NORTHERN CITYSCAPE

LINKING DESIGN TO CLIMATE

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INTRODUCTION

Natural conditions in northern countries have influenced the forms of habitation and lifestyles of their people. Harsh and cold climates, despite technological advances, have forced inhabitants to develop a sharpened awareness of nature, to practice cooperation, to conserve energy and resources, and to create urban configurations which are climate-sensitive. This is especially important in the wake of automobile-oriented growth; urban sprawl; a generally inefficient use of energy, land, and resources; and in the presence of an impoverished aesthetic.

Most architects, urban designers, and city planners, in designing projects and plans, are enmeshed in the dialectics of their own individuality – and the need to express it – and in the social dimensions of their work. This tension is an integral part of the creative process whereby time and place are fundamental points of departure. In imparting order to the city and in guiding its growth, one must always bear in mind, as well, that it is simultaneously a place for survival and spiritual sustenance, for private and collective fulfillment, and for propinquity and autonomy.

One of the major purposes of urban design and planning is to act as a mirror of cultural values and to remind us who we truly are. To raise city building to an art form, exceptional cooperation between design, project planning, and policy formulation is required. Buildings, open space, and urban context must be carefully balanced to reflect both

spatial and aspatial considerations. A positive tension should be set up between form and content, project and plan, the part and the whole, the private domain and the public realm, the quality of the individual dwelling and the quality of the collective urban environment.

Mediation among these opposing elements is essential in the attempt to create "in-between" or "transitional" zones which nurture human life. These zones, in both thought and practice – lodged between abstract and concrete – constitute the broad territories of creative metamorphosis in design. They also bridge the dichotomous phenomena of solid and void, interior and exterior, static and dynamic. In order for the scale, shape, texture, and grain of a city's fabric to provide a matrix in which the simple and the monumental can co-exist harmoniously, there needs to be a clear relationship between architectural typology and urban morphology. This relationship must simultaneously incorporate functionality, consistency, aesthetic delight, identity, and vitality while remaining conscious of climatic demands.

With attention to the elements described above, this book explores what the northern city is, and ought to be. It deals with the need to produce something more humane, urbanistically speaking, than that which currently exists. It is about aspiration and inspiration, directions and strategies, intentions and results. From a theoretical perspective, its focus is upon content and form, perception and meaning, space and time, and ultimately, about what is desirable and possible. While it encompasses the necessity of linking design to climate, it is primarily about ennobling the places in which we work, live, and spend some of our leisure time.

It may be worthwhile remembering a phrase from St. Exupéry's *The Little Prince* where, referring to his rose, he says "it is useful because it is beautiful". The creation of beauty is vital for elevating the soul. Beauty, in itself, is one

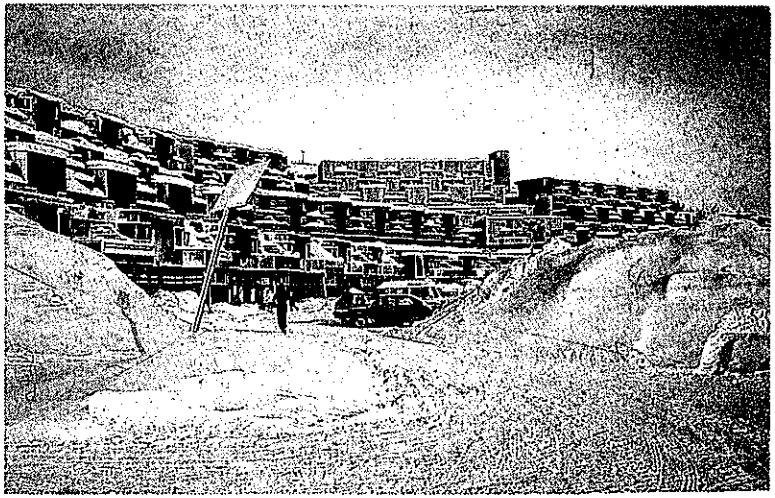
of the basic urban functions (in addition to managing traffic, reducing pollution, etc.). Every city should attempt to lift functional accommodation to the level of great art. As one of the prominent anthropologists of our time, Claude Levi-Strauss, has pointed out in his book *Tristes Tropiques*:

> By its form, as by the manner of its birth, the city has elements at once of biological procreation, organic evolution, and aesthetic creation. It is both natural object and a thing to be cultivated; individual and group; something lived and something dreamed; it is the human invention, par excellence.

Although they share many common elements with cities everywhere, northern cities possess characteristics which are peculiar to their locations. They should not attempt to echo stylistic trends from elsewhere but try to be themselves, expressing their regional character. They ought to impress themselves onto our senses in a positive manner, as belonging to and springing from the north, not just from anywhere.

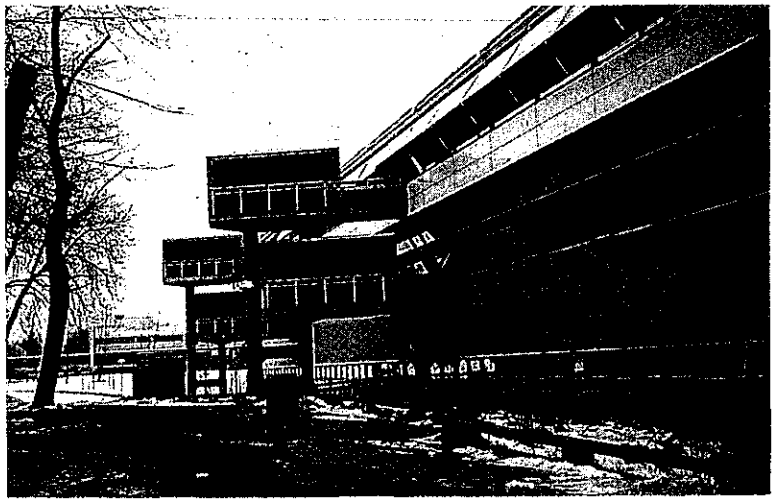
The challenge for the next generation of city builders – and designers – will be to see to it that a mature language of urban form evolves where the grandeur and majesty of the natural conditions can be wedded to the built environment without impairing either, and always by maintaining a respect for the physical terrain, the cultural context, and the spirit of place. It will be necessary to re-establish a set of forces which can channel decisions so that the environment we produce is experienced as meaningful. The guiding principle, proposed, is to grasp the essence of place in order to understand the underlying spiritual qualities – the *genius loci* – that imbue all sites.

Teams of experts will have to tackle the problems of winter cities with the same dedication that was displayed – and can still be witnessed – by the masons of Chartres and Notre-Dame. Planning and building the meaningful northern city will take time. Discovering what needs to be done and deciding how to implement it will be part of a painful search. However, if these are our goals, there is no reason why we cannot overcome any obstacles which may impede their achievement.



Hammerfest, Norway.
A housing development, with south-facing terraces, catches each precious ray of sunshine. At 70 degrees latitude, north of the arctic circle, daylight is a rare commodity during winter.

Photo: N. Pressman.



Library at Stockholm University (architect, Ralph Erskine).
South-facing balcony seating areas simultaneously trap the sun and serve as a windshield, extending the outdoor season.

Photo: N. Pressman.

Behavioural Responses to Winter

Anthropologists have generally argued that physical evolution to the stage of *homo sapiens* took place in warm, temperate climates. This "thermal paradise" exerted minimal climatic stress on humans and once this stage was reached, humans were able to migrate throughout the world to places with far less hospitable climatic conditions (Matus, 1988, p. 10). Human culture, acting as a buffer between people and adverse environmental pressures, was thus created.

The main change brought about by the buffering effect of culture was susceptibility to illness or death caused by hostile climates. Some anthropologists have suggested that natural selection ceased to play a predominant role in the evolution of the human species since culture interceded between humans and their climatic environments (Hurlich, 1976, p. 9).

However, precise and detailed information concerning human physiological and psychological response in winter cities is not readily available in a format suited to practical application. Most research concerning human needs in cold climate environments has been carried out in laboratory settings and there is a lack of knowledge about such needs within the context of everyday life. Furthermore, most laboratory work has focussed on assessing indoor comfort in order to develop heating, ventilating and air-conditioning standards and technology, while outdoor comfort research has been virtually ignored. The research assessing indoor comfort has shown that it is difficult to separate physiological from psychological factors since comfort is related to subjective experience.

The main theoretical interpretations of psychological response to winter conditions is that winter causes a downward shift in the ratio of positive to negative psychological

stimuli (Persinger, 1980, p. 297). Simply put, there are fewer things for people to enjoy in winter than in summer.

According to Persinger, this occurs due to four main reasons. Firstly, there is an increase in stressful events related to extremes in cold, snow and wind factors. For example, travel may become dangerous, vehicles may break down, and public utility services may fail. Secondly, there is a reduction of readily available recreational activities for most people. Thirdly, the reduced variety in colour, sound, and smell in nature means that most people suffer from perceptual monotony and sensory deprivation. Finally, when people are confined to their homes due to hazardous and inclement weather, they develop "cabin fever" and have an overwhelming urge to escape from their involuntary confinement. The temporary psychic relief provided by alcohol and drugs is often used and abused as an alternative to changes in physical environment.

The main population groups that are susceptible to increased psychological stress in winter are the elderly, normal young to middle-aged people who are prone to depression, and the mentally ill. The elderly are more likely to suffer in winter because of their involuntary confinement due to dangerous outdoor conditions. Normal young to middle-aged people who are prone to depression may lapse into severe depression in winter due to the trigger effect of decreased positive stimuli. The mentally ill may suffer more in winter due to a reduction in spontaneous social contacts because of a decrease in outdoor public activity and an absence of bright, comforting colours (Persinger, 1980, p. 299). If more intense levels of social interaction are desired – when people tend to be confined indoors – proximity and density will be important factors influencing such contact, thereby contributing to a reduction of stress and isolation (Pressman, 1990/91, p. 765).

Winter has a profound impact on social activity in urban environments despite the fact that relatively little research has been executed in this area. It is important to stress two important points. Firstly, the nature of social activity is quite different in winter than in summer. Secondly, the quality and extent of social activity in winter can be improved through planning and design.

Pioneering research in the observation of social behaviour in the outdoors during winter was carried out by Jeffrey Nash, a sociologist from Minneapolis. Dr. Nash used participant observation techniques to determine how people's public behaviour changed in winter. He and his research associates logged hundreds of hours observing public outdoor life in Minneapolis. Based on these observations, they were able to arrive at three general conclusions (Nash, 1986):

1. There is a significant reduction in the use of public space (both indoors and outdoors) during the winter months.
2. There is a sense of festivity in the attitudes of those involved in public life that is often accompanied by extraordinary weather occasions (e.g. heavy snowfalls).
3. There is greater freedom to define appropriate usages of public space in winter.

The number of people using public space in winter probably decreases due to two reasons. During winter, it is often difficult and uncomfortable to travel and thus people are less likely to leave their homes and workplaces. Furthermore, it is often uncomfortable to spend more time than absolutely necessary out of doors. In winter, there are virtually no people who "hang out"; people out-of-doors always seem to have a definite purpose or activity.

Recently, scientists have identified a psychological condition which is directly related to winter climatic conditions.

Seasonal Affective Disorder (SAD) is caused by changes in photoperiodicity (the day-night cycle) during winter, as the amount and intensity of sunlight is reduced at high latitude locations. Sufferers from SAD experience depression at the outset of winter due to changes in two distinct biological systems. Reduction of the duration and intensity of daylight affects secretion of the hormone melatonin which, in turn, depresses mood and subjective energy levels. The secretion of the neurotransmitter serotonin, which regulates a person's appetite for carbohydrate-rich foods, is also affected (Wurtmann and Wurtmann, 1989, pp. 68-75).

Sufferers of SAD complain of periodic bouts of depression with a profound craving for carbohydrate-rich foods. They tend to go to bed early, sleeping for nine to ten hours and their sleep is intermittent and not fully refreshing. Researchers have shown that the incidence of SAD is positively related to latitude. In the northern states of the U.S.A. the incidence of SAD is approximately 100 per 100,000 people while in the southern states it is only 6 per 100,000 people. It is, furthermore, thought that these results underestimate the actual incidence of SAD (Wurtmann and Wurtmann, 1989, op.cit.).

Since insufficient exposure to sunlight has been identified (extensive studies have been carried out in Finland) as the major cause of SAD, phototherapy is being used as a treatment. This involves exposing patients to full spectrum bright light for a few hours a day, and has been common practice in schools located in northern Russia. Many patients have recovered or have had their depression alleviated using this technique.

It is highly probable that most people living in high latitude locations suffer from SAD, at least to a minor degree. Therefore, depression could be relieved by obtaining maximum exposure to sunlight during winter months. This can

be achieved by regularly taking part in daytime outdoor activities and, as well, by placing desks in offices next to windows – especially those which are south-facing (Boyles, 1988, pp. 105-107). To prevent a high incidence of SAD in the urban environment, planners and designers should ensure adequate provision of outdoor recreation facilities and adequate natural lighting in indoor working and living spaces.

In light of some of the recent findings pertaining to the effects of northern climates on health and behaviour, planners of winter cities must ensure that urban culture evolves in a direction whereby human physiological and psychological well-being is optimized. In this manner, the health of individuals can be improved and the evolutionary potential of the human species will be strengthened.

TOWARD AN URBAN DESIGN FOCUS

"Urban Design" (often conveyed through many diverse forms and expressions) has resurfaced as a concept and practice at a timely point in the evolution of city planning and urban development. Its purpose is to serve as a means of alleviating dissatisfaction with contemporary approaches to city building and urban planning. Conventional patterns of city planning have often tended to reinforce a 'consumption' rather than a 'conserving' ethic; and a 'reactive' rather than a 'pro-active' approach.

In a social context, conventional practice (oriented towards private development) often fails to adequately represent the public realm; from an economic standpoint, neoclassical models of planning based on market forces and land values displace people and separate work from home; and from a physical vantage, current practices corrupt the natural landscape, threaten the existence of ecological habitats, and consume vast amounts of invaluable natural and agricultural resources. Such approaches are nearing obsolescence, thus necessitating innovative courses of action.

Whereby planning tends to be oriented towards management and policy, urban design translates policy into three-dimensional built form and urban space. Historically, town planning embodied "urban design". Unhealthy urban conditions that resulted from uncontrolled forms of development, industrial growth, and low quality housing, gave rise to the emergence of the "physical planner" or "master planner".

Concerned individuals, with visions of how to improve the built environment, responded to inner-city problems by concentrating on the physical form of cities, addressing the deterioration of living conditions, and the increasingly appalling appearance of towns and urban regions.

In the 19th and early 20th centuries, Ebenezer Howard, Robert Owen, Charles Fourier, and Le Corbusier, among others, represented the "planners" of the day who made decisions and had complete control over them on the basis of their social ideals and technical expertise. Resentment with these old models, failure to address citizens' needs and concerns, and dissatisfaction with this type of planning necessitated new approaches which placed emphasis on public participation and political support. Thus, old-style 'planning' based solely on autocratic models became inapplicable and inappropriate in contemporary society, as it was incapable of upholding the democratic institutions upon which modern planning is presumably based. While this outdated view of planning is capable of threatening democracy, and the public interest that design was meant to address, the role of the 'physical' planner is not obsolete. The urban designer must operate within a democratic framework, but this need not hinder performance or progress. Physically-based approaches to problem-solving are highly capable of responding to the environmental, social, and economic challenges which confront our cities. In fact, urban design can and shall be partially responsible for improving our built environments. Especially in high latitude regions, or areas where unpleasant winter conditions prevail, innovative urban design is a basic necessity which, until recently, has been almost entirely overlooked.

Urban Design in a Winter Context

Unquestionably, architects, landscape architects, and planners have been attempting to redefine city-building in order to address contemporary physical, social, political, economic, and environmental concerns. Leon Krier's masterplan for 'Dorchester', in the United Kingdom (commissioned by the Prince of Wales), and Andres Duany's 'Seaside' in Florida, among other urban projects, are two highly praised examples demonstrative of this trend. Despite such progress these examples cannot possibly represent models to be emulated within all geographic regions. Surely, all cities of the globe cannot realistically embody enough uniform characteristics so as to justify duplication.

Careful application is the key to good design. How to apply city building principles to places entrenched within diverse contextual and climatic settings is the fundamental question. Thus, cities in countries such as Canada, Russia, Iceland, Finland, Norway, Sweden and parts of the United States need to adopt approaches which reflect their specific climatic conditions. To ignore winter's presence is both irresponsible and unreasonable. In applying what is commonly referred to as "neo-traditional" community design, sensitivity will be required since every region imposes its own seasonal demands:

> Building a Neo-Traditional community in Tromsø, Norway based upon a neighbourhood in Florida (where neo-traditional community design originated) would eventually create a situation akin to the one that NTCD (Neo-Traditional Community Design) was developed to rectify. The successful NTCD-based cold climate community would take into account factors such as: protection from the elements; snow and management; optimisation of solar energy; and protecting continuity of access (Hanen and Liburd, 1993, p. 23).

In adopting and importing urban forms from the south – public squares, open spaces, treed allées and boulevards – we are using an architectonic grammar unsuitable for cities which, for a large part of the year, must contend with conditions of severe wind, frost, ice, snow and bitter temperatures. The geometric and compositional properties of late-Renaissance Europe and the Beaux-Arts tradition seem most inappropriate for cold, snowridden towns and cities. Therefore, policy analysts, urban planners, developers, and designers would be wise to re-evaluate their positions when working in such settings.

Lessons from Vernacular Building Design

The climate in which we live has a tendency to determine our outlooks and life ways. It sharply influences particular environments – and their effects – for every type of civilization. Even from the slightest variations in climate one can witness different kinds of social systems and cultural attributes and these are frequently reflected in architectural styles and building traditions. Especially when necessity prevailed, people have learned how to protect themselves against nature and weather systems using ingenuity to turn their liabilities into assets.

Archetypes commonplace in vernacular building reveal triumphant solutions both for survival and pleasant living – varying from one mountain valley to another, from desert to coastal plain, from the equatorial regions to landscapes bathed by the midnight sun. Designs and ideas dictated by climatic and topographical concerns are genuine and authentic, as they must be if they are to respond meaningfully to human needs, local materials, and natural forces. They have sought to be the way they must without resorting to clichés, fashion, or dominant trends in stylistic thought.

Most of the world's major towns, especially at northern latitudes, have been founded on sites – or shores – which are south-facing. It is precisely these southern exposed sides which experienced rapid growth. Many Alpine villages in Switzerland and Austria are seen to have their 'chalet' dwellings similarly aligned, sitting on hillsides, facing south, and looking toward the sunshine in cluster formation. This "Alpine" aesthetic is perceived as a unique conception due to the perfect harmony with the natural conditions. An extremely sophisticated level of "identification" with the natural landscape has been achieved by the built environment.

This type of vernacular or indigenous design has received so much attention of late that it is now seriously considered by many prominent architects and planners as the genesis of new theories influencing urban ideas, forms, and sustainable developments. While much of this tradition may appear arbitrary, what is important is that, without exception, the forms have always been a direct expression of life's functions, satisfying local needs from a culture-specific perspective. The social requirements are almost perfectly integrated within the built form in a manner which makes it difficult to differentiate one from the other – to know which element is to be viewed as "stimulus" and which one as "response". Socio-cultural values, building materials, orientation, climate, and site have been uniquely woven together, simultaneously developing a responsiveness, human scale, diversity, and plastic quality which never cease to stimulate either the senses or the imagination.

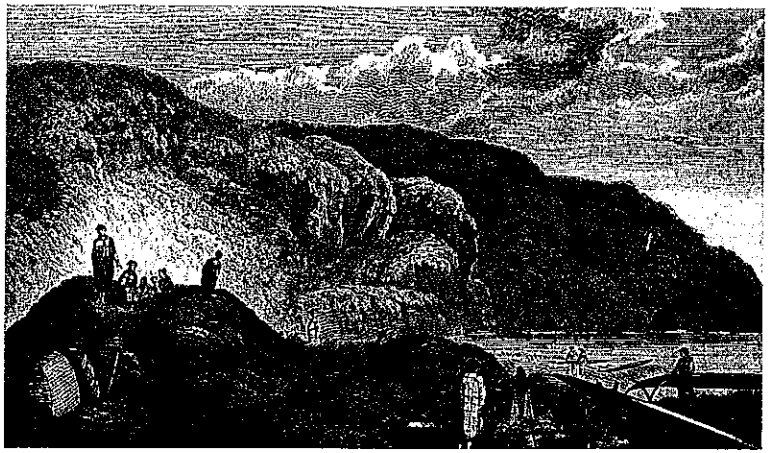
There are many examples to be found of "northern vernacular". Built forms such as the *igloo* which insulates its occupants against temperature extremes – a veritable thermal fortress or thermally-sheltered cocoon – is a sort of artificial cave serving to illustrate the case. This dwelling shape

or "snow house" responds in an admirable fashion (being completely aerodynamic, with a minimal volume) to a sense of far northern place.

In Iceland, where severe winds and driving rain are more common than heavy snowfall, a typical farm cluster is compact and half-buried for protection against the violent winds. Main frontages face south and possess apertures such as doors and windows. Roofs must insulate thermally and have substantial wind resistance while the use of dark colours on the south-facing facades increases passive solar energy gain (Supic, 1982, p. 343).

Scandinavian farm buildings usually group small-roomed buildings around a central courtyard with an open fireplace in the central dwelling space which radiates warmth to the surrounding living areas. The courtyard enclosure acts as a device creating a favourable micro-climate protected from exterior winds. In Finland, people and animals have lived on a side-by-side basis – in Karelia, animals below and people above, thereby benefiting from the released heat. Swiss farms situated in the Jura mountains are formed of continuous dwellings, under one large roof, with western frontages carefully screened from strong rain-bearing winds. Farms located in the Bernese Oberland have extremely large roof overhangs which shelter the working areas beneath the barns.

We should probably keep a sufficient distance from the nostalgia of the past – from literal interpretations of urban forms and architectural solutions – as we confront future problems. However, we ought to retain a sense of the spirit within which problem-solving was approached in the vernacular tradition. It is within a framework that will blend a mastery over nature and a co-existence with nature that meaningful answers will be discovered.



The subterranean habitations of Natives in Oonalashka (Aleutian Islands) by John Webber, (Atlas of Cook's Third Voyage, published 1780).

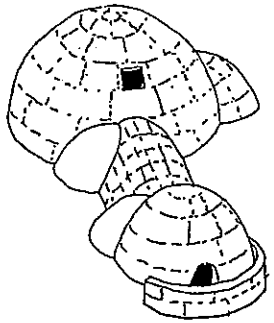
Source: The Anchorage Museum of History and Art (by permission).

The interior of a subterranean habitation in Oonalashka (Aleutian Islands) by John Webber, (Atlas of Cook's Third Voyage, published 1780).

Source: The Anchorage Museum of History and Art (by permission).

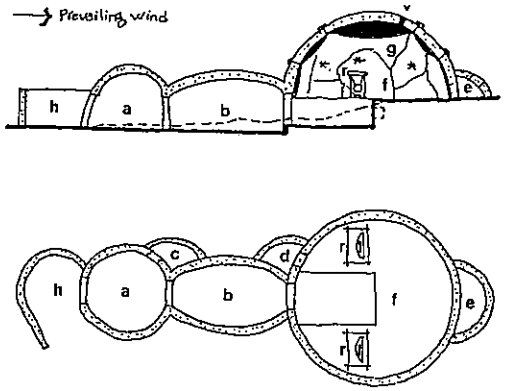
The "igloo" which typically incorporates the least surface area enclosing the greatest volume of interior space.

Photo: Malloch Collection, Notman Photographic Archives, McCord Museum of Canadian History (by permission).



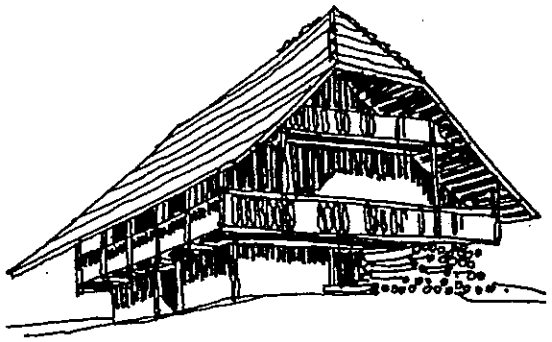
The igloo of the Canadian eastern Arctic.

Source: Building North, Jan./Feb. 1990.



Section and plan of a Baffin Island igloo.

Source: Building North, Jan./Feb. 1990.



A Typical (Bernese Region) Alpine "Chalet".

Dwelling areas, cowshed, and barn are all grouped under a common roof. This reduces heat loss, offers protection for the balconies and working spaces, and shelters the façades from bad weather.

Source: Milieu Naturel en Architecture, Frédéric Aubry, Lausanne, Cahier d'information 6-1989/90.

An Icelandic House.

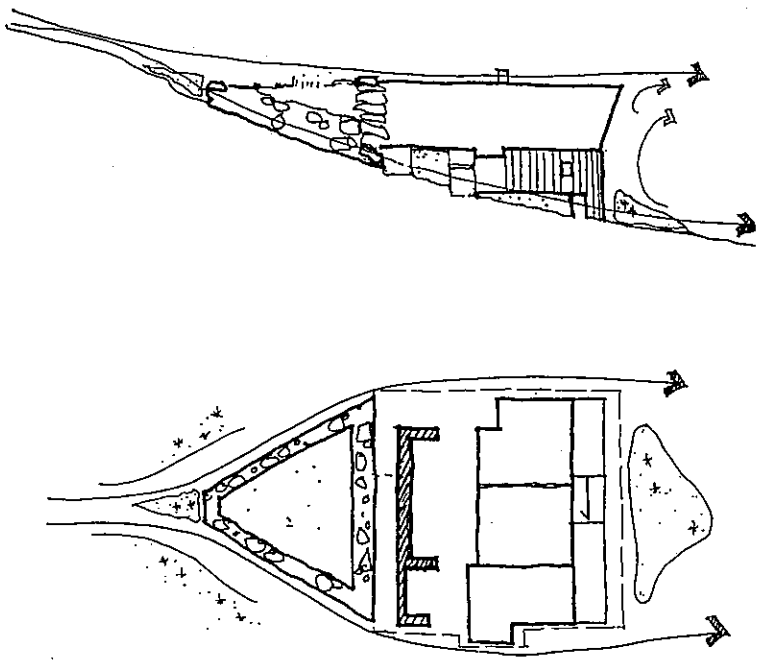
Hugging the ground, these dwellings are covered with sod roofs providing excellent insulation from the winter cold – an example of eco-design in traditional architecture.

Source: Frédéric Aubry, Lausanne, op.cit.

Dwellings at Oraefi, Iceland.

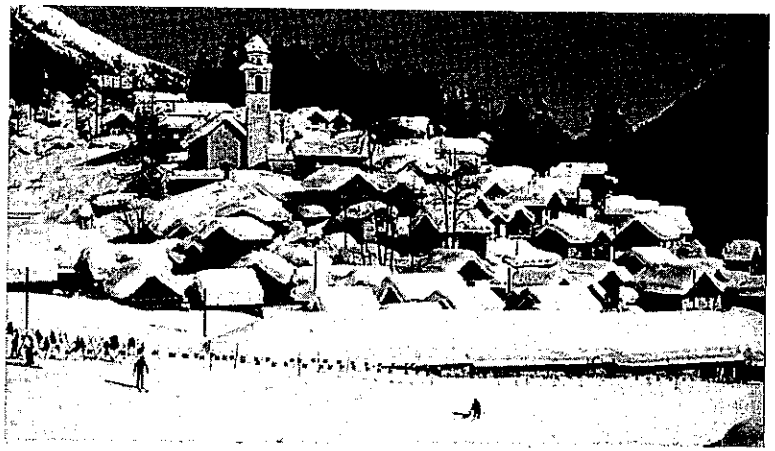
At a typical Icelandic farm, earth-sheltered structures are extremely well insulated with layers of stone and sod covering (20 cms. thick). Animals stay at the lowest level, with people above.

Source: Milieu Naturel en Architecture, Frédéric Aubry, Lausanne, Cahier d'information 6-1989/90.



Traditional Building: in the mountain areas of central Europe and in a few places in Norway, houses can be found which have heavy, plough-shaped backs and an open façade toward the sun. Cold air, drifting snow and eventual avalanches are guided around or over these buildings without causing excessive damage. This example is of a "chalet à fort" in Ormonts-Dessus, Switzerland.

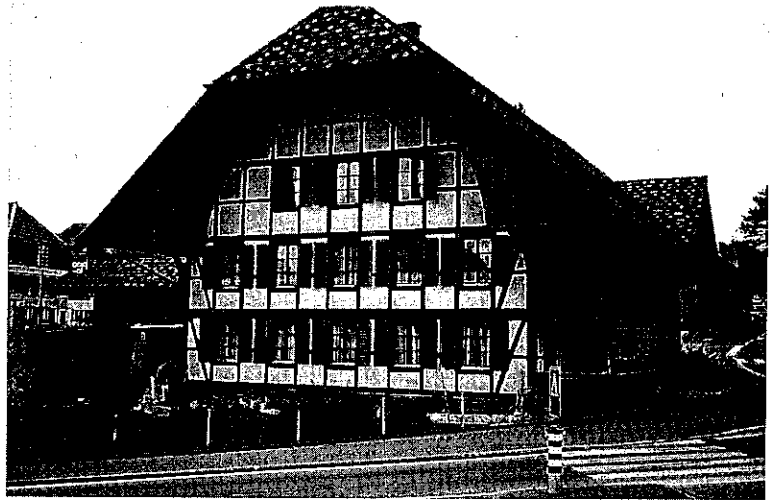
Source: Anne Brit Børve, adapted from Plemenka Supic.



Bosco/Gurin (Ticino), Switzerland.

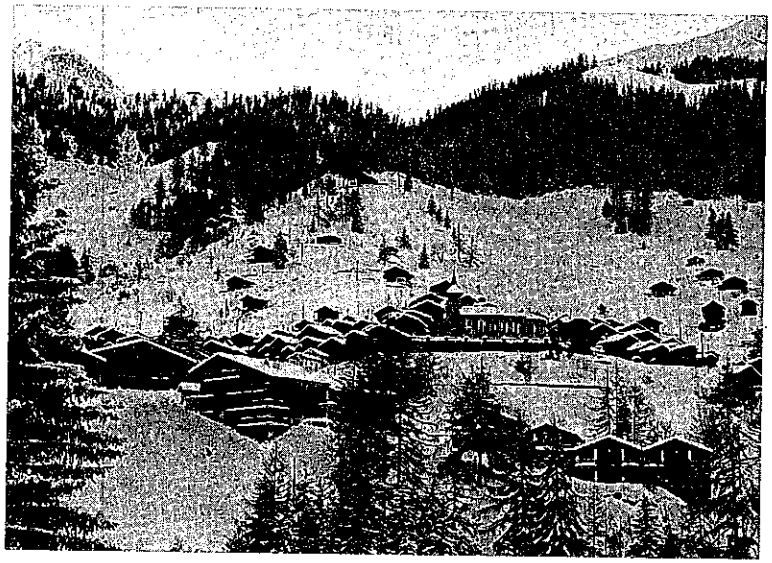
An exemplary vernacular expression whereby a small village is sensitively integrated – in cluster form – with its environs. It represents sustainable development principles which are meticulously adapted to the forces of the site.

Photo: Edizioni Alfa S.A. – 6616 Losone.



Typical Bernese half-timbered farmhouse with strong, protective roof forms.

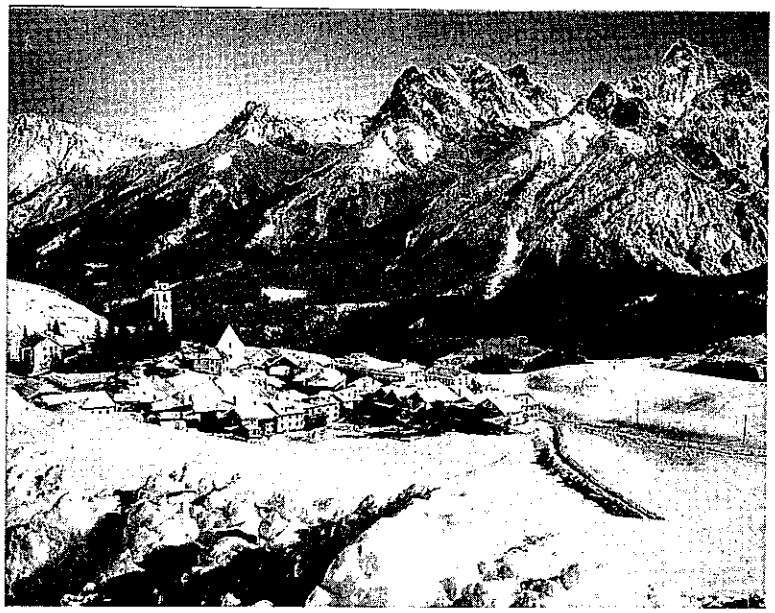
Photo: N. Pressman.



Grimentz (Valais), Switzerland.

The Alpine chalet turns its back to the cold wind while being exposed to the sun's warmth – embracing dramatic vistas.

Photo: Office du Tourisme, Grimentz.



Ftan, Switzerland (Lower-Engadine/Grisons).

The compact village form embodies human scale and creates a sensitive "fit" with the surrounding environment, preserving it with great care.

Photo: Swiss National Tourist Office.

People and planners living in northern, winter cities have, for a long time, ignored the lengthy and, at times, unbearable winters. Most of the energy of professionals has been focussed on the "warmer" seasons, such as summer, spring, and autumn. Designers have usually not embodied a tradition of basing decisions on seasonal demands. "Thinking winter" was out of the question during the 1950-80 period and prior to that time, as well. However, a genuine "winter-consciousness" has arisen with the inception of the livable "winter cities" movement, created in the mid-1980s, whereby constant efforts at promoting conferences, symposia, discussions and media coverage of "winter problems" were intitiated, and started to make themselves felt in urban policy documents and design concepts in circumpolar regions.

One must adapt to climate and other physical factors which can act either as determining or modifying elements in building and town development. Among all the influences of topographical variations and environmental factors impinging on historically static or living, dynamic urban settlements, the most important one is climate (Egli, 1951, p. 61) – that element which has been most sadly neglected especially in northern situations. The form and structure of northern cities have not been shaped by climatological dictates but rather they have employed technology to render habitable designs and shapes which are fundamentally unsuited to their respective sites and geographical locations. What is essential is that each northern country take advantage of general cold climate solutions with regard to its own conditions.

Providing meaningful developments which are not only functional but also emotionally satisfying is the task which confronts designers, administrators and planners working under conditions where "cold" is a prevailing force. The

benefits of designing with nature are not only practical but also aesthetic and sensory. We must learn not only to accept seasonal change but also to appreciate its fundamental beauty. It would appear most appropriate that we consider managing and designing landscapes, buildings and the open spaces between them, in a way which emphasizes rather than minimizes the variation of seasons, in order to create multi-season cities – which accommodate and celebrate life in all seasons.

URBAN DESIGN: THE NORTHERN DIMENSION

Current Dilemmas

Harsh and foreboding climate such as that embodied by northern winters has worked its way into the national psyche of cold nations. Canada, for example, has been imaged by others – and images itself – as a product of climate, to a large degree. Winter has, to a considerable extent, shaped its history, helped to develop its customs and traditions, and has repeatedly been a central theme in both French and Anglo-Canadian poetry, literature, art and other forms of cultural expression.

> For most of us winter has become a rather persistent annoyance that we grudgingly accept but somehow think of as an undeserved plague visited upon us in retribution for an unintended sin (Cavell and Reid, 1988, p. 12).

This generally tends to be the case in other northern societies such as the American midwest, Sweden (particularly its northern regions), Finland, Norway, Iceland, Greenland, Japan's Hokkaido region, and much of the former Soviet Union. The northern bleakness, with its cover of ice and snow and its bone-chilling winds, is deeply embedded in the hearts and souls of those who inhabit the north. On the whole, these cultures work hard at attempting to resist and deny this hostile season. However, at times, they also delight in the snow-reflected light, the visual beauty and the

outdoor sports, and festivities made possible by the snow-covered landscape.

The attempts to generate a 'climate-responsive' northern urban form are part of a relatively recent phenomenon and field of investigation. These attempts – and the international winter cities movement – have established the need for explicit, systematic inquiry which analyzes national and local strategic action directed at improving the comfort and lifestyles of northern dwellers. Although there has been a lengthy history of winter living, particularly in rural areas, the literature on this subject has been sparse, lacking emphasis on how to generate solutions for achieving human comfort indoors, out-of-doors, and in that elusive in-between zone of "inside-outside". However, since the emergence of targeted 'winter cities' approaches, and recent case-study literature[1], experience accumulated during the past decade has produced some directions and trends which can now be detected with relative precision.

Legislative norms, administrative frameworks, economic dictates and political priorities – together with stylistic trends and fashions – have been among the most influential forces shaping our built milieu. These factors of international character have been sensitive neither to climatic considerations nor to 'genius loci' attributes. Rather, they have tended to produce buildings and entire neighbourhoods which epitomize "placelessness", as they are so similar in their use of materials, exploitation of site, and isolation from prevailing cultural values. What has resulted is more often a *steady-state, thermally-neutral* environment (constant temperature and humidity regardless of natural conditions) where "indoors" and "outdoors" are no longer connected or related. Designs and realizations are similar whether in Oslo or Miami, Toronto or Phoenix, Reykjavik or Los Angeles. The same available technologically-driven solutions are

applied, in one case to heat, and in the other to cool, buildings and collective spaces. In fact, the most urgent dilemma of our time is *how to create places which possess genuine meaning* or 'genius loci', in which inhabitants can be proud to reside, and which appear to belong to and spring from their respective geographical and cultural contexts.

This elusive 'genius loci' or the sense of place – imbuing a place with uniqueness – can only occur when three essential human needs are met (Dunin-Woyseth, 1990, p. 341):

> they are the human need for continuity with the past, the need for making a personal impact on the environment and the need for a mutual, balanced relationship with the environment. Considered separately the three needs enhance the approach of fragmentation and specialisation so typical of the immediate past and its characteristic unrestrained growth. Taken together, in a sense of close relationship they contribute to creating places with which people can identify and to which they can feel they belong.

The well-known Québec 'nordicist' Louis-Edmond Hamelin (a human geographer by training) suggested that Canadians lack a true 'collective conscience of nordicity' and that they are "walking to the north backwards with their eyes fixed on their vacations' palm trees". He has often made reference to 3 waves of nordicity in the Canadian mentality (The Globe & Mail, 1988, p. D8):

1. The classic, careless colonial model.
2. A more cautious ecological approach (towards disposing of wastes and protecting animal life, for example).
3. An approach which aims at obtaining the very best in the development of Northern Canada.

It is this last approach and mental attitude which must evolve – in all genuinely northern countries – if we are to retain our most precious legacies, develop life ways which possess harmonious relationships between people and their environment, and if we are to maintain our unique cultural and physical identities. In the face of increasing architectural homogeneity both in Arctic as well as in temperate climates, a special effort will have to be made if a regionally-based, northern urban form is to emerge, which strives to create a true 'sense of place'.

If we wish to optimize exposure to the beneficial aspects of winter, this will demand a creative and innovative approach since there are few positive case studies from which to draw inspiration. Present experience, in most cities throughout the 'winter city' world, has attempted to create "summer city" conditions, throughout the year, instead of highlighting those characteristics which are unique to northern communities.

Interventions in Northern Urban Design Strategies

Urban development policies can be expressed in terms which, on the whole, will tend to remain abstract while identifying long-term goals, aspirations and community images. However, it is essential that such policies be capable of translation into *physical form* if they are to have any meaningful effect. While these forms must be able to meet performance standards (answering the question of what effects are desired), they should also be capable of metamorphosis such that the fundamental design gestures, once implemented, can evolve incrementally into a responsive urban organism receptive to external impulses which cannot be foreseen at the outset. Most of our respected design

gestures have withstood the test of time and it merely remains necessary to adapt the best examples from the past (and present) with the intent of achieving *consistency, continuity, functionality,* and *beauty* through purposeful urban forms.

In an attempt to catalogue planning and design interventions likely to become more widespread – based on current ideas in northern thinking – a preliminary list might resemble the following (Pressman, 1993):

I. Visual Environment

a) *Ice as Art*

Ice will be used in more visually stimulating forms such as illuminated fountains, floodlighting of frozen waterfalls, umbrella sprays left from fountains during freezing periods, ice sculpture, and 'snow and ice' decorative features. These can counteract winter's stark qualities – especially at high latitudes – and serve as centre-pieces for civic spaces. Superb examples of polar bears, squirrels and cats made of snow and ice grace the town park and pedestrian street (Storgatan) in downtown Luleå, Sweden.

b) *Use of Bold Colours*

Judicious selection of colours for buildings and public art can provide contrasts under different seasonal variations. The brighter hues – red, orange, yellow – are most easily recognized in daylight and present the highest contrast with snow cover. Skillful planting of coniferous vegetation can introduce colour in landscape and colour 'master' plans can be instituted for polar zones (such as those developed for Longyearbyen on Svalbard by interior-architect Grete Smedal of Norway). Within a colour spectrum and in conditions of changing light, variations

become possible making for greater liveliness during day, night and the shifting seasons. Certain colours provide symbolic warmth, literally "heating" space and giving it a warmer, vibrant glow. Others can absorb or reflect light – important factors in winter.

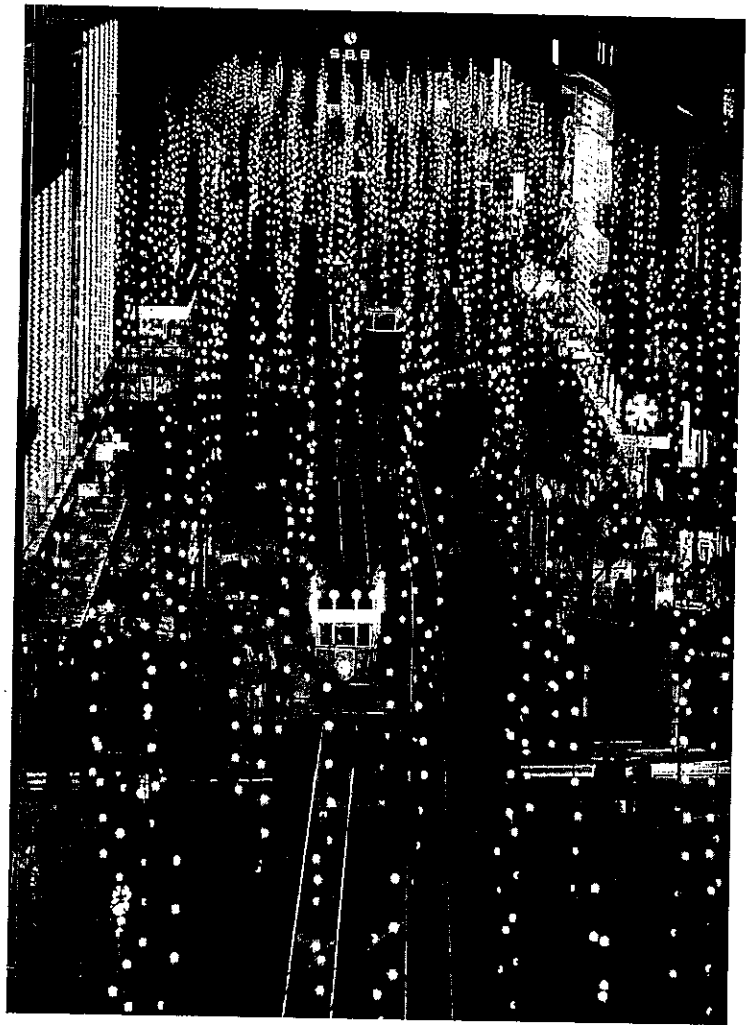
c) *Illumination for the 'dark' periods*
New forms of lighting incorporating intensity, glare, height, shape and clarity factors will emerge. Sodium vapour lighting, for example, tends to be more attractive than mercury vapour lamps during winter. While public safety concerns grow in importance, aesthetic quality cannot be ignored. Log-burning fireplaces have been distributed throughout the city centre in Luleå, Sweden providing both light and warmth – especially effective during the short daylight period. Sun-scoops, reflectors and other devices which bring sun and light into the interiors of buildings are crucial at high latitudes.

d) *Urban Furniture*
Telephone booths, kiosks, public benches, litter bins, bus shelters, planters, newspaper boxes, etc. will become more functional (e.g. less emphasis on vandalproof factors and more on thermal comfort in choice of materials) as well as more visually attractive, thus enlivening both the streetscape and urban space.

e) *Civic Embellishment*
Sculpture, fountains, murals, clocktowers, laser images, banners and flags, signage and other forms of graphic display will emphasize public animation and fantasy in civic space throughout the urban fabric. Visual stimulation, through more intense sensory participation, will add greater vitality to urban life.

Luleå, Sweden – The town's major street (Storgatan) with log-burning fireplaces, which add warmth, and light, to winter. Sidewalks are heated, melting the snow and ice, thus creating a non-slip surface.
Photo: N. Pressman.

Luleå, Sweden – The major shopping street (Storgatan) is a lively pedestrian spine with delightful ice-sculptures reflecting regional themes and exhibiting local character.
Photo: N. Pressman.



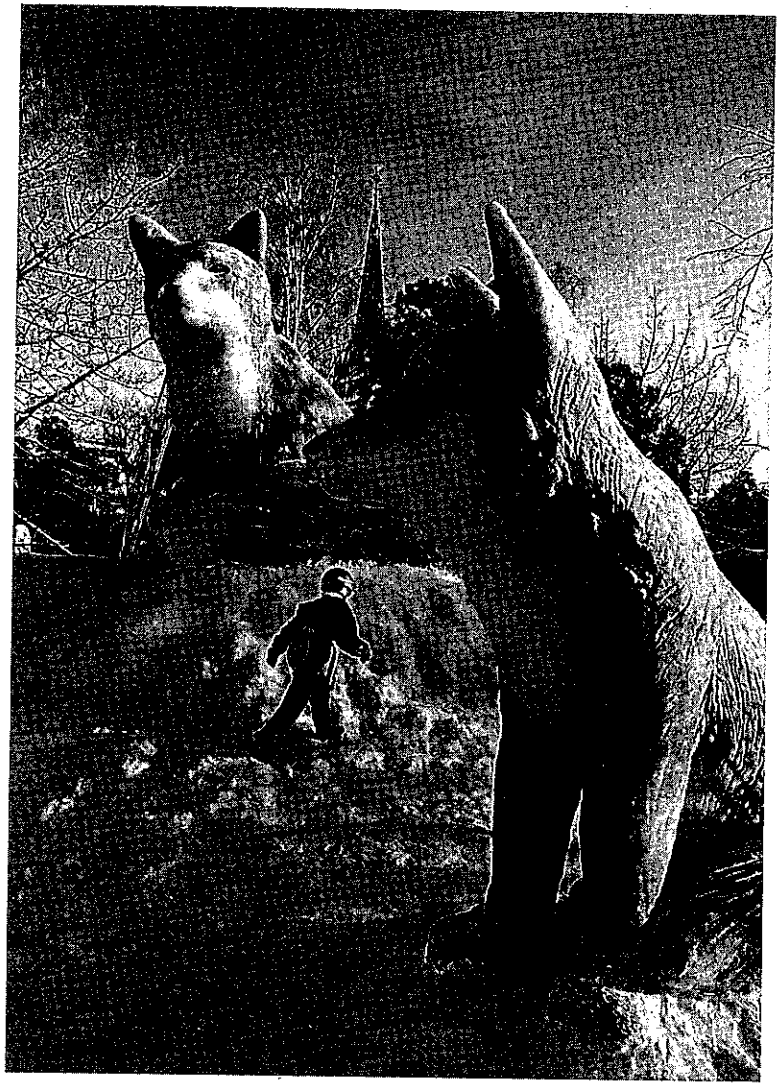
Zurich: December on The Bahnhofstrasse – under a dazzling canopy of lights.

Photo: Swiss National Tourist Office.

Getreidegasse, Salzburg (Austria).

A splendid canopy effect is created on the major shopping street by snow clinging to branches strung across the pedestrian space.

Photo: "Cosy-Kunstverlag" Salzburg. Permission by Brigitte David.



Luleå, Sweden: Snow/ice sculptural slide in the city centre "town park" (front view).
Photo: Göran Ström/Municipality of Luleå.

Luleå, Sweden: Snow/Ice sculptural slide in the city centre "town park" (rear view).
Photo: Göran Ström/Municipality of Luleå..

II. Human Comfort

a) *Micro-climatic Studies More Frequent*
Wind tunnel testing and snow simulations (accumulation and drifting) performed in open channel water flumes will assist in the creation of more tolerable comfort levels for pedestrian-zone activity. Use of the heliodon or computer models can predict sun/shade patterns under varying conditions. (Flour particles and fans can indicate air flows at reduced costs).

b) *Improved Ergonomic Design*
The elderly, physically challenged, young children, etc. will benefit from improved climate-responsive designs, for instance, of handrails, ramps, stairways, sidewalk curb details. Products such as crampons to prevent slipping on icy surfaces will see larger consumer markets, as will new floorscape materials with non-slip features.

c) *Landscaping Concepts will Reduce Discomfort*
Selection and location of vegetation, shelterbelts, trees, hedges, walls, fences and orientation of buildings will, in combination, produce better localized climates. Protection from wind and exposure to sun will be promoted.

d) *Ecochart Use will Increase*
Analytical techniques resulting in mapping systems will plot sunshine and climate parameters (e.g. heating degree days, wind, precipitation, etc.) whose application will assist in more effective site selection and detail development. Detailed knowledge of local conditions will be available and accessible.

III. Protective Urban Devices

a) *Above-Grade Protection*
Skywalk/skyway systems (+15s) and covered pedestrian bridges will be built in carefully selected parts of the city. Calgary, Alberta is an excellent example of an extensive walkway system.

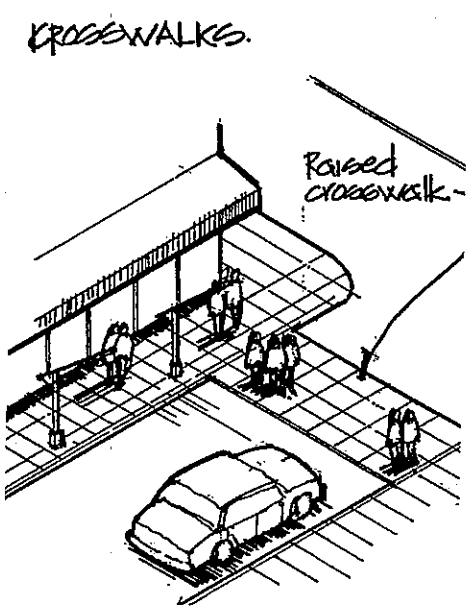
b) *Below-Grade Protection*
Underground pedestrian concourses, tunnels connected to subway stations and other 'understreet' climate-controlled systems will selectively be implemented. Montreal and Toronto are good illustrations although they siphon some life from city streets.

c) *At-Grade Protection*
Colonnades, canopies, arcades, gallerias and glazed-over spaces, including mid-block pedestrian routes, will facilitate movement throughout a city's central business district. These may be linked both to above-grade and below-grade protective systems.

d) *Sidewalk Heating*
Will continue to be used where this is cost-efficient and can make use of recycled heat from refuse combustion or district heating plants. Stairs and ramps shall also be heated in dangerous, high-intensity locations. This is a common practice throughout many Swedish and Norwegian towns.

e) *Multi-Use Buildings*
Buildings containing various functions and activities will minimize the need for movement when these can be concentrated in a single structure or group of buildings.

f) *Retractable Roofs*
Devices which automatically open and close by using pre-programmed electronic sensors sensitive to changing



Suggested crosswalk detail (eliminating curbs) for a typical "winter city".

Source: City of Sault Ste. Marie, Winter Cities Association, and Hough Stansbury Woodland Ltd.: Winter Cities Design Manual.

Electric Snow-Melting System. Applicable to driveways, walkways, stairs and ramps using small electric heaters and newly developed snow sensors.

Source: Tohoku Electric Power Co. Inc. – Sendai, Miyagi, Japan.

weather conditions may be used not only for sport stadiums but also for central area "main street" shopping and entertainment functions. As they are extremely costly, widespread use is not anticipated.

g) *Pedestrian/Vehicular-free Zones*
Will become more widespread due to increasing concern for environmental quality (air pollution, noise, etc.). During winter – when water, ice and slush are prevalent – with the use of sidewalk heating, comfortably warm, non-slip surfaces for exclusive pedestrian use make more sense than conventional streets. Curbs should also be eliminated at major street intersections and storm sewer inlets re-positioned.

IV. Recreation and Leisure

a) *Parks, Open Space Systems and Waterfronts*
These will be developed more imaginatively using ice, snow, wind and sun as positive features for year-round use. Active participation will be encouraged for all urban inhabitants – from the very young to the very old. Winter as well as summer use is imperative. Interpretive nature programs should focus on winter as well as summer use.

b) *Winter Safari and Wildlife Areas*
These concepts, normally found in more temperate climates, will take on greater importance in urban and regional leisure activities – including tourism. Finland is a leader in this area.

c) *Ski-Trail Networks*
Increasing attention will be accorded to cross-country ski networks within the metropolitan area, for utilitarian and recreational purposes. Trails for physically challenged and blind will be incorporated as will night-use illumi-

nated tracks. (Norway has been the world leader in developing such systems and much can be learned from its experience – in the Oslo metropolitan area alone, more than 200 km of illuminated ski-trails are known to exist).

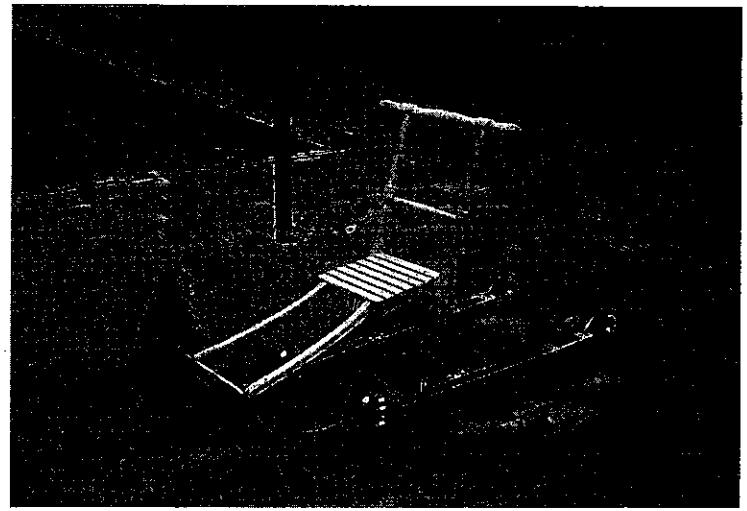
d) *Winter-Oriented Outdoor Amenities*
Hockey and ice-skating rinks, slalom tracks, ski-jumps and related amenities will promote 'fitness' and 'sport' programs. Educational programs shall assist in helping young adults to enjoy and appreciate winter life.

e) *Carnivals and Festivals*
Programmed festivities normally occurring during mid-winter (Winterlude/Bal de Neige in Ottawa-Hull, Québec, Harbin, Sapporo, etc.) and in the pre-Lent period promoting positive images of winter will become more numerous and remain active for lengthier periods.

f) *Winter-Indoor Gardens*
Climate-controlled parks (which should be intimately connected with the exterior for use in the outdoor season) will be more commonplace incorporating glazed-over, atrium-like structures particularly in far northern regions where prolonged cold temperatures, extensive snowfall and wind, and lengthy darkness prevail. In the majority of cases, they will be situated in public space at ground level, although in some rare instances – such as at Devonian Gardens in Calgary – they may be located 4-5 storeys up-in-the-air in office buildings in the central city.

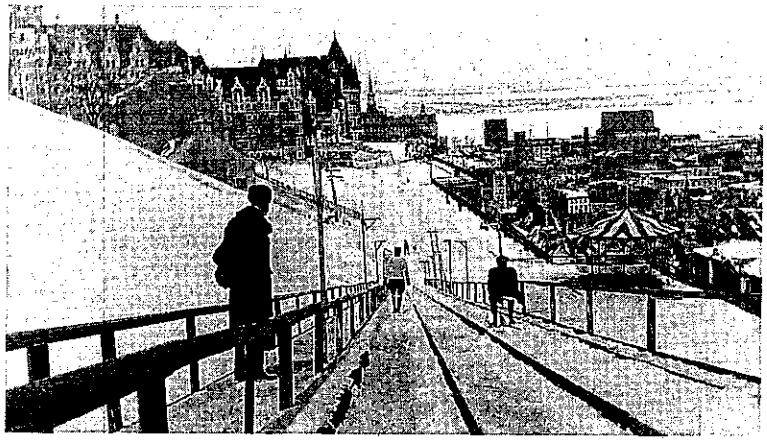
V. Transportation

a) *Reducing the Necessity to Walk*
Under adverse conditions, it is desirable to either minimize or entirely eliminate the necessity to be outdoors.



A typical "spark" or Norwegian kick-sled adapted for summer use (with wheels).
Photo: N. Pressman.

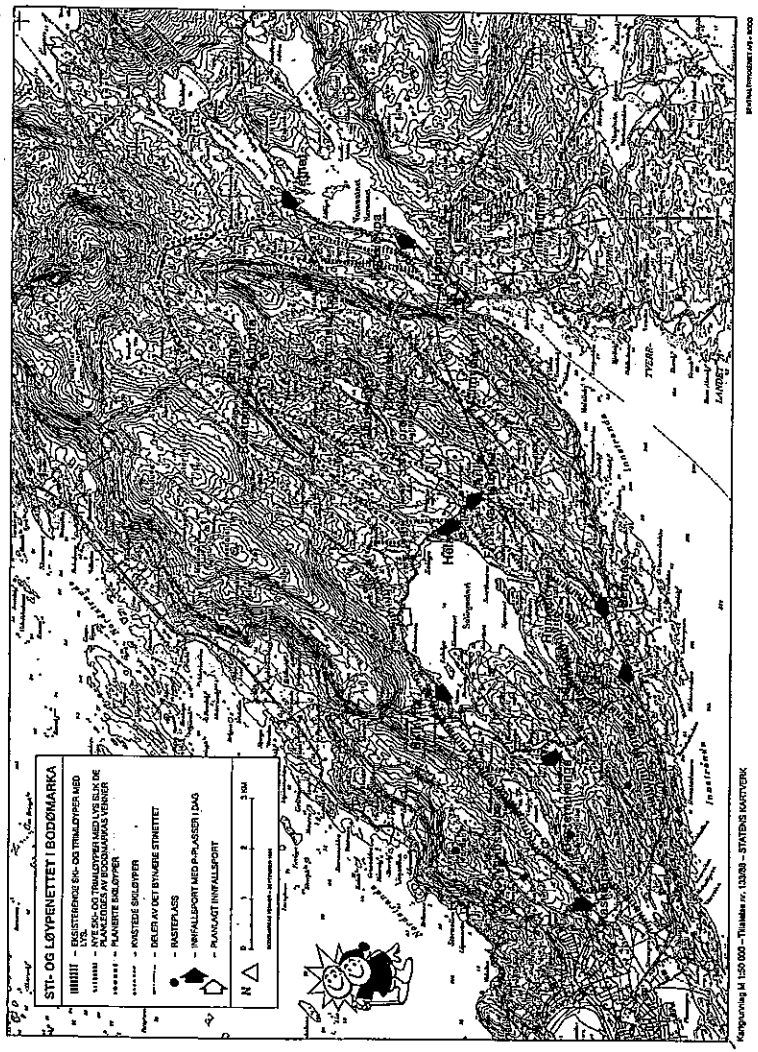
Ottawa-Hull, Canada – Winterlude/Bal de Neige where people enjoy winter to its fullest.
Photo: J. P. Fauteux and Ville de Hull.



Skiing Down the Toboggan Slide – Dufferin Terrace, Québec City.
Photo: Notman Photographic Archives, McCord Museum of Canadian History (by permission).

Skating Rink on Montréal Harbour (c. 1870).
Photo: Notman Photographic Archives, McCord Museum of Canadian History (by permission).

Rideau Canal, Ottawa, in Winter.
(One of the world's longest skating rinks).
Photo: NCC/CCN – Ottawa.



Ski Trails in Norwegian Towns. The 110 year old "Skiforeningen" grooms 2,400 kms. of cross-country trails in the Greater Oslo Region with about 200 kms. being illuminated.
Photo: Skiforeningen, Oslo.

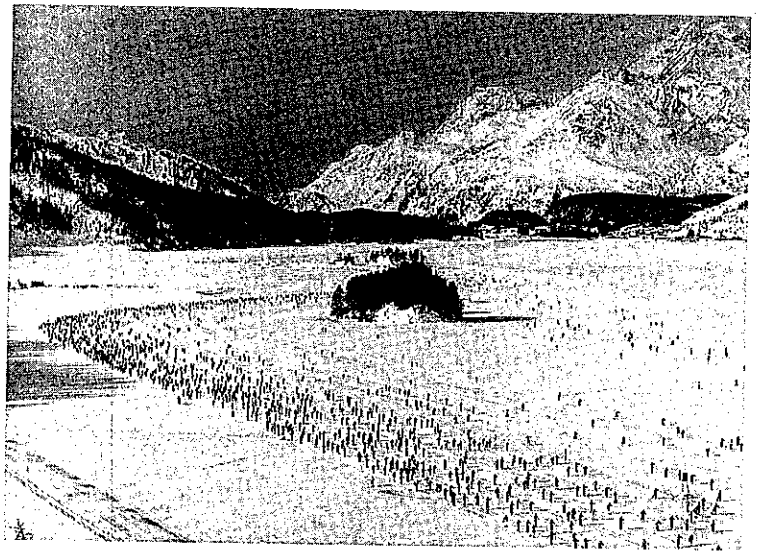
This can be achieved through linked public and semi-private spaces using gallerias, passages, arcades, etc. which run through buildings (used by the public) and between them, offering protection in varying degrees.

b) *Emphasis on Snow Removal*
Effective methods for snow removal and disposal at city-wide and neighbourhood levels will continue to flourish. Snow-melting devices for roof surfaces, sidewalks, driveways, roads, and public spaces (Japan is a leader in these developments) will be applied on a broader scale than we have witnessed in the past.

c) *Improved Public Transit*
Bus service will have to shift schedules in response to seasonal demands (more frequent service with shorter waiting times in winter). Better accessibility, especially in suburban areas, will be essential to reduce walking distances and waiting times. Heated shelters are desired at intensively used stops and at interchange stations (from bus to subway/train, etc.). Reduced dependency on the motor car might be worth considering, if accompanied by highly efficient public transit, especially in areas where winters are harsh and lengthy. A healthy balance between land uses (particularly residences and employment) can assist in minimizing travel distances.

To summarize, according to the prevailing trends which are slowly and gradually producing a catalogue of winter-oriented interventions, the most important principle is to *integrate*, rather than isolate, people with their environment. Living *with* winter not in spite of it should be the planners' motto. As Hans Blumenfeld so eloquently wrote:

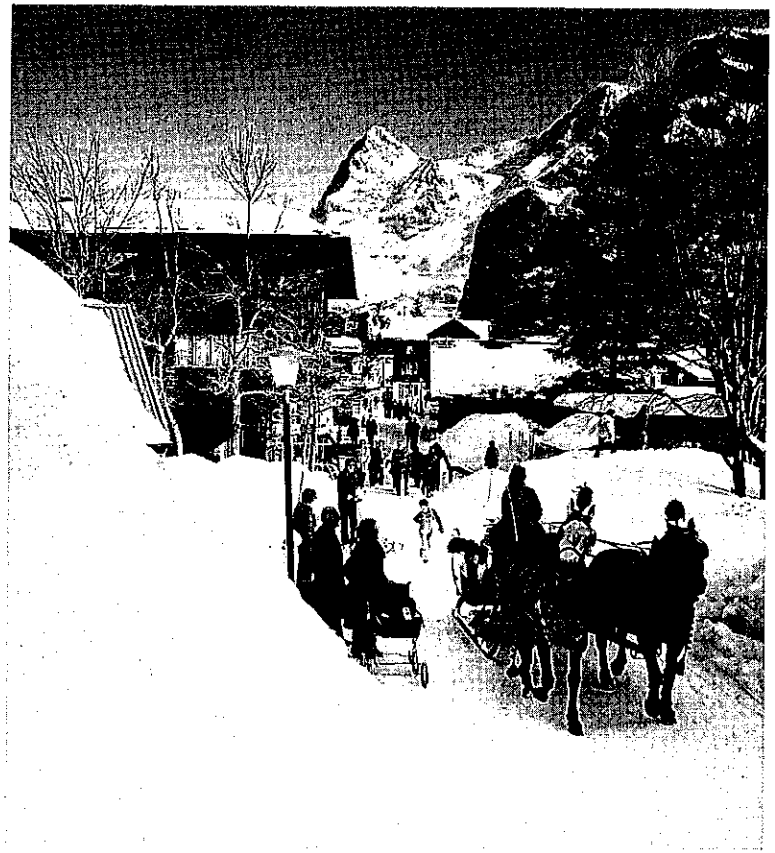
> Complete exclusion of winter from the city is not a serious option; partial exclusion has to be sought. It can pursue



Engadine Skimarathon at Lake Sils, Switzerland.

On the 2nd Sunday in March, up to 12,000 skiers traverse 42 kms. of cross-country trails from Maloja to Zuoz/S-chanf, the largest annual sport event in the Alps – the way to enjoy winter.

Photo: Swiss National Tourist Office.



Mürren, Switzerland (Bernese Oberland).

One of the numerous "traffic-free" villages situated at an elevation of 1650 metres. With no pollution from cars, an idyllic winter environment can be maintained.

Photo: Swiss National Tourist Office.

> two routes, jointly or separately. First, part, but not all of winter's negative aspects can be eliminated throughout the city; second, all can be eliminated from parts of the city (Blumenfeld, 1985, p. 48).

Leitmotifs for Humanistic Design

Despite the intensity of new building activity in the northern-latitude nations, design tendencies generally appear to reflect turmoil rather than consistency. Construction technologies seem to be the most potent sources of inspiration. Major conflicts persist in terms of expression between *organic-regionalism* and *internationalism*, on the one hand, and between *romanticism* and *realism*, on the other hand. A wide spectrum of ideologically rooted approaches has been apparent and is manifested as a kind of 'cultural eclecticism' in the wake of stylistic pluralism embracing elements of *pragmatism, playfulness, vernacular folk tradition*, and an *association of connections* between traditional architectonic and urbanistic concepts spiced with the 'myth of Arctic clarity' (Byggekunst, 1986, pp. N23-N24).

> Stylistic pluralism is by no means the sign of cultural prosperity, happiness, democracy and richness. It results from the confusion of artistic means and categories; it also results from the confusion of artistic and industrial techniques. It results from the destruction of cultural traditions and ethnic identities. Cultural pluralism marks the moment where idiosyncratic private interests and obsessions replace common and public culture (Krier, 1985, p. 57)

Often these conflicting views have as their goal the creation of authenticity which derives from cultural values and emphasizes the unique characteristics of *function* and *place* – the essential conditions for spiritually meaningful art.

Building and space are searching for artistic form which is intimately linked to socio-historical time. They want to 'belong' to their respective environments while simultaneously acknowledging external impulses, thereby seeking a theoretical framework based on phenomenological interpretation. A tension can be sensed between design which springs from *functional pragmatism* and *technological possibilities*, and design which is revelatory and evocative of *place* and *timelessness*. If artistic creation can be viewed as an expression of symbolic intent embodied in material form, then this tension suggests the cultural duality of 'being as having' versus 'being as meaning'. Such dilemmas should be seen positively, for without their existence there would be little dialogue and the essential fuel of intellectual ferment would cease to be present.

Two additional dichotomies further exacerbate the problem of developing a 'grammar for the north'. They are the almost mutually exclusive forces of *privacy* (in dwelling) versus *community*, and *indoor* versus *outdoor* semi-public and public space. The proliferation of single-family detached houses (rather than multi-family forms of collective habitation) are indicative of the former while 'glazed-over' galleria projects are demonstrative of the latter trend towards enclosure. The real challenge confronting urbanism and landscape design under harsh circumstances will be to create an *architecture of 'in-between'*, mediating between these opposing propensities, and devising intermediate spaces of climatic and experiential transition.

> Real life takes place in the alternative between life indoors and life outdoors. Thus a double desire appears: to be inside, to be outside ... The satisfaction of this double desire leads to a pleasure, a certain way of regenerating oneself. It seems that this pleasure has not been used consciously in architecture (Sauzet, 1987, p. 60).

The steady erosion of public space and urban place – especially in North American communities – is occurring because local governments are 'bargaining away' civic space for urban redevelopment; making concessions to private developers who are agreeing to provide 'gallerias' which, at best, can only be understood as semi-private or private realm and in which users are allowed access on a selective basis. Private security guards employed by the owners of these shopping gallerias control and monitor all activity – and users – not concerned directly with consumer transactions. Unquestionably, these are private spaces, par excellence, inhibiting the spontaneity which is endemic to genuine public place and civic life. Whatever the reasons for this demise of the public domain, particularly in harsh, climatic circumstances where subtle levels of protection are required – even during the marginal seasons – we require a hierarchy of spatial networks ranging, on the one hand, from enclosed to open-air, and on the other hand, from public to private.

> Between the absolute privacy and the absolute publicity there are (or should be) a number of semi-public possibilities where we can choose our ways and levels of interaction, the momentary balances between anonymity and intimacy, repose and provocation (Torsson 1982).

It has been said that:

> Western philosophy emphasizes deductive reasoning, excluding the senses from the realm of intelligence ... There must, however ... be a balance between reason and intuition for us to experience our environment fully. If we are denied the sensory awareness of temperature variation, the transient qualities of colour and texture in the landscape, changes in natural light, and the inconsistencies of wind movement, the result is a perversely cruel form of isolation – a slow death, one might say (Sandisser, 1985, p. 26).

Swedish artist, Richard Bergh, in 1902 wrote:

> It is not so important that all small nations make immediate and astonishing contributions to the great culture ... it is, on the contrary, of major importance that they develop independently and logically from their own roots, working with subjects which especially suit them – in order little by little, and in an original way, to grow part of the larger organism, and address its variety from an original and vital perspective (cited in Nasgaard, 1984, p. 158).

Bergh's ideas were generally accepted by the artistic communities throughout Scandinavia, and Canada as well, but they had little impact upon urbanism or town planning. Except for some brilliant proposals (usually not executed in their entirety) by Ralph Erskine, a uniquely "northern" urbanism can hardly be said to exist. Most professional energy has been directed toward the "warmer" seasons. Designers, on the whole, have not embraced the tradition of "seasonally-based development".

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