Urban Space
Urban Psychology
Urban Design

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L'article qui suit explore l'impact psychologique des différentes approches de l'architecture et de l'aménagement urbain et suggère diverses raisons expliquant le mécontentement actuel envers la vie urbaine, ainsi que différentes alternatives pour palier à cette situation.

The design of our cities is a vastly complex task, one that we today seem less able to master than in earlier times. Cities throughout the world are becoming geographically larger and architecturally more intricate each decade, as more of the world's population migrates to these urban centres. The implications of this are profound for both society and the individual.

Much negative commentary has been given about the experience of living in cities, including the impact of crowding, crime, pollution, social collapse, and "unfriendly" sterile architecture. Particularly critical of the experience of living in cities have been people such as Milgram, who, in outlining these experiences, paints a rather bleak picture involving stimulus overload, fast tempo, lack of social responsibility and trust, and anonymity. Others, including Kevin Lynch and Downs and Stea, have written of the disorienting character of cities and of people's difficulty in forming meaningful impressions of urban space.

One's perception of a city is determined by a variety of experiences and images, including those formed by viewing the skyline at a distance (e.g. Manhattan from across the Hudson), driving through city streets, and experiencing buildings and spaces from the pedestrian perspective. It is important to have a strong awareness of each of these scales of perspective when addressing the design of cities.

In 1896 Louis Sullivan wrote his essay entitled "The Tall Office Building Artistically Considered". He discussed the importance of looking at the verticality of the new building type with a sensitivity to scale -- realizing that a building has a tripartite division of bottom (street-level), middle (a number of identical repeated cells) and top (attic). This concern for scale has more recently been raised by Calgary architect Dan Jenkins: "The lower levels belong to the street. The scale, materials, rhythms and uses at street level should relate to the pedestrian. The body of the building should be expressive of the main uses of the building while the top belongs to the skyline of the city."[1]

Of primary importance to these scales is that of the pedestrian, but unfortunately this has not been respected and our modern cities have assumed the unfriendly character of the 'concrete jungle'. Although planners have attempted to create usable and aesthetically pleasing spaces, and architects have striven to put 'meaning' into their buildings, these designers have not always succeeded, except perhaps in the eyes of themselves and their colleagues. Those who shape our cities seem to have missed the point that the design of urban space is a problem of understanding the requirements of the inhabitants within the given context of site, climate and culture.

URBAN SPACE

The design of cities, while always a complex undertaking, has altered in approach throughout history. Greek architecture was the expression of a balanced community in which the essential religious and civic institutions remained the stable ingredient. In the design of their urban spaces the Greeks employed a conception of space that was highly calculated (e.g. the Sacred Way), yet relatively free from enclosure. The Romans' approach to design was based on an engineered ideal. Roman architecture was an urban affair, a combination of urbanization and colonization. Their conception of space in architecture and urban design favoured enclosure. It is interesting to note that while Roman cities in general were built in a somewhat informal fashion, the military camps (Castrums) were rapidly assembled by employing a regular, functional grid-plan. The use of such a grid network for planning is seen again much later in the land surveys of North America, where it is applied for its simplicity.

The Middle Ages saw urban centres composed of closely packed aggregations of houses and craftsmen's shops situated around an area of common interest, where the cathedral and municipal palace were to be found, and where markets and fairs were held. Streets were 'planned' organically on a roughly radiocentric pattern, and were usually narrow and crooked in character. Necessity led to the rediscovery of the ancient safeguard of the wall, which encircled the town. The Medieval conception of space was thus one of intimate enclosure. Given the powerful wall and the dense living conditions, it seems understandable that the inhabitants perceived their city as world. The slow organic growth of their built environment offered sufficient time for prehension, as well as promoting the translation of the 'spirit of the time' into built form (Fig. 1). Saarinen, in his classic book on the city, discusses the notion of high correlation of building, that is, the contextual nature of design. Many architects today, inspired by the theoretical explorations of the Kriers, have again

figure 1

looked to the urban design of the Middle Ages. Medieval buildings were constructed one beside the other, with awareness and respect toward the atmosphere of the whole area, and building practice was guided by unwritten beliefs and traditions that directed society.

The humanist society of the Renaissance took a conscientious view of the city as the heart of an organized society and as the visible expression of the functions of that society. The impulse toward the assertion of individuality (versus Medieval communality) was gaining strength, expressed in the ideal of personal achievement in both thought and action (Fig. 2). The desire to find out how things worked led experimentalists to explore the world around them. Starting with the notion of a unitary space of geometrical structure in which all of the values were interrelated, it was impossible not to see the need for a proportional relationship between the buildings situated in that space. In urban design, the novelty of the concept of space lay in the fact that perspective was no longer considered to be the law of vision but rather the constructive rule of the space itself. Consequently, this principle became important for the distribution of buildings in the design of cities.

By the Industrial Period, capitalism had altered the balance of power in Europe. New forces in the city had arisen, in the form of industrialists, bankers and mechanical inventors. A competitive open market for labour and for the sale of goods was established. The notion of mathematics and the order it implies took hold in many aspects of the society, including architecture and urban design. A need for larger span buildings, to satisfy the demands of industrialization, and the capacity of such new materials as cast iron and plate glass, led to an architecture which was uninhibited by formal stylistic constraints (Fig. 3). City planning was undertaken by engineers and surveyors, who imposed rational mathematical approaches to ensure order in the rapidly expanding urban centres. The planning which prevailed was based on the monotonous grid plan of straight roads and right-angled intersections, regardless of topography. When transferred to the new world, this grid-iron presented the means of breaking traditional social and environmental ties, allowing for a new emphasis on independence, mobility and rationality. Jackson has discussed the early influences of Newtonian thought in Europe, noting that, in terms of space, it was in the New World that the new order first manifested itself, inspiring a society based on the predictable and orderly movements of independent, equal individuals, each occupying a portion of the infinite, undifferentiated space made visible in the National Land Survey of 1785.

The Modern Period begins at the turn of the century, with its ideal of the city of openness and unlimited space. In this age the world has become the city, in contrast to the Medieval concept of city as world. Technology, communication and transport have effectively made the obstacle of distance obsolete and have promoted the notion of the global village. One consequence of this improved communication has been the creation of a universal design philosophy -- for example, a highrise in Tehran is the same as a highrise in Los Angeles, despite the obvious cultural differences between the two places.

The modern age promoted ideas of the machine -- functionalism, efficiency and the future. The Futurists' notions of speed and streamlining were embraced. The machine aesthetic and new technology left no room for the decadent embellishment of buildings with ornament, even though the use of applied decoration had been an aspect of architecture since the first cave-dwellings. The modern age had no use for the trappings of history, even though the collective memory of society (civilization) may have been 'written' into those trappings. The Modernists felt it necessary to wipe the slate clean, to go back to zero. In modern design the surface of the buildings became secondary to the space, the open plan, and movement. The conception of space was one of interpenetration, of the programme as product, and of the three-dimensional expression of utilitarian needs (Fig. 4).

figure 2

figure 3

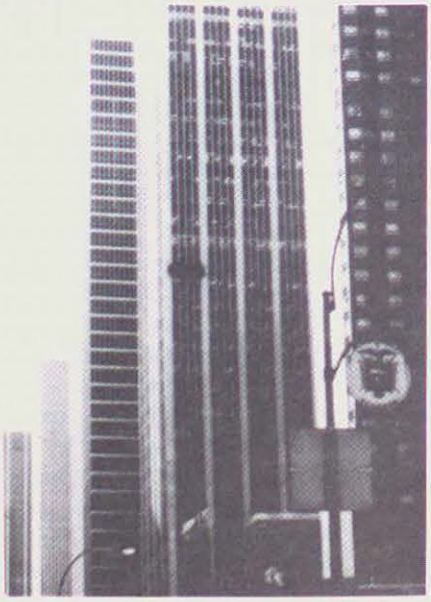


figure 4

URBAN PSYCHOLOGY

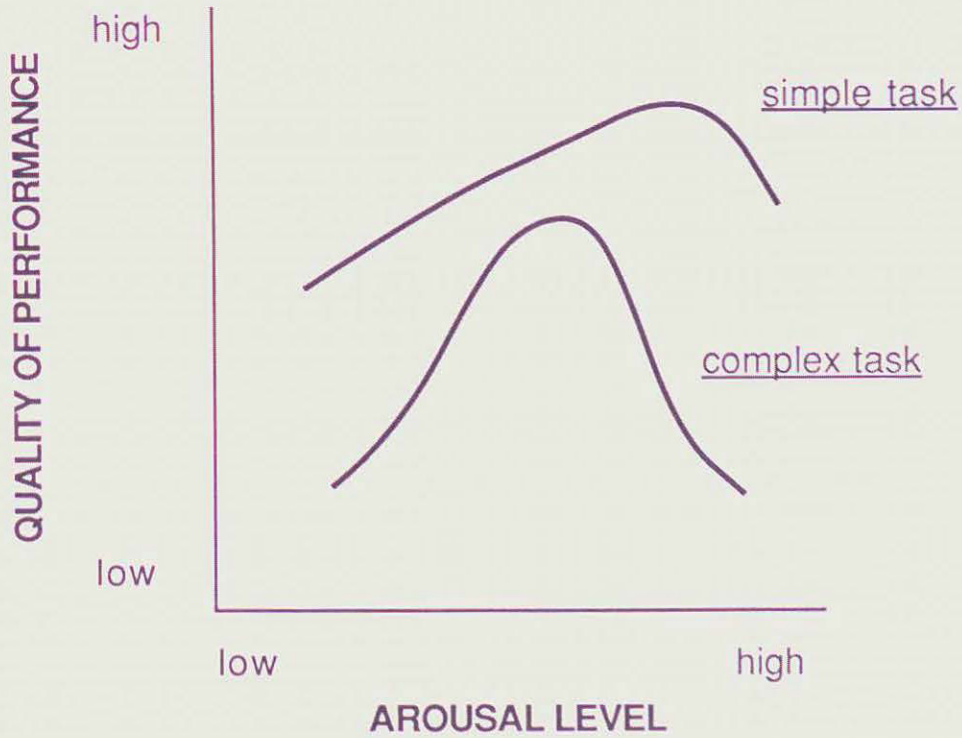
The impressions given to the urban dweller by buildings -- from small structures to soaring skyscrapers -- have an important psychological impact, even though in many cases this may be at an unconscious level. An ancient city in Europe may convey impressions of the distant past, with a proud history reflected in monuments, fountains and buildings. In contrast, the modern North America city with shiny glass and steel buildings, devoid of ornamentation and historical content, may convey a message of a clean, mechanized world, almost futuristic in nature; but does this architecture convey anything beyond this mechanization and a seemingly sterile past, present and future?

A variety of experts -- planners, architects, politicians, and developers -- have together determined what cities should be and what form they should take. Only recently have social scientists become part of this team. The field of environmental psychology (a relatively new discipline) suggests there is a real need to better understand how the urban environment influences human behaviour. The incredibly complex dynamics of the city make an understanding of urban psychology very difficult, yet such an understanding is essential. Alberta architect Peter Hemingway notes, "Now we need to dispense with the tyranny of style and explore the psychological and biological aspects of culture much more vigorously and with all the knowledge and commitment we can muster."[2]

The perception of our urban environment is an active process. Such environments stimulate all our senses and surround us completely as we experience them. While immersed in the city we are constantly exposed to sensory stimulation -- frequently to the point of overload -- whether it be excessive noise, visual clutter, air pollution, or crowding. Yet for many people the city provides an exciting environment. Milgram suggests that cities have great appeal because of their variety, eventfulness, diversity, and the stimulation they provide. For many others, however, the city is an overwhelming environment, often to the point of inducing frustration, anxiety, and withdrawal. The schizophrenia of city dwelling is perhaps best illustrated in Manhattan -- an urban centre which provides the best and the worst characteristics of city life.

Individual differences in response to the urban environment can be understood in terms of the concept of optimal level of arousal, which seems to influence many aspects of human existence. The Yerkes-Dodson Law shows that performance is optimal at an intermediate level of arousal, and diminishes progressively as the arousal level falls below or rises above this intermediate level (Fig. 5). While the optimum is similar for many people, there are, of course, the expected individual differences.

These conclusions are consistent with Berlyne's investigations into stimulation and drive. He defines drive as a "condition whose termination or alleviation is rewarding." Notions of stimulation can be viewed in relation to drive states. Berlyne explains phenomena such as curiosity, exploration, and the effects of sensory deprivation by assuming a curvilinear relationship between drive level and extent or variety of stimulation. He postulates four factors which determine the 'pleasingness' or positive attraction to a stimulus or an environ-



performance versus arousal level

figure 5

ment -- novelty, complexity, surprisingness, and incongruity. (Berlyne calls these 'collative' properties of a stimulus.) His research indicates that intermediate levels of each of these properties seem most desirable in terms of human preference. The average individual would experience this, for example, when driving along a roadway. A highway with relatively little stimulation -- no trees, no curves, no scenery to examine-- constitutes a boring environment. Driving in a very busy city, in contrast, with heavy traffic, information from traffic control devices, numerous buildings and complex surroundings may be overwhelming (Fig. 6). It would seem that the urban designer must explore these extremes in order to understand how to design better cities, cities that provide optimal conditions in this regard.

Information processing theorists frequently talk about channel capacity, overload, and complexity of stimulation in terms of the 'rate of information', or the number of noticeable differences per unit of time. Obviously both speed of movement and the number of noticeable differences both play an important role in the perception of complexity. The speed of movement in the environment influences perception of time and distance, both of which seem to be related to the flow of information. Clearly, pedestrians and motorists perceive the urban environment very differently. Driving a vehicle through an urban environment involves not only rapid movement, but also demands a level of concentration which leaves relatively little time or capacity to appreciate a complex environment. Pedestrians, on the other hand, move at a much more leisurely pace, stopping as desired in order to take in the environment around them, and to view it from various perspectives. Very often large buildings pay little attention to the perceptual and cognitive needs of the pedestrian. They present large plain concrete walls which have virtually no variation in these lower two or three stories which are of interest to the pedestrian. The visual requirements of the speeding motorist and the strolling pedestrian are incompatible.

The city of a few centuries ago was built to a pedestrian scale, whereas today's modern city tends to be built on a scale suitable for rapidly moving traffic. Because the effects of speed and scale have generally been neglected in recent times, the levels of complexity selected in planning and design decisions are frequently inappropriate. People may either ignore or become confused by an inappropriate environment.

Architecture is currently in a state of transition, one which has been referred to as an evolution, rather than the more radical revolution. New trends in architectural thinking, grouped under the loosely defined title of Post-Modernism, reject the austerity and abstraction of orthodox modernism and seek instead a return to complexity, to ornament, to the picturesque, and to the use of elements from the past. In manifestations of Post-Modernism we see an array of expressions -- of neostyles, of historicisms, of mannerisms. After a long and all-encompassing period of suppression under Modernism, the need for complexity and interest in architecture is again being expressed. A reaction such as Post-Modernism is providing seemed inevitable; Eberhard Zeidler has noted that "New directions in architecture always appear when the ruling style seems to calcify in its own dogma."[3] Post-Modern design, whether a protest against Modernist ideology or simply against banality, has embraced those elements of novelty, complexity, surprisingness, and incongruity that Berlyne suggests are important in our environments.

Rapaport, in his book Human Aspects of Urban Form, stresses the importance of environmental perception. He sees perception as "the most fundamental mechanism linking people and environments -- the all-pervasive process involved in man-environment interaction."[4] He points out the importance of environmental complexity,

figure 6

figure 7

which can be obtained through ambiguity, in the sense of a multiplicity of meanings, or through the use of varied, rich and even mysterious environments (Fig. 7).

Today many architects are talking about architecture and urban design as expressing 'meaning' in the sense that music or poetry does. However contemporary this debate seems, it has been a recurrent theme through history. The richness of architecture and of meaning has often been discussed by critics. Goethe put forward his dictum that architecture was 'frozen music'. J.F. Blondel was one of the first theorists to assert that good architecture not only communicates, but it becomes 'analogous to poetry'. James Fergusson, in his 1849 publication The Principles of Beauty in Art (contemporary with Ruskin's Seven Lamps of Architecture), argues that eloquence, poetry, and drama were the highest forms of art, and that only the ornamental aspects of architecture could approach the phonetic qualities of such art.

It seems then, that it is possible to view architecture as possessing some of the characteristics or qualities of poetry, or perhaps of language in general. As in language, architecture must follow an ordering system. Michael Graves suggests there is both a standard form and a poetic form in any language or art. The poetic forms in architecture "are sensitive to the figurative, associative, and anthropomorphic attitudes of a culture."[5] The poetic form of architecture is responsive to issues external to building, incorporating the three-dimensional expression of society's myths and rituals. Greenburg has indicated "it is the role of the architect to aid in the realization of society's aspirations by designing buildings which express the meaning and significance of the institutions they house."[6] It seems clear that some aspect of 'meaning' is an important function of architecture, and that design should attempt to reflect more than simply the function of the building or city. We must lift architecture above mere functionalism, and create buildings for individual people and their associated cultures.

It is interesting to look to history for a better understanding of the role of ornament and embellishment in architectural meaning and language. At the end of the last century a number of architects and critics were expressing concern about the state of architecture, claiming that an architecture which relied on historical style and decoration was somehow unclean and decadent, even immoral. The Industrial Revolution had made the machine a central influence, not only in architecture but in many other fields also. Louis Sullivan's notion of 'form follows function', when combined with Adolf Loos' manifesto that 'ornament is a crime', helped to bring an end to the orgy of Victorian Ornamentalism.

The Modern Movement, rather than having a language based on the expressive ornamental elements that referred to man and to nature, thought it more appropriate that the new age wipe the slate clean of history and to go back to zero. The new architecture was an architecture of space, with little concern for the elements of enclosure which provide the symbolic substance we require in our environments. The Modern Movement based itself largely on technology and the expression of technology, on what Graves has referred to as the internal language of architecture. He notes that "in its rejection of the human or anthropomorphic representation of previous architecture, the Modern Movement undermined the poetic form in favour of nonfigural, abstract geometries."[7]

The new approach stressed the functional aspects of architecture, seeming to neglect the realization that architecture should derive not only from pragmatic necessity but also from evolved symbolic sources based in religion, science, myth and tradition. Thus the Modern Movement severed the continuity of architecture's collective memory, the notion that architecture is in constant evolution, with each

period or style, drawing on and learning from previous works. This collective memory had in many ways been communicated through the use of ornament and embellishment: it was a kind of unwritten but understood communicator of meaning and the past (Fig. 8). Some contemporary critics would argue that the mass media has rendered communication through ornament obsolete. In contrast to Modernism, the Post-Modern Movement looks back into the past to try to understand and perhaps reconnect with that collective memory.

The American writer and critic Henry Hope Reed argued against Modernism, calling is a "cancer destroying visual America." Where the Victorian period had engaged in excessive embellishment, the Modern Movement was engaging in excessive banality. From a perceptual viewpoint, the Modernists' environment was starving the people of stimulation -- and creating a dry state that needed satiation. Aware of the problems of Modernism, Robert Venturi wrote Complexity and Contradiction in Architecture. In his book he set up a series of 'visual preferences' that were in opposition to Modernism: complexity and contradiction versus simplification; ambiguity and tensions versus straight-forwardness; doubly functioning elements versus singly working ones; hybrid versus pure elements; messy vitality versus obvious unity. In Venturi's 'gentle manifesto', the Modernist Mies van der Rohe's dictum 'less-is-more' is transformed into the Post-Modernists' 'less-is-bore'. In response to a perceived need for greater complexity in architecture some theorists, such as Smith, suggest that urban dwellers have needs that are both intellectual and emotional, with aesthetic experience that necessitates mental stimulation through surprise, ambiguity and complexity. Venturi notes that, while architecture is necessarily complex and contradictory through its inclusion of traditional Vitruvian elements (firmness, commodity, delight), the Modern Movement failed to realize the importance of such complexity. Today's society is rich and multi-faceted, and Post-Modernism attempts to capture this character through the use of ornament and historical reference. Perhaps the best known example of this historicism in a large building is Johnson's AT&T building in New York City -- with a grand arch at the base and a mammoth Chippendale roofline. While the suitability of Johnson's historical references are questionable, the important value of the AT&T building is the precedent it sets in breaking from the glass-box routine.

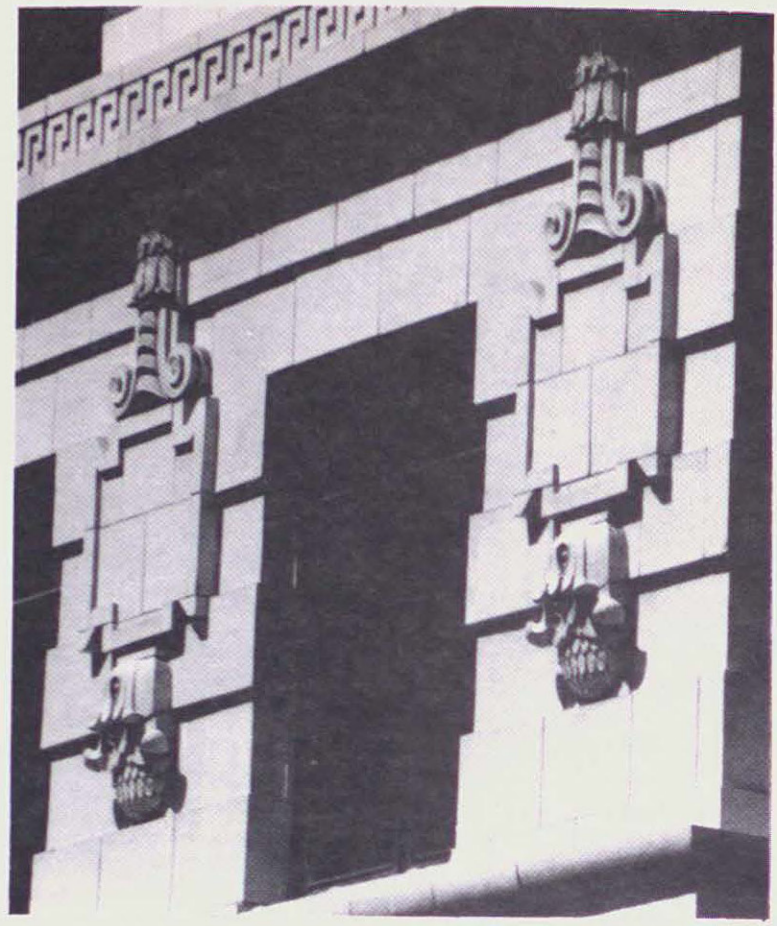


figure 8

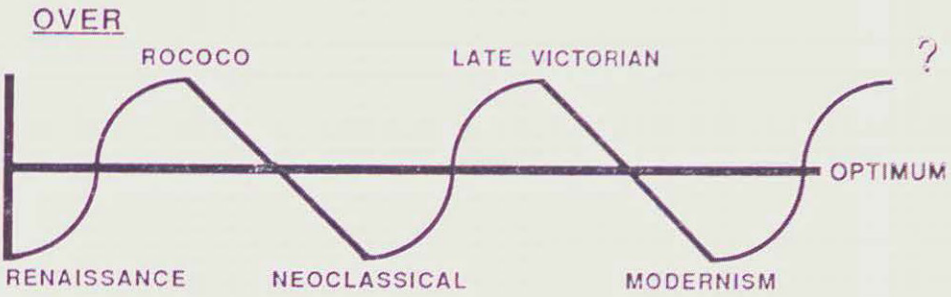
Jensen & Conway have discussed the re-emergence of ornament in architecture, stating that, "after more than a generation of glass-boxes, white walls, and functional design, the validity of decorativeness as an idea is being reaffirmed. A growing number of architects, designers, and artists are consciously breaking one of the rules in which they themselves have been trained; they are violating the Modernist prescription against ornament."[8] Ornamentalism is growing, with its fascination with the surface of things, with elaboration, with borrowing, with sensory stimulation. Carr argues that a delicate balance must be achieved between complexity and order. This pertains at the level of both the individual building and the city.

While a degree of complexity is needed, urban designers must also strive to create an identifiable, understandable and meaningful environment. The notion of the understanding, or "legibility", of a city has been addressed by a number of theorists including Kevin Lynch. In his Image of the City, Lynch suggests five major factors or components which contribute to the legibility of a city. These include paths (e.g. streets), edges (e.g. shorelines, rivers), districts (identifiable areas of a city easily differentiated from one another), nodes (focal points), and landmarks (major buildings or structures). A city having more identifiable elements than another city will be more readily comprehensible, and it will be psychologically more comfortable for both inhabitants and visitors. Initial impressions and ease of orientation in the environment have a major impact on our feeling of comfort or of alienation within that environment. The way in which we perceive and form mental images of the buildings and spaces of our cities determines our attitudes toward them. It is therefore important that those responsible for urban planning and urban forms realize the psychological requirements to be satisfied in order that citizens comprehend their physical environment and feel a part of it.

URBAN DESIGN

Through the examination of the history and psychology of urban space, it can be seen that various approaches to urban design have had differing degrees of success in terms of 'pleasingness' to the user. Throughout the history of architecture design has gone through phases of attempting to meet the psychological needs of optimal level of arousal through building complexity and variety (Fig. 9). A cycle begins with some design conventions being

established -- the Renaissance approach to design, for example. Designers work within these conventions for a period of time, exploring the possibilities thereof. Soon these are exhausted and designs introduce a more inventive complexity as found in Baroque architecture, for example. In the Rococo Period, design became ornate and complex -- perhaps overly complicated. In a revolt against the excesses of such architecture, design is then altered dramatically. It is simplified and again brought under control by the severe rules of Neo-Classicism. The cycle continues, building up in complexity until the excessive eclecticism of, for example, the late Victorian era. We may conclude that problems arise from designs which offer too much stimulation, overloading even the most tolerant of the users.



architectural complexity cycle

figure 9

The Modernist reaction against Victorian embellishment and ornamentation was dramatic, but inevitable. Technology had changed drastically and social change was under way. It seemed that an architecture of ornament was unacceptable for the new age. Such an age called for guidance, and in architecture it was provided by the creed of Modernism. After World War II, however, the strict rules for the utopian dream of Modernist architecture lost potency. With the necessity of rapid post-war development, the economics of building became paramount, causing a decay in the quality of our cities. Ideal notions of Modernist planning, such as Unité d'habitation or Ville Radieuse, were superficially replicated by developers who both knew and cared little about the social concerns that underlay the original projects. As with previous movements and styles -- for Modernism was but another style -- the Modern Movement's dogma eventually waned. In most cities of the Western world, and especially in North America, the Modern or International Style produced hoards of 'less-is-more' buildings. As Tom Wolfe cynically notes, the streets were filled with "row after Mies van der row of glass boxes." But from a psychological point of view, the complexity of earlier periods had given way to the Modernist banality, to cities which were too often considered boring and unstimulating.

An example of the modernist extreme is the city of Calgary, Alberta, where in a very short period of time -- the Boom Years of the 1970's -- large numbers of plain glass buildings were erected, and these quickly dominated the skyline. Michael McMordie, in his introduction to Calgary Architecture: The Boom Years 1972-1982, notes that the first half of the boom years is characterized by an abundance of "second and third rate building." With the exception of a few curved corners and the odd variation in roofline, these buildings offered little in the way of stimulus, complexity or novel visual impact. At the same time the trend was to demolish old, architecturally interesting buildings which, by modern standards, were out of place, and which from a developers standpoint were uneconomical. Fortunately, a few of these buildings (e.g. the Courthouse and McDougall School) were saved and in some cases were integrated into the designs of newer buildings (e.g. Burns Building; Fig. 10). The change in attitude which allowed these historic projects to be preserved also roused a concern among architects regarding the quality of the large new developments. Thus the latter years of the boom period began to see an increase in buildings with architectural character, such as the Nova Building, Western Canadian Place (Fig. 11) and the Petro Canada Towers. Companies with

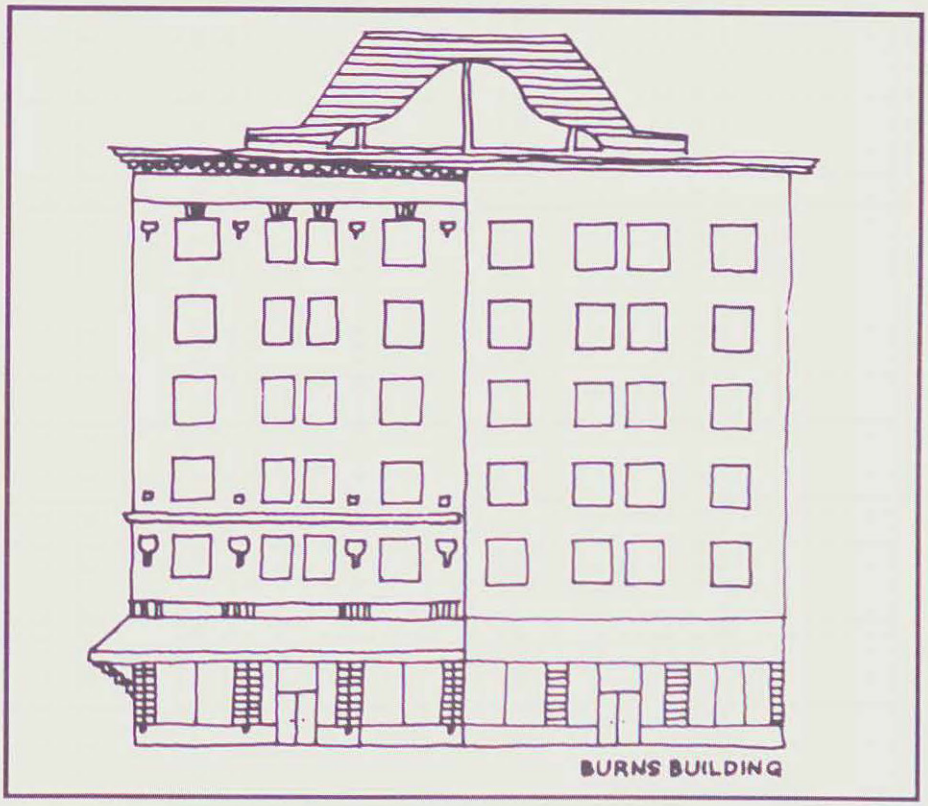


figure 10

headquarters in Calgary wanted to present a positive image through the quality of their office towers; and architects newly versed in the theories of Post-Modernism were willing to comply creatively to their clients' requests. Among the later projects, Western Canadian Place provided a dramatic galleria in the lower stories, a pleasant departure from the otherwise prevalent Modernist box, undifferentiated from bottom to top. A concern with the street (Fig. 12) is lacking in the sterile Calgary core which, except for a few pedestrian-oriented gestures such as the old Hudson Bay Building arcade, is geared at street level to the automobile. Jane Jacobs, in her book The Death and Life of Great American Cities, stresses the importance of city sidewalks in promoting "togetherness" and a sense of trust among city dwellers. Unfortunately the planning of the Calgary core intentionally separates pedestrians from the street by moving them 15 feet above grade into an enclosed circulation network (the Plus 15 System; Fig. 13). Although this system is relatively new and needs more time to develop, it appears at present to be of questionable value. It does offer protection from the harsh winter climate of Calgary, but it also seems to have a negative impact on urban street activity. Whether such a trade-off is acceptable remains debatable.

Another aspect which influences the "adequacy" of an urban environment is the climate. Cities in tropical parts of the world require reasonable protection from the sun by means of shade trees, air conditioning, etc. Countries which have long winters must of course design quite differently. A good physical solution to the harsh winter environment is the Plus 15 System found in Calgary and in Minneapolis. The system links numerous large buildings in the downtown with covered walkways, generally about 15 ft. above the road. These create a series of indoor walkways through and between buildings, which obviates the necessity for pedestrians to go outside. This is clearly an efficient way to escape cold weather, but experience shows that pedestrians may, as a result, have difficulty in orienting themselves within the city, since clues to the external environment are generally obscured by the walkway envelope. This orientation problem becomes even more acute in underground systems, where circulation is removed from the outside world. Such systems replace outside pedestrian movement and thus kill street activity, especially during inclement weather. Of course the merchants soon follow the pedestrians indoors, and so yet another aspect of street life disappears.

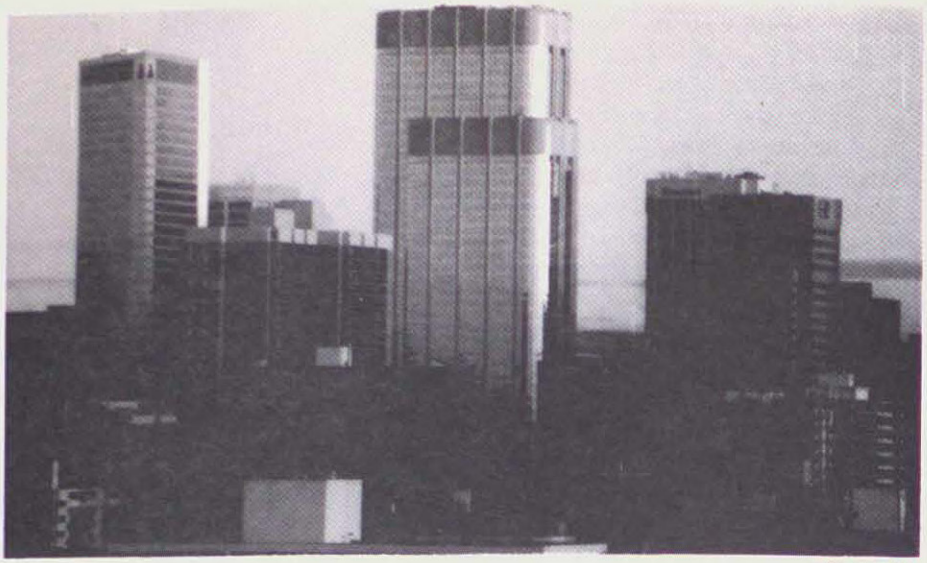


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figure 12

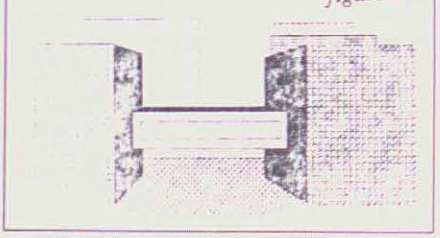

figure 13

The resulting dilemma is a difficult one -- does a city using such a network give up its street life to the automobile, or can a compromise be reached? Perhaps the circulation bridges in the Plus 15 System can be altered to interact more with the street. If the network is to be successful the design of the links will have to be improved. The bridges should be animated -- a continuation of the normal streetscape, such as Florence's Ponte Vecchio (Fig. 14) or the Venetian Ponte Rialto.

The use of color is another aspect often overlooked in the design of the urban environment. Many cities have their cores designed in a colorful and pleasant fashion in order to counteract the dullness of typically overcast conditions (e.g. Scandinavian cities). Visual complexity relates directly to color -- as to ornament -- and we need to find an optimal level of stimulation via color. In the dull grey light of a winter day in a northern city there is little visual stimulation which captures our interest.

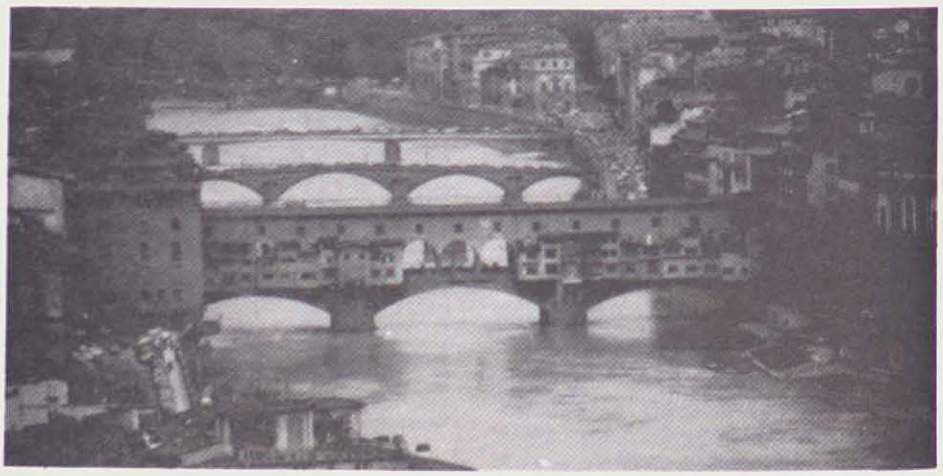

figure 14

Streets of grey concrete, aluminum facing and mirrored glass combine with the pale sky to produce a nondescript environment. Through sensitive cold-climate design promoting colorful detailing at street level and appropriate coniferous landscaping, our cities will be visually more comfortable all year. Fortunately interest in this aspect of design is growing. The First International Conference on "Winter Cities" (held recently in Edmonton, Alberta, under the joint sponsorship of the Canadian and American architectural associations) shows a new trend.

Legibility of urban environments varies considerably, but is generally more prominent in the older European cities than it is in their newer North American counterparts. Easily identifiable nodes, pathways, edges, and landmarks exist, for example, in the city of Paris (e.g. Eiffel Tower, Sacre Coeur, Centre Pompidou; Fig. 15). London, England, in contrast, with its composition of numerous small boroughs and winding streets does not offer so many easy views of distant landmarks. Paris, while also having a complex network of curving arteries, has imposed upon them the magnificently ordered system of Hausmann's boulevards. This balance of chaos and order, of complexity and simplicity, make Paris one of the world's most interesting and liveable cities.

In many urban centres, an abundance of anonymous "International Style" buildings adds to the problem of legibility. So much of the environment has taken on the same image that nothing stands out. Many of the larger cities in Asia (e.g. Singapore, Hong Kong; Fig. 16) are composed of sterile modern buildings of little character, and with little relationship to their contexts. Canadian architect Raymond Affleck has discussed this problem of 'International' architecture. "A 50-story building still has doorways, windows, a roof. It still exists at the street level and can be seen at a distance against the sky. It still has a bottom, a middle and a top. Its context has to do with the gathering together of a great many people in one place whether the building is in Hong Kong or Calgary. Despite these similarities, the differences between a huge Asian port and a young prairie

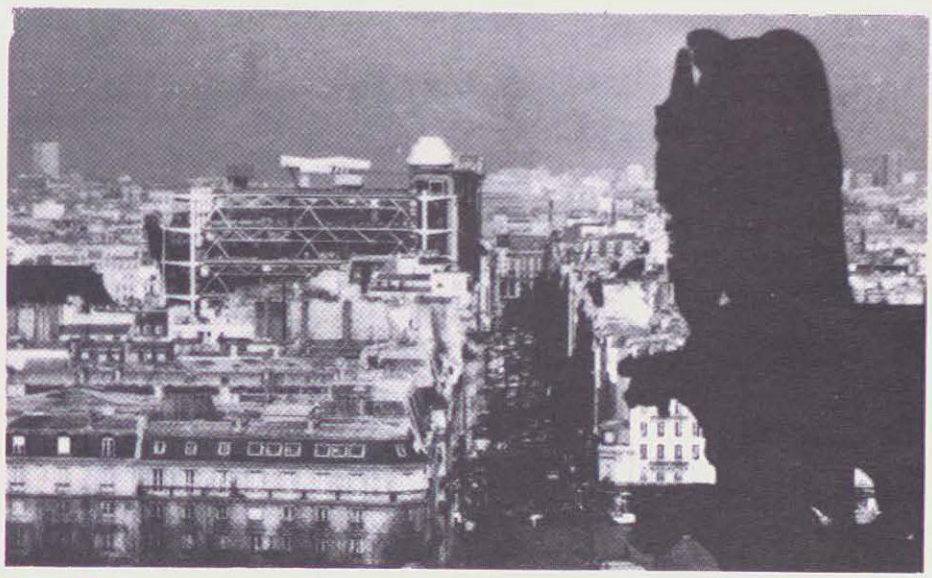

figure 15

figure 16

figure 17

city provide plenty of scope for architectural differentiations."[9] (Fig. 17)

Another aspect of urban design which makes certain cities more interesting is the planning of their street systems. In many North American cities a grid system of north-south and east-west streets forms rectangular blocks of approximately the same size (Fig. 18). Exceptions occur in some early twentieth century residential areas such as Montreal's Town of Mount Royal and Vancouver's Shaughnessy district and continue in many current suburban developments. In downtown Calgary or Edmonton, orientation is facilitated by the street numbering system. Calgary, for example, begins at Centre Street and Centre Avenue and extends in a quadrant system of streets running north and south and avenues running east and west. One knows, for example, that the corner of 5th Street and 24 Avenue N.W. is five blocks north and 24 blocks west of the downtown's center. This is helpful for orientation, since one cannot easily become lost if one can count. Exploring such a city, however, is hardly a challenging experience. In contrast, exploring almost any European city, no matter what its size, presents a challenge which yields a discovery at every corner. (Fig. 19) Small curving streets present a more complex and

figure 18

challenging environment for the tourist seeking adventure. Clearly some compromise between a highly structured street layout and a complex and unpredictable layout would be desirable.

The absence of meaning in modern architecture is a problem more difficult to resolve. It can be reasonably concluded that the variety of meaning in the modern buildings of today does not match the variety found in buildings of earlier centuries. Perhaps today's society is less adept at understanding meaning in contemporary buildings. In a pluralist society such as ours, there are so many options, so many myths, so many truths, that it becomes difficult to "speak" all the languages. In the Gothic Period, when the iconography of church architecture was of universal interest, this architecture presented messages through its design (soaring construction, use of light through stained glass, sculpture and statuary that informed the followers of the way of the church). Charles Jencks stressed the need for meaning in today's architecture by suggesting that architecture should ultimately signify a way of life, something the Modern Movement failed to do. Modernism ironically seemed to provide a simplified architecture for a more complex world.

An approach that demonstrates the principles described in the current paper is seen in an urban proposal designed by one of the authors, B.R. Sinclair (Fig. 20). In 'Project for Eau Claire', the context of grid-iron and Modernist highrises in Calgary presents a backdrop in which a large housing and public market development is set. Composed of a gently curving hemicircle of various sized units, the multi-leveled row housing system wraps around a market complex. The housing, reminiscent of Nash's Park Crescent, offers a clear break from the repetition of Calgary's downtown grid through its geometry. Through its form, the housing operates at several scales -- on the larger scale, easing the physical transition from the office towers of the core down to the Bow River, while at the pedestrian scale being attentive to complexity, orientation and detail.

Against the inner wall of the housing development runs a grade-level arcade, offering protection from the elements while allowing access to shops, cafés, and the housing units' common stairwell entrances. The arcade opens along its course to a grand tree-lined promenade, designed to the pedestrian scale. Attention is given to the psychological needs of the user through the design -- for example, variety of surfaces and materials, defined zones for various usages (circulation, cafés, sitting areas, etc.), level changes, varied fenestration, and use of symbols (e.g. celebration of entry via pediments). Separating the housing and promenade from the public market is the Canal, diverted into the district from the nearby river. The Canal provides both active (fountains, falls) and passive (ponds) sections. It acts as a common area to tie together the separate housing and market components, while simultaneously providing a clear physical and visual break. (Fig. 21)

The Market utilizes, through retrofit, a series of existing buildings (Transit Bus Barns). Against the homogeneity of these structures, and in reference to Industrial Age 'glass palaces', is set a large circular two-level glass conservatory. This building is an enclosed meeting space with restaurants, sitting spaces, gardens and open areas. It is the 'jewel in the rough', providing a warm and comfortable environment to be particularly appreciated on cold winter days. Its transparency allows those outside the building to observe the contents, thus aiding in identification and promoting entrance, while those on the inside are provided ease of orientation and entertaining views out to the market, promenade and housing beyond. The road system through the market intentionally meanders, slowing vehicular traffic, promoting exploration, providing some unexpected complexity, and acting to unify the individual market buildings. The total design scheme is sited in one of the few undeveloped areas remaining in the Calgary core. While the project covers a very large area, it attempts to deal with the more finite problems that arise from the difficult adjacency of office towers and pedestrian areas. The design of our urban centres must attend to these problems -- providing for exploration, orientation, security, visual interest and mean-

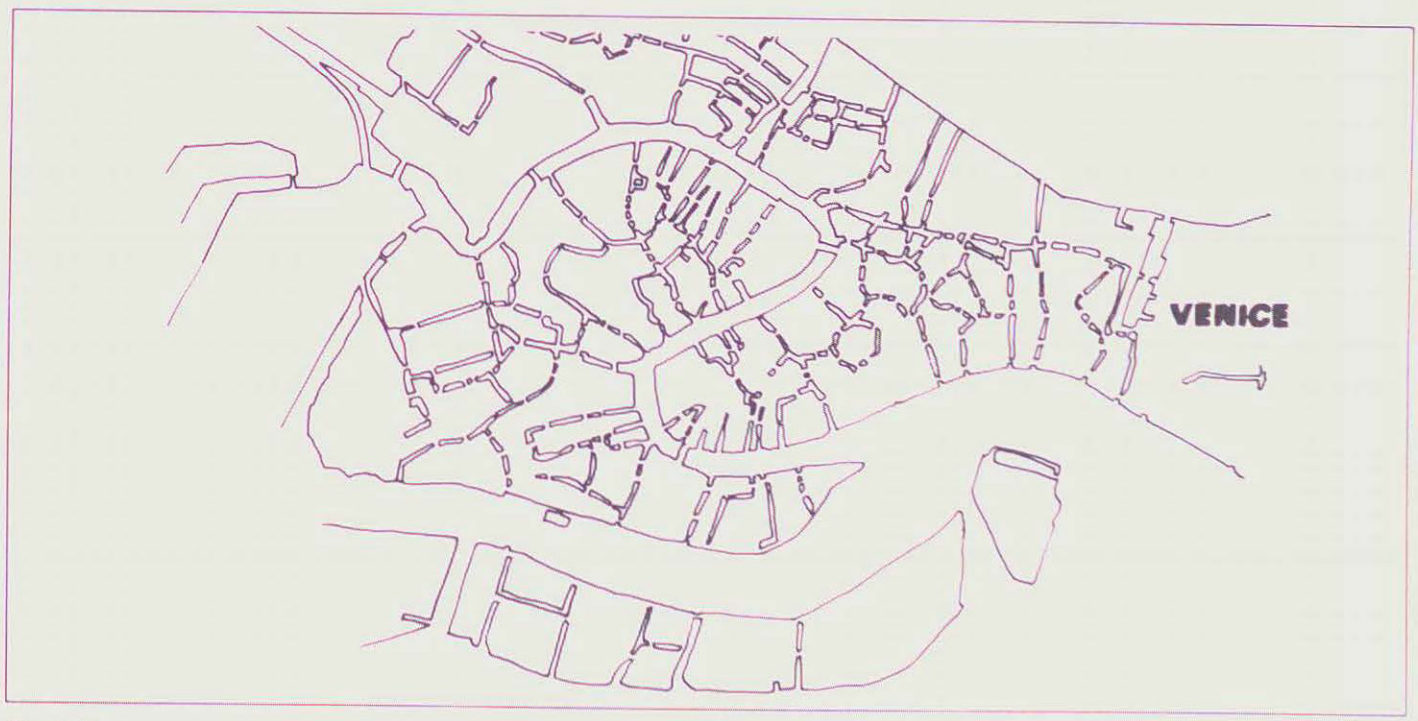

figure 19

ing -- all within the contextual banality which usually exists in these cities.

It is important that urban designers and planners learn from the mistakes of the Modern Movement and attempt to address more closely the users of the urban environment. This is best done by attention to general information needs and attention to the requirements for ease of orientation. As proposed by Berlyne in his examination of the psychology of aesthetics, a reasonable level of complexity, novelty and surprise must be interwoven with requirements of information and orientation.

Many architects have suggested that buildings and environments should somehow communicate an awareness of history, something which would involve more than simply function and construction. Robert Stern proposes that architecture must 'story-tell'. Moore notes that "... one of the things most violently wrong with architecture in the twentieth century is that the number of things that buildings have been allowed to say has shrunk so greatly that they've simply stopped being interesting to most people."[10] From a psychological point of view it is crucial to design so that people are stimulated by interesting surroundings.

While today we remain critical of the Modern Movement's banality, we must also be cautious of Post-Modernism and its potential for excess. For the desired psychological effects designers must strive to attain the appropriate levels of complexity and stimulation. Architect and urban designer Carl Knipfel provides a concise proposition which captures the central concerns of this paper: "... can we look for inspiration to some middle ground between the sterility of Mies and the fantasy of Sleeping Beauty's castle? There exists the opportunity, indeed the necessity, to evolve a meaningful architectural expression of our period in history, our climate and our pluralist society."[11]

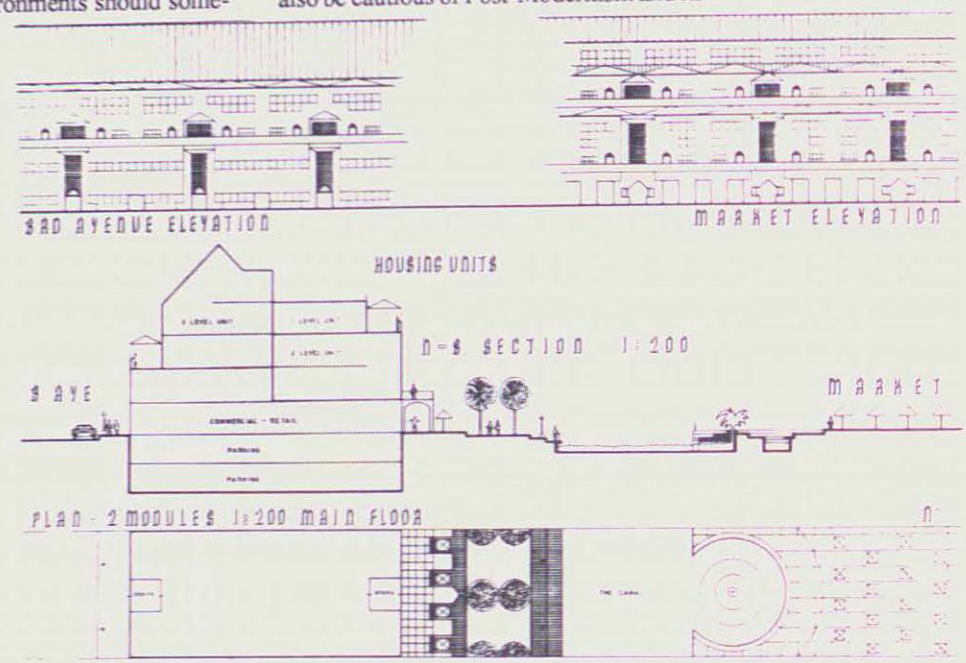

figure 20

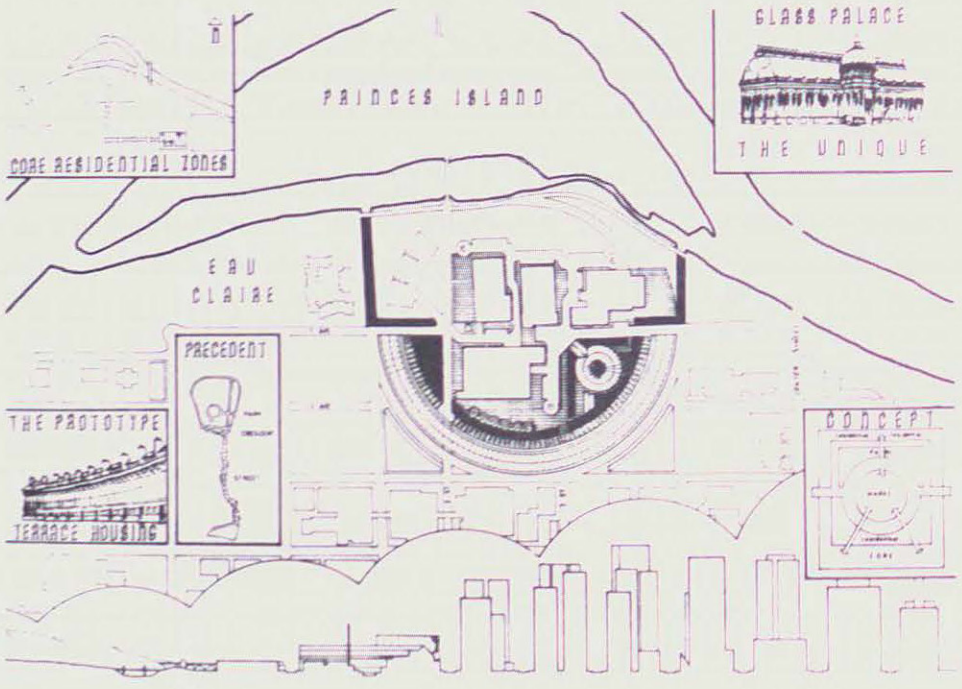

figure 21

NOTES

1. Jenkins, Dan. "From Mies to Metaphors". The Canadian Architect. Vol. 28, No. 5, May 1983. p. 33.

2. Hemingway, Peter. "From Mies to Metaphors". The Canadian Architect. Vol. 28, No. 5, May 1983. p. 26.

3. Zeidler, Eberhard. "From Mies to Metaphors". The Canadian Architect. Vol. 28, No. 5, May 1983. p. 25.

4. Rapoport, Amos. Human Aspects of Urban Form. Pergammon Press, Oxford, 1977. p. 178.

5. Graves, Michael. "A Case for Figurative Architecture". Buildings and Projects 1966-1981. Rizzoli, New York, 1982. p. 11.

6. Greenburg, Michael. "Architecti.Vitae,Verba". Speaking a New Classicism: American Architecture Now. Smith College Musuem of Art, Northampton, Massachusetts, 1981. p. 33.

7. Graves, Michael. "A Case for Figurative Architecture". Building and Projects 1966-1981. Rizzoli, New York, 1982. p. 11.

8. Jensen, Robert and Conway, Patricia. Ornamentalism. Clarkson N. Potter, Inc. Publishers, New York, 1982. p. xiii.

9. Affleck, Raymond. "From Mies to Metaphors". The Canadian Architect. Vol. 28, No. 5, May 1983. p. 31.

10. Moore, Charles. L'Architecture d'Aujourd'hui. No. 184, March 1976. p. xlv.

11. Knipfel, Carl. "From Mies to Metaphors". The Canadian Architect. Vol. 28, No. 5, 1983. p. 27.

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