Bulletin

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LANDSCAPE PRESERVATION

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Cover: *GORE PARK, Hamilton, Ont [postcard from K. Elder Collection]*

"What has been described by the historian Mabel Burkholder as an indispensable breathing-place in the centre of a large city, the site of Gore Park before 1860 was a disreputable dump and mudhole. Sometimes it was a sea of whitecovered emigrant wagons on their way from the eastern United States to Illinois, western Ohio, and Indiana. One hundred and fourteen years ago it was a stopping place for stage coaches, at that time the most rapid mode of travel. The buildings facing the park were all one- and two-storey wooden structures, one of which, on the north-east corner of King and James streets, was owned by Sir Allan MacNab.

Gore Park took its shape in this way: George Hamilton owned the land on the south side of King Street and Nathaniel Hughson owned on the north side. Hamilton and Hughson both agreed to present land to the town for a square. Hamilton gave his half, which was cut on the bias, but Hughson failed to present his part — and so we have the Gore. George Hamilton deeded it to the City of Hamilton in perpetuity as a public square.

In 1860 Gore Park had a partly-familiar look with two fountains spouting their crystal floods, and at the west end a drinking fountain presented by Archibald Kerr. This drinking fountain had a brass cup attached to it by a chain to prevent it from being taken away. The fountain at the east end of the park was built by Meakins and Sons in 1859.

Periodic attempts have been made to cut into the Gore. In July 1910 a merchant offered a quarter of a million dollars for the Hughson-to-James area, for the purpose of erecting a fifteen-storey business block. In 1931 the mayor is reported to have expressed the hope that in fifty years the park would have disappeared. Some citizens have advocated widening King Street by taking twenty feet off the north side of it. The Gore Park extension beyond Hughson Street was once an untidy cabstand, and it was mainly due to the efforts of Newton D. Galbreaith that this eyesore was removed from the centre of the city. The extension was called "Galbreaith's Folly" but it is now a beauty-spot surrounded by an ornamental iron fence, its central feature being the Cenotaph commemorating those who died in two World Wars. At the John Street end of Gore Park stands the statue of Sir John A. Macdonald." (Head-of-the-Lake-Historical Society, *Wentworth Bygones, Vol. No. 9*, Walsh Printing Service, Hamilton, Ontario, 1971).

Note: *Gore Park, Hamilton, Ontario has undergone serious transformation in the past year.*

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THE URBAN LANDSCAPE — THE HIDDEN FRONTIER*

Michael Hough**

The intent of this paper is to focus attention on a landscape that can, in a very real sense be called "frontier". It is the landscape that most of us live in all the time — the landscape of the city. On the face of it, there may be some who doubt that this environment can qualify as a "frontier." My purpose, in this paper, is to suggest the reasons why it must be so regarded, and why solutions to the problems we are addressing must begin here.

Why An Urban Frontier?

The term frontier landscape conjures up images of hitherto unspoiled landcapes on the fringes of advancing civilizations, that are under threat of exploitation or destruction. We think of the remaining tropical forest ecosystems of the Amazon, the vast stretches of the arctic Alaskan northland, the boreal forest and lake landscapes of northern Ontario, the remaining alpine forests of BC. These regions all bear the common mark of endangered ecosystems. The relentless pursuit of natural wealth, oil, minerals, forest resources, hydroelectric power, brings industrialization and urban development to the last vestages of nature untouched by man. We see our task as applying our peculiar combinations of skills in planning, design and ecological science to the shaping of these landscapes. We have to direct their development along constructive and rational lines, that are in harmony with natural processes; to preserve large areas intact, protect water resources and sensitive habitats.

The term "frontier" landscape also has a broader philosophical context. It implies the frontier between the survival and destruction of life, between a land ethic that rests on conserver values and long-term investment in the land, versus short term consumer values and resource exploitation, between a harmoneous coexistence between man and environment versus confrontation with nature. At its most basic level the realization of a sustainable future is the perceived goal of landscape architecture. The frontier concept concerns every landcape where human goals are in potential or actual confrontation with natural processes. We have, therefore, to consider another that perfectly fits this description; one that may be hardly recognized as such since it is so close to home-the urban landscape. In so doing, we find some fundamental contradictions in the way the city and the larger environment are perceived, perceptions that affect the way we live and how we shape the environment. There is a propensity for ignoring problems close to home while lavishing attention on those that are far off. In a world increasingly concerned with energy, pollution, vanishing plants, animals and landscapes, there are numerous organizations searching for sane alternatives to a deteriorating environment. Yet these concerns, while urban based, have in large measure ignored the environment that most of us live in. It has become conventional wisdom to point to the modern city, itself the product of cheap energy, economic forces, high technolgy and a denial of nature, as the epitomy of environmental deterioration. Yet landscape architecture continues to offer bandaid solutions to its physical and social problems. Where ecology is now recognized as the indispensible basis for landscape planning and design, urban design operates largely on the premise that ecology is either non-existent in cities or has little relevance to design process and form. The basis for urban landscape design is to be found in horticulture and engineering; in aesthetic priorities that are now regarded as secondary to the new found ecological insights.

My purpose here is to suggest, first, that solutions to problems in the larger landscape have their roots in

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cities and must, therefore, also be sought there; second, that the often unrecognized natural processes occurring within cities provide us with a basis for an alternative language for urban landscape design. So this paper is an attempt to integrate the concept of urbanism with nature. It is concerned primarily with the realities of the existing urban fabric, and less with the creation of new developments on rural land. The biologist Patrick Geddes once remarked that "civics as an art has to do not with imagining an impossible no-place where all is well, but making the most and the best of each and every place, especially of the city in which we live".[1] So the utopian ideals of the perfect city, set in bucolic landscapes that were once the fashion in planning and architectural philosophy can no longer be taken seriously. Since the trend in city building in the foreseeable future will be in urban renewal, we have to accept the city as it is, warts and all, and explore how an alternative form can be created with the existing resources on hand. Let us, therefore, begin with an analysis of the problems.

The Historical Legacy — Investment In The Land

The migration of people from the countryside to the cities that began in the industrial revolution did more than create poverty and slums. The skills and knowledge of the countryside and traditional patterns of rural life were replaced by the living and working patterns of the city. The psychological and physical separation between urban and rural environments widened as cities grew larger, more industrialized and more remote from the rural areas with which they had originally been connected. The urban park, created in the late 18th century and 19th century had an entirely different purpose from the countryside it replaced. The crops, orchards and livestock of a working agricultural landscape were now replaced by open spaces that catered exclusively to amenity and recreation. The great park movement of Europe and North America evolved out of the romantic movement. They were created out of the conviction that nature should be brought to the city to improve the health of the working people by providing space for exercises and relaxation. It was felt that the opportunity to contemplate nature would improve moral standards. A new preoccupation with the aesthetics of natural landscape led to the notion that parks would improve the appearance of cities.[2] The continued expansion of cities since the 19th century and a decline in park priorities has created new conditions. There is greater wealth, leisure and mobility. There is a desire to renew contact with natural environments that the urban park does not now satisfy. Work and play have evolved into distinct and separate activities, turning recreation into an all-consuming urban occupation. The perception that rural settings exist solely as an urban playground is borne out every week-end when their lakes, forests and farmlands are invaded by people who have little or no direct contact with the landscape as a place of work. Thus recreation becomes parasitic, contributing little to the land on which it occurs and causing social and environmental conflicts. The lack of long term investment in the land is reflected in the urban environment. Apart from the established urban parks, vast open space resources, evident in industrial lands, railway and highway lands, derelict and vacant property, river valleys and water fronts, lie idle and unproductive and outside the parks system. Leisure has become the prime function of urban parks while other environmental and productive functions that the city's open space resources must serve, have largely been ignored.

The Contradictions Of Values

The aesthetic values from which a formalized pedigree landscape has evolved, have little connection with the dynamics of natural process. Two landscapes exist side by side in the city. The one is a nurtured lanscape of parks, gardens, fountains, turf and lawns, whose basis for form rests in the formal design doctrine of established convention. Its survival is dependent on high energy inputs, engineering and horticultural technology. Its image is that of the design solution imposed on its site. The other is a fourtuitous landscape of naturalized urban plants and flooded places left after rain, that may be found in poorer neighbourhoods, vacant lots and derelict sites. Weed plants, Manitoba maple, grasses and sedges, emerge through cracks in the pavement, on rooftops, walls, poorly drained places or wherever a foothold can be gained. They provide shade and flowering groundcovers and wildlife habitat at no cost or care, and against all odds of gasoline fumes, trampling of a million feet and maintenance men. These two landscapes symbolize the inherent conflicts of environmental values. If we make the not unreasonable assumption that diversity is ecologically and socially necessary to the health and quality of urban life, then we must question the current values that have determined the image of nature in cities. A comparison between the plants and animals present in a regenerating vacant lot, and those present in a landcaped residential front yard, or city park, reveals that the vacant lot generally has far greater floral and faunal diversity than the lawn or city park. Yet all efforts are directed towards nurturing the latter and suppressing the former. The rehabilitation of depressed, or derelict areas involves reducing diversity, rather than enhancing it. A case in point will illustrate this problem.

The outer harbour headland on the Toronto waterfront is a spit of land 2 1/2 miles long, built some 19 years ago by the Toronto Harbour Commission to create a new harbour. Its purpose was to accommodate greatly increased shipping tonnage that was expected to enter the city as a consequence of the construction of the St. Lawrence Seaway. This additional shipping never materialized, however, and since that time the future of the headland has remained in limbo. Environmentally though the headland represents a fascinating example of the power of natural process. From the loose rubble and subsoil from which it was built, a new landscape has begun to evolve. Wind and wave are grinding bricks and concrete to sand; marshland and mudflats have appeared that now provide habitat for thousands of breeding and migratory gulls, terns and waders. Among them is the rare Caspian Tern, whose breeding sites are becoming increasingly scarce. The headland, in fact, has now become a bird sanctuary of major significance on

the Great Lakes System as other habitats have been eliminated. A forest of cottonwood, willow and aspen is developing and has grown to over 4 metres in height. Some 185 species of plants have migrated here and established themselves. Some, such as the Sticky Groundsel, are found nowhere else in the Toronto region. Within the open space resources of the waterfront, the headland now represents a unique resource for education, scientific study and passive recreation. Yet there are overwhelming political pressures to reclaim this "derelict" site, to transform it to a formal landscape of boat slips, parking lots, picnic sites, turf and cultivated plants. The only thing saving this landscape from the sterilizing influence of established landcape development is a poor economic climate that makes such a project currently unfeasible. The question that arises, therefore, is this: which are the derelict sites requiring rehabilitation? Those fortuitous and ecologically diverse landscapes representing urban natural forces at work, or the formalized landscapes imposed by urban man?

It is my contention that the formal city landcape imposed over an original natural diversity is the one in need of rehabilitation. While it will be obvious that such a landscape has a place in the city, its universal application as the basis for urban form is the most persuasive argument for considering the city as a derelict frontier landscape.

Other conflicts become apparent when we apply ecological insights to our observation of the city environment.

1. Attitudes and perceptions of the environment expressed in town planning since the renaissance have, with some exceptions, been more concerned with european ideals than with natural process as determinants of urban form. Many examples of North American towns and institutions layed out over the last hundred years attest to the aesthetic and cultural baggage of a past era, transported to hostile climatic environments and wholly inappropriate to them. The arrival of cheap fossil fuels has enabled the inorganic structure of planning theory to persist and maintain the delusion that the creation of a benign climate has little relevance to urban development. We have lost the art and science of climate control by natural means.
2. Traditional storm drainage systems, the conventional method of solving the problem of keeping ones shoes dry in town, have until recently been unquestioned. As the established vocabulary of engineering, water drains to the catchbasin. But the benefits of well drained streets and civic spaces is payed for by environmental costs of eroded streams, flooding and impairment of water quality in downstream water courses. Sewage disposal systems are seen as an engineering rather than biological solution to the ultimate larger problem of eutrophication of major water bodies and wasted resources. We have the anomaly of the city as the centre for enormous concentrations of nutrient energy, yet urban soils remain almost totally sterile and non-productive.

Urban Natural Systems — A Basis For An Alternative Strategy

Our primary concern is how the city can be made environmentally and socially healthier, how it can become a civilizing place to live in. As ecology has now become the indispensible basis for environmental planning of larger landscape problems, so an understanding and application of the altered but nonetheless functioning natural processes within cities becomes central to urban design. The conventions and rules of aesthetics have validity only when placed in context with underlying bio-physical determinants. Design principles, responsive to urban ecology and applied to the opportunities the city provides through its inherent resources, forms the basis for an alternative design language. They include the concept of process and change; economy of means that derives the most benefit from the least effort and energy; diversity as the basis for environmental and social health; an environmental literacy that begins at home and forms the basis for a wider understanding of ecological issues; a goal that stresses an enhancement of the environment as a consequence of change. We seek a design language whose inspiration derives from a vernacular that makes the most of available resources, one that re-established the concept of multi-functional, productive and working landscapes. As environment and energy assume a higher profile in the future, it will become necessary to draw all the open spaces in the city into an integrated management framework, serving according to their potential, as wildlife habitats, conservers of water resources, producers of energy, wood, market gardens, fisheries and recreation. While this view may appear unrealistic in western society today, there is ample evidence, if one looks below the surface of urban life, that such functions already exist. Some examples will illustrate this.

Urban Hydrology

If good storm drainage design, in the conventional sense, excaserbates erosion and water quality problems, then poor design can be said to alleviate these conditions. The basic lesson that nature provides is one of storage. Natural floodplains and lakes are the storage reservoirs of rivers, that act to reduce flood peaks downstream. Vegetated soils and woodlands provide storage by trapping and percolating water through the ground with minimum run-off and maximum benefit to groundwater recharge. In cities these natural functions occur fortuitously in many places — in poorly drained fields, parking lots, abandoned industrial areas, woodlands. Water is held and released gradually to the ground, the atmosphere and drainage systems. In design, the retention pond and overland drainage are becoming accepted alternatives in some places, as solutions to drainage problems. The city of Winnipeg, situated on low lying land in the prairies is one example. The storm retention system of ponds set within its suburban housing areas, have been estimated to result in savings of 600% over conventional systems.[3] When the design process is seen as the combination of many environmental and social functions, there are enhanced benefits. Thus, the flooded urban site occurring by default, per-

forms not only hydrological but other functions. Its retained water, evaporating to the atmosphere enhances urban climate. It becomes a place for colonizing phragmites and other marsh plant associations which in turn provide habitat for ducks, geese and wading birds. These in turn become places for study of wildlife for an increasingly large group of urban naturalists. Such places are found in abandoned industrial sites, waterfronts, highway interchanges and on old rooftops everywhere in the city. These social and environmental objectives become the basis for design when the city's parks, playgrounds and other open spaces are drawn into the role of contributing to the hydrological environment.

A new urban park in the inner city of Ottawa has attempted to demonstrates on a small scale the creative alternatives that are possible to traditional practice in storm drainage management. A pond, designed as a hard surfaced storm water retention area, was created to fill from roof run-off and subsequently empty slowly into the storm system. Its use in the park responds to the needs of children — as a water play area following a rainstorm and as a skate boarding and drysurface play space in dry weather. It is intended, therefore, to delight the senses, provide creative play and bring people closer to the continuum of natural events. Children learn about their environment less by the occasional visit to the nature centre or museum than by constant and direct experience in their daily surroundings. The pond in the park that is constantly changing character, full one week and empty the next, provides the best opportunity for understanding hydrology in cities. Through an enriched and constantly changing environment, children may be brought closer to the cycles of rain and sunshine. Water as the ageless material of design can assume a new relevance, offering other dimensions of experience.

Sewage treatment — the city's nutrient resources

The sewage treatment plant represents a reservoir of enormous wealth that currently imposes stresses on the larger environment rather than creating urban benefits. As the environmental and financial costs of sludge disposal become more critical, as costs of buying artificial fertilizers for agriculture become more exorbitant, alternative means of conserving and recycling this natural wealth become more realistic and necessary. Limited availability of resources tends to lead to conservation. We find European farmers using animal slurry as an alternative to artificial fertilizer. The products of sewage treatment around London are spread over thousands of acres of agricultural land on the edges of the city — a practical and profitable way of dealing with an otherwise serious problem. Long term studies at Penn State University, U.S.A., have shown the remarkable capacity of forest and agricultural soils to absorb nutrients and greatly improve soil fertility for crop and tree growth. The relatively recent examples in North America and Europe of using wastes as resources has often been the only practical strategy in earlier times before the sewer pipe and sewage treatment plant. We find in medieval cities a symbiotic relationship between town and country, where the town depended on the country for its food and returned its byproducts to enrich rural soils. Until the sewer was introduced, human wastes in many cities were collected from households, restaurants and markets by "night soil men" and sold to farmers whose produce was then sold in urban markets. The practice was widely followed in some 74 cities in the New England and midatlantic states of America.[4]

Out of the search for practical alternatives for dealing with the byproducts of urban processes, come opportunities for alternative open space strategies.

1. Increasing transportation costs, disillusionment over the products of agri-business and the movement towards greater community self-reliance and identity are all influences that over time will require intensive agricultural practice to shift closer to, or into cities. The vast urban resources of unproductive land, parks, waste heat and nutrients will be brought to bear to stimulate a growth of urban farming productivity. Elements of this potential pattern are already evident in the immense popularity of allotment gardening, small backyard farming and community markets all over North America and Western Europe. The Federation of City Farms in Britain has, over the last 10 years developed an entirely new community park concept based on the idea of active farming occupations within a park environment. Cattle, sheep, horses, small livestock, allotment gardens and many other community activities are managed through local community action and involvement. Parks have, in many cases been located on derelict railway land leased from the railway authority. Two examples of the City Farms projects are the Kentish Town community park in London, and the Byker Project in Newcastle.
2. As a biological system the sewage lagoon operates on the basis of aerobic breakdown of organic material. Its settling ponds are in effect, potential man-made marshes, supporting a wide range of flora and fauna. Studies conducted in the lagoon system for the City of Ottawa, have found that they are habitat for a wide variety of breeding and migrating wading birds. Comparisons of species diversity between the lagoon system and adjoining area of natural river shoreline, long known as excellent bird habitat, have revealed that the lagoons support a far greater diversity of species than the natural shoreline.[5] Sewage lagoon systems are man-made wildlife habitats. They provide opportunities for education and study and as a primary source of nutrient resources, they far exceed their perceived value. Thus the land associated with them has potentially important functions for groundwater recharge, water purification, energy forest plantations, resources for market gardening, enrichment of urban soils and wildlife habitat. These lands, in fact, must be considered as a highly valuable resource within the context of a multi-functional planning and management strategy for urban open space.

The urban plant and wildlife community

A diverse community of plants and animals exists in all cities, where the designer and the maintenance man

does not venture, and where consequently, natural diversity is permitted to exist. They are to be found in its waste places, abandoned water fronts, roadsides, railways and canal systems. These communications linkages have been responsible for the migration of many plants and animals. Urban development has in the process of destroying the original eco-systems, created opportunities for new ones to develop. Thus the vitality of natural process, while altered, continues in cities, providing the basis for a diverse open space system. There are a number of implications in this fact.

1. Conventional landscape planting based on climax species planted in standard well drained nursery soils and standard horticultural procedures, tend to create static design solutions. Maintenance procedures provide no basis for continuing and evolving plant associations for the future. The experience of the Dutch landscapes based on natural succession management techniques offers a creative alternative that is in tune with social need and provides long term low maintenance landscapes. The now famous Delft experiment has demonstrated how the concept of urban forestry enhances social and environmental benefits. Wooded landscapes maintain more equitable climate through the absorption of solar radiation, evapotranspiration and reduction of winds. Socially they provide a diverse environment of open and enclosed space that has immediate and long term benefits in forest cover diversity of wildlife, hardy and creative children's play and enhanced amenity.
2. While established policy tells us that open space, to be socially useful, must be in the public domain, the fact remains that in most cities the most diverse landscapes, ecologically speaking, are often those that are found on land barred from public access. The evidence can be seen everywhere; in privately owned ravine lands, in the rich flora and fauna found behind the chain link fences of industrial sites, along railway embankments and many roadsides. This fact provides opportunities for plant and wildlife communities to remain unmolested. It is also the basis for creating new ones. The city, in fact, potentially provides the very environments that make the protection of natural places difficult in the public domain.

By making use of such opportunities we begin to develop rich and diverse open space patterns on lands not normally conceived as having recreational, educational or environmental uses. The Gulf Oil Refinery in Mississauga, Ontario is one example of this principle in action. The refinery, surrounded on three sides by residential communities decided, some years ago, to improve relations with its neighbours by providing a landscaped buffer between the residential areas and refinery operations. This decision provided an opportunity for the establishment of a wildlife area within refinery boundaries. Building on the remnants of an existing marsh, a series of habitats were created including an open body of water, old field succession, woodland associations, and linear forest planting to link an existing marsh and river valley in the township. Since access to the new wildlife area is prohibited for reasons of refinery security, observation stations outside its boundaries were built to provide viewing for people in the community. Thus the productive use of otherwise unproductive land and environmental and social benefits were brought together.

3. The maintenance of grassland by the mowing machine has gone far to create the ecological deserts that come under the label of "landscaping". Economic forces and to some extent, old tradition, are pointing the way to less costly and more beneficial alternatives to the management of these immense acreages of international groundcover. In Britain and Europe we find urban common lands and churchyards kept mown by livestock through agreements with farmers. An industrial oil storage site in the city of Toronto has maintained the turfed berms surrounding storage tanks with sheep for ten years. The engineer who originated the idea found that his costs in equipment fuel and manpower were practically eliminated. The sheep are bought from the stockyards in the spring and sold back in the fall. The University of Manitoba in the 1950's maintained its grounds with a flock of sheep belonging to the University's department of animal husbandry. Reports indicate that the University changed to mowing machines later, mainly because of complaints from horticulturalists who wanted to see more flowers in the grounds. This interesting turn of events indicates how strong an influence established aesthetic conventions can exert on an urban landscape. But the establishment of livestock on grasslands as a conservation measure is feasible in many situations and points the way to potential connections with an urban agricultural industry and productive use of the land.

Integrated urban parks management

The multi-functional design and management of urban land based on ecological and social determinants can provide the foundation for the design alternatives that we seek in this enquiry. Its application is admirably demonstrated in the Zurich forest park system. Although this example is the consequence of a unique set of social and political circumstances, it provides us with principles that have applicability in many other cities. The Zurich forest parks of some 2600 hectares surrounding and penetrating the city have for generations been managed for forestry products, wildlife, recreational uses and amenity. Logging is carried out in winter and employs sophisticated sylvicultural techniques and reforestation practices. Roads and path systems are designed to accommodate exercise trails, walking and resting places and interpretive programs describing the plants and geology of the region. In addition, the parks system includes agricultural land that is leased to local farmers for small scale crop and livestock production. Maybe the most impressive aspect of this parks system is the fact that recreational and amenity facilities are paid for (by up to 50% in 1980) by the production of timber from the urban forests. Thus, the combination of environmentally sensitive forestry practice, recreation, deer management, and education provides an example of integrated resource management

within a city that is both profitable, socially useful and aesthetically pleasing.

Conclusions

From the preceeding discussion certain conclusions may be drawn to summarise the fundamental ideas contained in this paper.

1. We must re-examine the conventional framework on which the design and management of the urban landscape has traditionally been based. Ecological determinism, accepted as a tool for the planning of the larger landscapes must be reflected in a design philosophy for city landscapes. This can be achieved by integrating the concept of urbanism and nature through the discipline of urban ecology.
2. Design conventions that have dominated the pedigree landscape of the city must be replaced by a vernacular whose basis for form rests on a) the integration of environmental and social objectives; b) the inherent natural and man-made resources that the urban setting provides; and c) taking advantage of opportunities for less costly and more socially useful ways of shaping the urban environment.
3. The total open space resources of the city as well as its parks must be incorporated into planning to serve environmental and social uses and to ensure maximum diversity. Thus we may see the city's landscapes providing, according to their capabilities, places for wildlife, conservation of water resources, production of energy and wood, market gardens recreation and amenity. The concept of integrated resource management accepted as a tool for rural natural resources, must also be applied to the planning of urban space.
4. There must be greater environmental literacy through direct contact with urban life and the cycles of nature. Our concern, through a design process rooted in urban ecology, is to re-establish the opportunity for links between urban man and rural resources. It is necessary to show that natural process is as much a part of the urban landscape as it is of forest, lakes and wilderness. The notion of an investment in the land must be encouraged by making urban land productive and by establishing links between urban and rural occupations.
5. The problems of frontier landscapes that we are concerned with, all start with the city. Decisions about these non-urban landscapes are made by urban people and are coloured by urban attitudes and perceptions. The resolution of environmental problems, the presevation of whales, whooping cranes energy, natural landcapes and everything else, must, therefore begin here at home, where most of us live.

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