the natural snow conditions are unfavourable. However, natural snow causes the soil to freeze down to deep depths; it also may cause the soil to refreeze after a thaw, which damages the delicate roots of plants and can lead to soil erosion. Artificial snow, on the other hand, shows a much better temperature curve. It is, however, recommended to provide a very loose, dry kind of artificial snow with a low density; otherwise, dangerous ice could form on the surface because of the high percentage of water in fresh artificial snow. Artificial snow melts up to 14 days later than natural snow. If the slopes are covered for a longer period with snow, soil temperatures in spring are close to zero degrees centigrade, which affects soil activity and plant growth.

Because man-made snow remains on the slopes longer, there is a risk that plants may suffocate. From mid-March onways, analyses show a low percentage of oxygen and a strong increase in CO2 on surfaces covered with artificial snow.

The study shows that man-made snow often contains an additional 100 to 150 litres of water per square meter at the time of snowbreak in spring. Only between five and ten percent of artificial snow is released by evaporation and sublimination processes. The rest flows away in the form of meltwater. Research also shows that in areas covered with thicker layers of artificial snow and with delayed snowbreaks (mid-April to May), twice as much water is released in comparison with areas covered with natural snow. There also exists the possibility that rainfall will increase in late spring, which, together with the high amounts of meltwater, might contribute to flooding conditions.

On account of the increased amount of meltwater, the danger of erosion is higher on both the slopes and nearby areas. Where vegetation covers less than 70 percent of the surface of a slope, the risk is especially high. Thus, in many cases it is essential to control the water runoff. In addition to the effects of artificial snow, the consumption of water and electricity and the costs of the construction of facilities, including the cable car buildings and parking lots, have been investigated and critically analyzed.

Meterological statistics show that the Patscherkofel gets more than 900 millimeters of precipitation annually. The artificial snow project proceeds from the assumption that an area of 16.4 hectares will be covered with man-made snow and that forty thousand cubic meters of water will be required for this purpose. This corresponds with the average precipitation of three to four winter months in the region. The water is to be taken from a mountain stream, and the amount of water required is 10 litres per second. However, since the stream does not provide enough water, the snow-making plant will require an additional ten thousand cubic meters of water, which is to be provided by the Innsbruck waterworks. In addition, the project requires that a reservoir be established on the mountain.

The snow-making plant consumes about 270 thousand kwh of electricity per year. This is approximately equivalent to the annual consumption of electrical power of a four-star hotel with 90 beds. Despite this relatively low energy consumption, the snow-making plant is an unfavourable consumer of energy because it requires expensive winter electricity, a major portion of which will have to be imported.

Because of the findings of the study and the various problems arising in this project, it is understandable that permission to build a snow-making facility on the Patscherkofel requires sound, professional preparatory work. The study imposes more than 50 factors which will be considered within the framework of the official procedures that have been instituted, including aspects of laws relating to water, environmental protection, industrial and building regulations and forestry laws. Nevertheless, for quite some time no decision for or against the renovation of the cable car and the construction of snow-making facilities has been reached.

After several years of planning, preparatory work, and comprehensive investigations, the Patscherkofel project will now be realized as planned. But there are still official proceedings to be concluded in order to achieve all necessary permissions stipulated by the laws on water and on environmental protection, by forest laws, industrial laws, and building codes. If these proceedings are concluded in 1993, construction work could start in spring 1994, and the snow-making facility could be in operation in winter 1994.

The above is an abridgment of an article submitted by the city of Innsbruck.

Snowbirds

Why Do the Elderly Flee Winter?

My Canada Includes Florida

Bob Levin

The seat backs and tray tables are in their original upright positions. All seat belts have been securely fastened; all carry-on luggage has been safely stowed. The jet taxis down the runway, waits its turn, and then, with a stirring roar - the escape signal for a planeload of pent-up Canadians - lifts off into the chalky winter skies. On board, the passengers - some already in their brightly coloured polo shirts or sweat suits -stare down at the shrinking city below, the tiny cars moving indifferently through the gray-white streets, the surrounding snow soiled as oil rags. An then it is gone, the roads and buildings buried beneath puffy clouds, and the passengers settle back. It will not be long now: a few hours, a couple of drinks, maybe a movie, soothers or pocket video games for the kids. The next time the plane touches earth, it will enter a land of palms and pastels and sun-bathed parking lots, of Donald and Mickey, key lime pies, bare-butt postcards, white shoes and blue rinse, shuffleboard and a golf and great sandy beaches strewn with baking bodies and sweet with suntan oil.

Florida.

It is a national mantra, a mental bumper sticker: My Canada includes Florida. And not only Florida but the Caribbean, Mexico, Venezuela, Arizona, Texas, Southern California, Hawaii any place where their air is warm, the drinks are cool and the only shovelling is to build sand castles. Millions flee to the southern sun each winter, delighting Canadian travel companies and distant tourism officials and returning with the obligatory conch shells, straw hats and tax lines. And tour operators say that, while the recession has driven people to seek the best possible travel deals, the exodus has continued unabated. "Once it was thought of as a luxury, but now it's becoming more of an annual rites," says Bryan Wolfenden, spokesman for Canadian Holidays, a Toronto-based charter company. "We've often had customers may, 'So much for the new car, when's the next flight to Honolulu?"

For Canadians, Florida is by far the hot spot of choice. Nearly 2.4 million of them flocked to the Sunshine State in 1991 - compared with 638,000 to all Caribbean islands combined - and bout 600,000 snowbirds stayed in Florida for up to six months. More than half fly, while the rest barrel down interstates 95 or 75, some steering recreational vehicles or pulling trailers to a place where the food is familiar, the water is safe and the flamingos are real. French-speakers tend to congregate on the Atlantic Coast, English-speakers on the Gulf Coast, and both enjoy newspapers and TV and radio news programs geared

directly to them. All are drawn to the inland city of Orlando, the onetime orange-and-grapefruit centre that is now home to Disney World and other theme parks.

Florida is a democratic destination. The Canadians, who include Prime Minister Brian Mulroney, Liberal Leader Jean Chretien and other prominent politicians, range from the mega-wealthy to the budget-bound, from solid families to spring break singles. "There's a little piece of Florida for every Canadian," boasts Ellis Webber, director of Canadian marketing for the Florida division of tourism. Canadians, meanwhile, leave a sizable piece of Canada behind: more than $2 billion in tourist dollars annually.

Of course, every sun spot has its clouds. Canadian critics contend that the country's leaders set a bad example by spending their travel dollars on foreign sand. And some visitors maintain that, far from paradise, Florida is a state of crime, congestion, drugs, endless shopping malls and a blight of billboards advertising everything from gasoline to gator wrestling. But such complaints are lost on Florida's Canadian faithful - on residents of a northern nation who view southern exposure as a birthright.

"Why am I here?" says Dennis Maurice, a 47-year-old sales rep from Collingwood, Ont., lounging at a beachside bar in ritzy Longboat Key. "I'm sitting by the beach, relaxing with a beer after a game of tennis. How can it get any better than this?"

SLUMP HITTING SNOWBIRDS

Andy Marshall

A disappointed Florence and Stuart Craven had to keep their winter stay in Arizona down to two months this year - and they're wondering how they'll make it at all next year.

While dollar-conversion costs, lower interest from investments back home, and an ever-sharper bite from the taxman are taking their toll, soaring health insurance costs have blown an especially icy blast over the older couple.

"We're paying extremely high rates," said Florence Craven with fond memories of nine visits to Mesa.

With her husband past 75 and a heart operation on her own medical records, "it could make it out of reach."

The Cravens are among tens of thousands of Canadians who have either cut short their trips south or who are deciding they'll have to stay closer to home for the winter.

Jack Parry, president of the more than 75,000-member Canadian Snowbirds Association, says some apartments and trailer parks in Florida have seen a 10 to 15 percent drop in business, with Canadian seniors either not showing up this year or not staying as long.

"People are hurting", said the former Alberta resident.

The Canada Motor Association's travel advice department has seen a similar decline in numbers.

"The stats are certainly lower than last year," said Brenda Hamilton, manager of auto club services.

Ray Lawson, who enjoys the square dancing and other recreation activities at the Desert Sands mobile home park in Mesa, says the number of Canadian visitors seems to be dwindling.

"It's not surprising - lower interest rates are causing a bit of a problem, too," said Lawson, enjoying his 12th winter in Arizona - along with an estimated 60,000 or so other Albertans.

Despite the financial hardships, most of the so-called Snowbirds still marvel at the prices they pay in the stores.

"The cost of living is so much less - especially food items," said Lawson.

Kay Bates also believes lower food costs help to compensate for the other factors. "I sure notice a big difference on my oranges when I come home."

To help seniors combat the income squeeze, the Florida office of financial consultants Dean Witter Reynolds Inc. is offering programs to limit part of the dollar-conversion costs and banking fees, as well as to shelter Canadian seniors from some of the tax burden back home.

"A lot of factors are hitting seniors at once," said Brent Ion, a transplanted Canadian serving as director of the company's lifestyle network.

The Snowbirds groups has negotiated prices for members they hope can overcome the insurance rate crisis that has seen health care premiums for people over 75 in one private plan jump to over $20 from a mere $6 a day.

"I'm sure the lower Canadian dollar has had a big impact too," says Parry of the more than 600,000 seniors from this country seeking the U.S. sun every winter.

And for those less sympathetic to their plights, he adds: "I don't tell people in their snowdrifts how to run their lives."

SNOWBIRDS FIGHT HEALTH PLAN CUTS

Thousands of seniors are cranking up efforts to fight what some fear could end their migrations to warmer climates each winter as provinces to try save on medical care costs.

Jack Parry, president of the 100,000 member Canadian Snowbird Association, says his group is upset at drastic cuts in what provinces will pay for emergency treatment outside the country.

In Alberta, for example, a proposed change would limit payments to $100 a day, which "probably wouldn't pay for a bedpan down there," said Parry, who regularly spends winter in Florida.

"This action is just one of many attempts by various provinces to whittle away at medicare - one way or another," says Parry, who lives in Kemptville, Ontario.

"We want to show them that it isn't fiscally responsible to bring coverage down to $100 a day. The average snowbird isn't an affluent person. The cost of [private] insurance would mean many couldn't go. That would put more into the health care system here and coat the country," said Parry.