

# **LANDSCAPE PLANNING**

**Papers presented**

**at the**

## **LATIN AMERICAN CONFERENCE ON THE CONSERVATION OF RENEWABLE NATURAL RESOURCES**

**held at**

**Bariloche, Argentina, 27 March - 2 April, 1968**



**International Union  
for Conservation of Nature and Natural Resources  
Morges, Switzerland  
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The International Union for Conservation of Nature and Natural Resources (IUCN) was founded in 1948 and has its headquarters in Morges, Switzerland; it is an independent international body whose membership comprises states, irrespective of their political and social systems, government departments and private institutions as well as international organizations. It represents those who are concerned at man's modification of the natural environment through the rapidity of urban and industrial development and the excessive exploitation of the earth's natural resources, upon which rest the foundations of his survival. IUCN's main purpose is to promote or support action which will ensure the perpetuation of wild nature and natural resources on a world-wide basis, not only for their intrinsic cultural or scientific values but also for the long-term economic and social welfare of mankind.

This objective can be achieved through active conservation programmes for the wise use of natural resources in areas where the flora and fauna are of particular importance and where the landscape is especially beautiful or striking, or of historical, cultural or scientific significance. IUCN believes that its aims can be achieved most effectively by international effort in cooperation with other international agencies such as UNESCO and FAO.

The World Wildlife Fund (WWF) is an international charitable foundation for saving the world's wildlife and wild places. It was established in 1961 under Swiss law and shares joint headquarters with the International Union for Conservation of Nature and Natural Resources (IUCN). Its aim is to support the conservation of nature in all its forms (landscape, soil, water, flora and fauna) by raising funds and allocating them to projects, by publicity and the education of the general public and young people in particular. For all these activities it takes scientific and technical advice from IUCN.

Although WWF may occasionally conduct its own field operations, it tries as much as possible to work through competent specialists or local organizations.

Among WWF projects financial support for IUCN and for the International Council for Bird Preservation (ICBP) have highest priority, in order to enable these bodies to build up the vital scientific and technical basis for world conservation and specific projects. Other projects cover a very wide range from education, ecological studies and surveys, to the establishment and management of areas as national parks and reserves and emergency programmes for the safeguarding of animal and plant species threatened with extinction.

WWF fund-raising and publicity activities are mainly carried out by National Appeals in an number of countries, and its international governing body is made up of prominent personalities in many fields.



THE COMMISSION ON LANDSCAPE PLANNING

The Commission on Landscape Planning is one of the Commissions of the International Union for Conservation of Nature and Natural Resources. The members of the Commission for 1966-1969 are :

Chairman : Mr. R.J. Benthem, Netherlands

Vice-Chairman : Prof. Arturo Eichler, Venezuela

Members :

- Mr. E.N. Akah, Eastern Nigeria
- Mr. G.L. Anagnostopoulos, Greece
- Mr. E. Barnard, Germany
- Mr. P.B. Blagwat, India
- Prof. Lynton K. Caldwell, U.S.A.
- Prof. C. Harris, U.S.A.
- Miss Sylvia Crowe, U.K.
- Mrs. J. Earley Lyndon, U.S.A.
- Mr. D. Goode, Australia
- Mr. B. Hackett, U.K.
- Mr. W.D. Harper, Canada
- Dr. T. Hunziker, Switzerland
- Mr. Gert Kragh, Germany
- Mr. Tan Soo Hai, Malaysia
- Prof. V. Vanicek, Czechoslovakia

Secretary : Mr. C.J. Vyle, U.K.

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COMMISSION ON LANDSCAPE PLANNING

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Friday 29 March 1968 : Morning Session

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Dr. F. Fraser Darling opened the Session by pointing out that the subject of Landscape Planning had come into the field of conservation within the last 10 years. It was symptomatic of the changing attitudes in the world that conservation now includes not only the natural world, which we first set out to protect, but also the whole environment in which we ourselves are protected. The world was finding how the human environment can produce or subdue ills in our personalities, which may have either mental or physical expressions. These illnesses, which are known as psychosomatic, illnesses may occur in many different forms, and all the medicine in the world cannot kill them unless the environment was also helping in the cure. He pointed out that this Commission was the most recent of IUCN's Commissions and handed over the Proceedings to the Chairman Mr. R.J. Benthem. Mr. Benthem said that IUCN's approach to Landscape Planning was essentially an integrated one, in which teams of scientists were involved. It might be termed "creative conservation". It must not be considered, however, that landscape planning was confined to the developed countries with high populations. The new discipline must also be used in the youngest of states.

12. Use and development of recreation areas

12. 1. One paper, "Recreation as a type of the wise use of the natural resources in the United States", by Lawrence N. Stevens (U.S.A.)

As the author of the Paper was unable to be present, his colleague, P. Swem, summarized the Paper which is published in these Proceedings.

DISCUSSION

Chairman : Excellent work was being done in the United States of America and the assistance given by the Army Corps of Engineers should be noted.

Cain (U.S.A.) : The most significant development in land-use planning in the United States was well illustrated by the Paper on outdoor recreation. He referred to the fact that there were new administrations and statutory arrangements among federal and

state agencies for communitating, cooperating and coordinating the projects and programmes of their organizations. Although there remain some single purpose projects programmes, more and more were now planned jointly by several agencies. This was well illustrated by the exploding interest in outdoor recreation. If this were not coordinated with the National Parks Service, the Fish and Wildlife Service and the Forest Service, there would be penetrations and impositions in national parks and other natural areas that would be destructive of nature and contrary to interest in nature protection. As it is now developing, neither interest, recreation, nor preservation will prevail everywhere, but each will find its own appropriate place.

Chairman : This illustrated the need for multiple use of land as against single use.

### 13. Natural areas in Landscape Planning

Two papers were presented, as a basis for discussion.

13. 1. "Natural areas in Regional Planning", by Rowland J. Darnell and Rezneat M. Darnell (U.S.A.)

As the Darnells were unfortunately unable to be present at the Conference, a summary was read by T. Pritchard. The complete text is published in these Proceedings.

13. 2. "Parks and natural areas in the natural landscape", by Joseph L. "Fisher, (U,S.A).

The author discussed his Paper, which is published in these Proceedings.

### DISCUSSION

Chairman : He agreed with Mr. Fisher's contention that although each country must plan and develop its parks and natural areas, systematically and comprehensively, the time had come for thinking on a hemispheric scale, and that we should plan for the year 2000, when there would be more than a billion people in the Western World.

M. Martinic Beros of the Chilean delegation presented three draft Resolutions, which after some discussions and with the addition of amendments were approved for submission to the Resolutions Committee.

T. Riney (F.A.O.) : Supported Fisher's hemispheric approach to bring the entire western world into perspective and that even-

tually a global approach would be required. He pointed out that at the World Forestry Conference, held in Madrid in June 1966, a Canadian delegate stated that some of the most productive and best managed areas were being lost to forestry because they were more profitable as recreation areas than as timber forests. He suggested that some effort should be made to identify overpopulated areas as well as underused potential parks areas. This information should permit the formation of cooperative plans between countries, whereby countries or areas oversaturated with tourists could divert the excess to other areas or countries which in their present stage of development wish to encourage tourism through their national parks and recreational area systems.

R. Alvarenga, (Brazil) : Natural parks and national parks were not synonymous. In Germany, areas of scenic landscape, including private properties and agricultural land were identified as natural parks, without elevation to the status of national parks. This system might well be used in Latin-America to obtain parks for recreational purposes, but with less expense than the creation of natural parks of a conventional type.

M. Buchinger (CLAPN) : In the Western hemisphere national parks may have exotic species, whereas nature parks are equivalent to wilderness.

A. Mendonça Paz (Argentina) : considered that the nomenclature and definitions of parks and reserves was causing constant trouble and suggested that a special meeting should be held to decide specifications once and for all.

J.-P. Harroy (IUCN) : When he was the first Secretary-General of IUCN in 1948, the first work of the National Parks Commission was to define and classify national parks and equivalent reserves; this, however, proved impossible, and the work was stopped in 1958. There were some legal definitions, as for example in the London Convention for Africa, drawn up in 1933, in the Washington Convention for the New World in 1942, and in 1949 United Kingdom had brought in a set of new definitions. Nomenclature was important, but definitions of more value. He urged that new areas should be gazetted, as National Parks, where land was cheap and pressure on it not too great. It was not necessary to follow a logical plan, but rather to go for areas where there is the least resistance to promotion of national parks.

Chairman : This discussion showed how the work of one Commission was correlated to the work of others, and although the discussion on the interrelationships of landscape planning and national parks could be profitably continued, he must call a halt to it, in order to continue with other papers.

14. Landscape Planning with reference to urban areas

Two papers were presented on this subject.

14. 1. "An approach to regional planning in relation to urban areas", by Carl Garloszi, U.S.A.

The author discussed his paper, which is published in full in the Proceedings.

14. 2. "Landscape Planning with reference to urban areas - the position in South America", by Jorge E. Hardoy, Argentina.

The author discussed his paper, a summary of which is published in the Proceedings.

DISCUSSION

The main points raised were as follows :

Chairman : It was unfortunate that this session was running behind time, because there was here clearly a need for profitable discussion. He urged speakers to be brief.

A. Eichler (Venezuela) : In landscape planning of renewable natural resources in general, the "rational" use of the soil was frequently questioned. This problem was of immense importance in the present state of the development of the Latin-American countries. He asked Dr. Fisher how in the United States proposals for national parks and similar reserves were justified to the authorities, both with regard to other competitive uses of the land and. with the obtaining of the necessary funds.

J. Fisher, (U.S.A.) : The government would acquire land if public demand was sufficient. In practice, it depended on how many people wish to use such areas and on the scenic qualities of the area. Enough people must realise that such habitats must not be developed so that they are destroyed and lost for ever. In addition to such justification, acquisition should be included in all long-term planning.

S.A. Cain (U.S.A.) : An additional justification in the U.S.A. to the two named by Dr. Fisher is that the present generation must not limit the options opened to future generations, although this point is sometimes not made explicit. This is not as Dr. Fisher's stated judgement that the public demands for parks and related areas is great and growing.

G. Budowski, (UNESCO) : The increase in recreational use of the magnificent system of national parks and recreation areas in the United States of America had been stated to be due to population growth, family income increase and the increase in mobility and leisure time. It, was also considered that in other countries the same demand factors will be found. He questioned whether this would really be the case in Latin-America,, in spite of the fact that population density in several zones was high. Although the overall density is very low, even the so called "relatively low cost of creating new national parks" was low in comparison with the absolute cost of an equivalent action in the United States, but in reality the cost were excessively high in relation to the monetary position of the countries concerned. Priority for providing funds towards creation and administration of new national parks must be low in comparison to programmes for health and industrial and communication development. If the population of Latin-America were asked in what area of public spending funds should be used, the result would certainly be discouraging for those at this conference. As opposed to the position in the United States, in Latin-America new parks were created not because of influence by the people, but because of the dedication and efforts of a small group of realistic conservationists. This small group of people should receive emphatic support from international organizations if landscape planning was to be developed in the required way. If we wait for the social changes, which motivated action in the United States, we would loose the race against time, because the greater destruction is too violent.

K.R. Miller (IICA) : Programmes for the management and development of national parka are under way in various Latin-American countries. Specifically in Columbia, where he had worked as a Consultant. The decision had been taken to concentrate on a few parks with good management. A permanent Committee had been established with the Universities and the department of national planning, in order to accomplish regional plans to supply the country with the products and services necessary to protect and manage the wild places and a planning policy which deals with ecology as much as economy has been established.

F. Barrientos, (FAO) : Dr. Fisher's idea of establishing a hemispheric national park system could be done by distributing the load that exists for countries which have not yet established the reserves and in which, for a long time, there will be no demand for recreation or tourism. Countries in the hemisphere should jointly study the subject to obtain necessary action.

F. Fisher (U.S.A.) : The plan for national parks of the whole of the hemisphere was an ambitious one but changes were so great and so rapid that plans must be ambitious, especially as the areas were necessary for use by many people. Plan should

not be confined to the traditional type of national parks, but for the use of the great masses of people living in the cities; areas, such as those used for recreation in the United Kingdom's idea of national parks must be used.

Chairman : Time was getting very late and it was necessary to close the proceedings. Sufficient material and ideas had been collected for satisfactory resolutions to be prepared.

12. 1. "Recreation as a type of the wise use of the natural resources in the United States"

by Lawrence N. Stevens (U.S.A.)

Outdoor recreation in the United States is a major use of our lands and waters. It involves over half a billion acres of public land and perhaps equally as much private land. Ninety percent of the people participate in some form of outdoor recreation. It is a \$64 billion business and has a major impact on the economy.

We define outdoor recreation in terms of what people do in their leisure time outdoors. This encompasses a broad range of activities from simple pleasures like walking to pursuits which require some skill such as mountain climbing. The resources necessary to these activities range from the urban playground to wilderness. Regardless of the specific pursuit, outdoor recreation has become an important part of the kind of life our citizens find rewarding and worthwhile.

The relatively recent recognition of outdoor recreation as a significant and beneficial use of our lands and water illustrates an evolution in public values and a corresponding evolution in public policy.

This evolution involves an increasing concern with the qualitative aspects of living - including the opportunity for outdoor recreation - and has come about as our basic material needs are satisfied and we find ourselves with sufficient income, free time, and the mobility to enjoy the outdoors. There is a certain irony in the fact that the same economic growth which allows us to enjoy the outdoors, simultaneously threatens the resource base necessary for outdoor recreation. Thus, while more people seek the outdoors, we also must devote more and more land resources to housing, highways, industrial sites and other growth needs, thereby reducing the amount of land available for outdoor recreation. Furthermore, though recreation is often compatible with other land uses, there is competition in some areas between recreation and consumptive

uses such as mining, grazing and lumbering.

In addition to the competition between outdoor recreation and other uses of our land and water resources, much of the strongest controversy, again ironically, occurs between competing kinds of outdoor recreation use. In general, this is the conflict between preservation of an area in its natural state for limited public use and development to accommodate intensive use.

Whether for extensive or intensive use, however, more and more people are demanding that more of our land and water resources be maintained for outdoor recreation. Our problem is to insure that these growing needs for recreation are met within the context of our overall resources planning.

There are two distinct, though related, aspects of outdoor recreation in the United States, both of national significance - the social and the economic. From the social point of view it is considered an essential component of a satisfactory standard of living, and all three levels of government - Federal, State, and local - have assumed substantial responsibilities for providing recreation opportunities to their citizens. This means that to a large extent it has been accepted as a welfare function in the broad sense of the term, similar to education.

From the economic point of view, outdoor recreation has come of age in another sense. By whatever economic measure employed, whether wage earners, wages paid, dollars spent, or value of product, recreation is one of the major and most rapidly growing economic activities of the Nation. In 1965, our Gross National Product totaled \$681 billion. Of this, \$79 billion or 11,6 % is attributed to recreation. Outdoor recreation and recreational travel accounted for \$63.6 billion or 9,3 %. The American Automobile Association estimates that we spend more than \$30 billion on domestic vacations and pleasure travel.

It is important also to point out that public expenditures for outdoor recreation stimulate the local economy and increase the value of real property. Our annual investment of \$2 billion in land and water acquisition for outdoor recreation provides the magnet that attracts tourist dollars.

Creation of the Bureau of Outdoor Recreation in 1962, to serve as the focal point and provide leadership in the field of outdoor recreation, gave tangible, full-fledged partner status to outdoor recreation as a necessary, beneficial, and co-equal use of our land and water resources as national policy.

We have, of course, to a limited degree recognized outdoor recreation as a legitimate use of our resources for many years. At the Federal level, however, outdoor recreation has for the

most part been a byproduct of public programmes to conserve the Nation's timber, water, mineral and land resources.

Establishment of our first national park - Yellowstone - in 1872 may be seen as the beginning of a Federal recreation policy. In the early 1900's the National Forest System was established - primarily for timber and watershed management. By 1940, however, there were some 19 specific Acts applicable to that System affecting administration of its recreation resources. In 1916, we established the National Park Service, During the 1930's, the Federal Government took a major step in outdoor recreation policy with the enactment of the Pittman-Robertson Act which provides grants-in-aid to the States for wildlife preservation.

During the administration of President Franklin Roosevelt, substantial recreation development occurred utilizing the Civilian Conservation Corps.

During World War II, outdoor recreation, along with other domestic programmes, lost impetus. However, a major advance in public outdoor recreation policy came in 1944 when outdoor recreation became a stated purpose of U.S. Army Corps of Engineers projects under the Flood Control Act of 1944.

Following World War II, the increase in outdoor recreation assumed dramatic proportions. This was reflected in overcrowded conditions at parks, forests, and other recreation areas in all parts of the Nation.

During the 1950's, the United States Congress increasingly recognized that, in making choices among the numerous demands on our resources, it must heed the growing public demand for outdoor recreation. This led in 1958 to the establishment by the Congress of the Outdoor Recreation Resources Review Commission to undertake an intensive nationwide study of the Nation's outdoor recreation needs and resources. The Commission was so-called "mixed Commission" consisting of four Senators and four Representatives equally divided between the two parties, plus seven private citizens chosen by the President. In the authorizing Act, the Congress assigned the Commission a three-fold mission :

1. To determine the outdoor recreation wants and needs of the people then and what they would be in the years 1976 and 2000.
2. To determine the recreation resources of the Nation available to satisfy those needs then and in the years 1976 and 2000.

3. To determine what policies and programmes should be recommended to ensure that the needs of the present and future are adequately and efficiently met.

President Eisenhower appointed Mr. Laurance S. Rockefeller as Chairman of the Commission. The Commission recruited a staff and launched an extensive study programme covering many aspects of outdoor recreation in the United States.

Separate studies were made under contract by universities, government agencies, and other research institutions on special facets of outdoor recreation such as wilderness, seashore, hunting and fishing. The Commission made the first comprehensive inventory of non-urban public recreation areas, as well as the first nationwide survey of the outdoor activity of the United States population. After three years of study and many days of deliberation, the Commission submitted its report entitled, "Outdoor Recreation for America" to the President and the Congress in January 1962. (The report is commonly known as the ORRRC Report, based on the acronym of the Commission's full name).

As a result of its review of the outdoor recreation picture, the Commission made some 50 recommendations. Among these - and one of the most basic - was its recommendation that a Bureau of Outdoor Recreation be established in the Department of the Interior. The reasoning behind this proposal is expressed by the Commission in these words :

"Providing adequate outdoor recreation opportunities for our people over the next 40 years is a major challenge that will require investment of money, resources, and work. Leadership, vision, and judgement will be needed to guide this investment into the most efficient channels. The present uncoordinated efforts cannot do the job. There must be a new agency of government at the Federal level to provide guidance and assistance to the other levels of government and to the private sector, as well as within the Federal Government itself".

Unlike the reports of some Commissions, the ORRRC Report resulted in almost immediate action. Only a month after receiving the report, President Kennedy, in a Message to Congress, endorsed several of its basic recommendations including the establishment of the Bureau of Outdoor Recreation and the Recreation Advisory Council. Secretary Udall created the Bureau on April 2, 1962, and later that month the President established the Council. The Council consisted of the Secretaries of the Interior, Agriculture, Defense, Commerce, and Health, Education and Welfare, and the Administrator of the Housing and Home Finance Agency (now the Department of Housing and Urban Develop-

ment). Its purpose was to provide broad policy advice and facilitate coordinated efforts among the various Federal agencies. The Bureau of Outdoor Recreation served as staff to the Council. In 1966, the Council was given broader authority, its membership was expanded, and it was renamed the President's Council on Recreation and Natural Beauty.

In May 1963, the Congress passed Public Law 88-29 which the Bureau's Organic Act. In passing this Act, Congress made a fundamental statement of policy :

"That the Congress finds and declares it is desirable that all American people of present and future generations be assured adequate outdoor recreation resources, and that it is desirable for all levels of government and private interests to take prompt and coordinated action to the extent practical without diminishing or affecting their respective powers and functions to conserve, develop, and utilize such resources for the benefit and enjoyment of the American people."

The Organic Act authorizes the following Bureau functions :

- a) Preparation and maintenance of a continuing inventory of the outdoor recreation needs and resources of the United States.
- b) Preparation of a system for classifying outdoor recreation resources.
- c) Formulation and maintenance of a nationwide outdoor recreation plan.
- d) Provision of technical assistance to and cooperation with the States, their political subdivisions, and private interests.
- e) Encouragement of interstate and regional cooperation in outdoor recreation planning, acquisition, and development.
- f) Encouraging interdepartmental cooperation and promotion of coordination of Federal plans and activities generally relating to outdoor recreation.

The Act also requires the heads of Federal agencies with outdoor recreation responsibilities to consult with and be consulted by the Secretary of the Interior with respect to their respective responsibilities and to carry out such responsibilities in general conformance with the Nationwide Plan authorized by the Act.

The authorities are designed to enable the Bureau to stimulate increased activity in outdoor recreation at Federal, State,

and local levels of government and by the private sector.

One of this Bureau's major responsibilities is to prepare a comprehensive Nationwide Plan at five-year intervals to guide the Nation's outdoor recreation development. The first Plan, to be published later this year, will define our present and future outdoor recreation needs, identify problems, and propose solutions. It will include information on public demand for outdoor recreation which will provide a systematic approach to this new dimension in our society and economy. It will take into consideration the programmes of the Federal, State, and local governments and of the private sector. The ORRRC studies revealed that existing recreation opportunities fall short of meeting current needs and that, while the 1960 population would double by the year 2000, demands for outdoor recreation were expected at least to triple.

The ORRRC projections have already been proved conservative. A nationwide survey conducted by the Bureau of Outdoor Recreation in 1965 showed that public participation in outdoor recreation activities had increased 51 percent since 1960. Based on that survey, we now estimate a four-fold increase in recreation participation between 1960 and the year 2000. The survey shows that walking for pleasure has become our most popular form of outdoor recreation. Swimming is second in the ranking of public recreation activity and will move up to first by the year 2000 if present trends continue. Driving for pleasure which was first in 1960, has fallen to third place. Following in order come playing outdoor games or sports, up 96 percent since 1960; bicycling, up 105 percent; sightseeing, picnicking, fishing, attending outdoor sports events, boating, nature walks, camping, horseback riding, and water skiing.

The Nationwide Plan will recommend the kinds of action needed to make certain that these burgeoning needs are effectively and efficiently met.

Another major responsibility of the Bureau is promoting Federal coordination in outdoor recreation. The need for such coordination was clearly recognized by the ORRRC Commission. As their report pointed out, "There are now more than 20 Federal agencies with programmes involving some aspect of outdoor recreation. While the programmes of these agencies are generally well planned in themselves, little thought is given in any of them to the overall development of outdoor recreation throughout the Nation. Thus a complicated and difficult pattern of intergovernmental relations is created, as numerous Federal organizations seek to work individually and separately with a wide variety of State and local agencies. There is at present no focal point for coordination of recreation policy, planning, programmes, or

management. Overall responsibility for initiating and guiding a national effort in outdoor recreation has never been explicitly assigned".

The Bureau was established primarily as a planning and coordinating agency. Our major planning objective is to assure that resources will be available to meet the variety and diversity of outdoor recreation needs and that these resources will be accessible to all citizens. Our objective in promoting coordination is to assure that all Federal programmes are directed toward meeting needs in terms of their priorities and in the most efficient manner possible.

It is important to note that the Bureau does not administer any lands or water. This function is capably handled by the longestablished agencies such as the National Park Service, Forest Service, and Corps of Engineers. It is appropriate that the Bureau not have any resource management responsibilities, since this would place it in "competition" with the management agencies and compromise its coordinating role.

Another Bureau function is the conduct of studies of particular geographic areas to determine their suitability and potential for meeting outdoor recreation needs. We are presently surveying our coastal and inland islands for their recreation potential. Some of these islands represent a last opportunity to preserve undeveloped land for outdoor recreation. An earlier Bureau study of some of the country's free-flowing rivers resulted in legislation now before the Congress that would establish a national system of wild or scenic rivers. Passage of this legislation would establish as major national policy that on certain of our rivers, the natural, scenic, and recreation benefits outweigh the benefits of water development and control purposes.

Another of the Bureau's special area studies has resulted in proposed legislation to establish a Redwood National Park in the State of California. Approval by the Congress of the Redwood proposal would signify recognition of and action to meet an important social need - to preserve the magnificent redwood for the permanent enjoyment of present and future generations. While meeting this social need is a justifiable end in itself, a Redwood National Park would also have economic benefits. For our studies show that in a relatively few years, the economic return to the affected area in northern California from a National Park would outweigh the return from harvesting the redwood trees for timber production.

While the Bureau's programme concern encompasses the traditional National Park Service objectives with respect to

preservation of unique or outstanding natural resources, creation of the Bureau signalled a new thrust and a new emphasis in resource use. Increasingly, in the last few years, the emphasis has shifted from preservation of the resource where it is, to provision of outdoor recreation opportunity where the people are. The focus has become people and their leisure needs. The new system of National Recreation Areas reflects this shift. These areas, while well above the ordinary in quality and recreation appeal, are established primarily to meet recreation need where it exists. They are generally more highly developed than traditional National Parks. Within the National Recreation Areas, outdoor recreation is recognized as the primary resource management purpose. Notable examples include Fire Island National Seashore within 40 miles of New York City, Assateague Island National Seashore off the Maryland - Virginia coast, near Baltimore and Washington D.C., and Delaware Water Gap National Recreation Area which is convenient to many millions of people in Pennsylvania, New Jersey, and New York.

Another major policy milestone in the field of outdoor recreation was enactment by the Congress in 1964 of the Land and Water Conservation Fund Act, which reflects both the general growth of interest in outdoor recreation and the shifting emphasis to people and their leisure needs. The Fund, administered by the Bureau of Outdoor Recreation, provides financial assistance to the States on a 50-50 matching basis for planning, acquisition, and development of outdoor recreation areas and facilities.

The Fund is also the source of money for the Federal outdoor recreation land acquisition programmes of the National Park Service, the Forest Service, and the Bureau of Sport Fisheries and Wildlife. Administration of the Fund is a key tool in coordinating the outdoor recreation land acquisition programmes of the three receiving agencies, National Park Service, Forest Service and Bureau of Sport Fisheries and Wildlife, to assure that priority needs are met.

The Act provides for a continuing source of revenue for both Federal and State outdoor recreation programmes. For a 25-year period, the Fund will receive revenues from the sale of surplus Federal property, from the Federal motorboat fuel tax, and from entrance and user fees at Federal recreation areas. Expenditures from the Fund currently amount to about \$100 million per year. It has proved to be inadequate to meet pressing needs, however, and the Congress is now considering legislation that would double its size.

A guiding principal of the Funds and of the Bureau is that the States play a pivotal role in providing outdoor recreation opportunity. In order to assure that the States are meeting

their priority outdoor recreation needs, a Statewide outdoor recreation plan is required to receive Fund assistance. These plans assess recreation supply and demand within the State and establish programmes for meeting State needs. Local governments participate in the programme through the States. Because the greatest needs are in our cities, the States are encouraged to share the Federal assistance with local governments. Federal financial assistance for urban parks and playgrounds dramatically illustrates the shift in public policy which has occurred.

The new recognition of recreation as an essential use of our resources did not end with enactment of the Land and Water Conservation Fund Act. In 1965, the Congress passed the Federal Water Project Recreation Act which provides that recreation shall be given equal consideration, along with irrigation, flood control, hydroelectric power, water supply, and other long-established purposes, in the formulation of multiple-purpose water resource projects by the Corps of Engineers and Bureau of Reclamation. Under this Act, the Bureau of Outdoor Recreation has a major responsibility for insuring that the tremendous recreation potential of the reservoirs constructed by these agencies in all parts of the country is fully realized. The funds invested in these projects constitute a substantial segment of the total Federal dollars expended on recreation each year. And the recreation visitors to the reservoirs outnumber those going to either the National Parks or National Forests.

A year later in 1966, in the Act establishing the new Department of Transportation, the Congress included the following language applying to all transportation programmes :

"It is hereby declared to be the national policy that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and water fowl refuges, and historic sites."

The Act also requires the Secretary of Transportation to consult with the Secretaries of Interior, Housing and Urban Development, and Agriculture, and with the States in developing transportation plans and programmes that include measures to maintain or enhance the natural beauty of the lands traversed, and to avoid or minimize damage to public parks, recreation areas, wildlife and waterfowl refuges, or historic sites. The Secretary of the Interior has delegated authority under this Act to the Bureau of Outdoor Recreation. During the brief time since this legislation was enacted, we have already found it effective in helping to avoid conflict between two major programmes each designed to meet essential and fast-growing needs - the need for efficient transportation and the need to protect the quality of our environment. This legislation is truly a reflection of the change in values taking place in the public

mind. Until very recently, the construction of a highway or an airport would definitely have had priority over a park, a wildlife refuge, or a scenic view.

These new conservation concerns were most clearly enunciated by President Johnson in a Message to the Congress in 1965 in which he said, "To deal with these new problems will require a new conservation. We must not only protect the countryside and save it from destruction, we must restore what has been destroyed and salvage the beauty and charm of our cities. Our conservation must be not just the classic conservation or protection and development, but a creative conservation of restoration and innovation. Its concern is not with nature alone, but with the total relationship between man and the world around him. Its object is not just man's welfare, but the dignity of man's spirit.

"In this conservation the protection and enhancement of man's opportunity to be in contact with beauty must play a major role. This means that beauty must not be just a holiday treat, but a part of our daily life. It means not just easy physical access, but equal social access for rich and poor, Negro and white, city dweller and farmer".

In the United States today, outdoor recreation is a major use of natural resources. But it is much more than that. It encompasses the creative use of leisure time and the growing appreciation of our natural environment. It is a reflection of the changes in our values as we seek to improve the quality of our lives.

### 13. 1. "Natural areas in Regional Planning"

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#### Summary

Through most of his evolutionary history the human animal has been a creature of nature, attuned to the moods of the seasons, and adapted to the sights, smells and sounds of the natural world. Although now surrounded by an artificial environment, through his hereditary make-up man is still functionally bound to the natural environment. For food, clean air to breathe, pure water, and psychological uplift man is still very much

dependent upon nature. Agriculture, industry, and medicine depend upon many products derived from natural plant and animal communities, and future generations can not be denied the opportunity of deriving further benefits from nature and of correcting the mistakes of our generation. Natural communities, as treasure houses of wild species diversity, must be regarded as a resource essential to the comfort and survival of the human species.

The regional planner works to insure that the future of man develops by design rather than by accident. His attention has traditionally been directed to problems of urban areas, and efforts toward regional preservation of natural areas for resource conservation have, so far, been pitifully small. As the planner continues to witness complete regional exploitation and the destruction of land and nature, he must join hands with the ecologist to preserve remnants of such natural communities as still exist. Effective long-range preservation activities must be carried out by ecological advisory boards which can locate, designate, and plan management policies for natural areas. The planner can aid in the location of potential natural areas and in establishment of the legal framework for the preservation activities. Both the ecologist and the planner, must work to gain public support for preservation projects. In his relationships with nature, man stands on the threshold of a great moral crisis, and upon his immediate decisions may hang his own future survival.

#### Man and Nature

The Human species : Who is man that Thou art mindful of him ? What is the nature of this self-indulgent creature of animal origin which procreates without continence and which despoils the land for immediate personal gain ? Is not man's nature bound up in his past evolutionary history ? Can one really plan for man's future needs without understanding his origins and past relations with the environmental resources ?

Only a short while ago, geologically speaking, the ancestors of modern man roamed the field and forest. Their food was the fruit of the hunt and the harvest of the native trees and grasses. Home was a cave or a pile of sticks or the open field where one happened to find himself when the sun began to set. Man's tools were the native stone, bone, and wood. Although physically weak and possessing senses only moderately acute, man was able to survive by living in groups which roamed the landscape, hunting here, harvesting there. Place meant little, time meant nothing.

To the sights, sounds, and smells of nature man became attuned. The greenness of leaves, the brownness of soil; irregular shapes and patterns of plants and hills; the open arch of the sky and the far gaze of the distant horizon. The songs of birds and insects by day and the whispers and murmurs of the night. Random splashing of the brook and calls of animals on the chase. The heat of the sun, the wetness of rain. Organic odors of wet soil and a thousand plants. This was a world of endless variety of sensory detail superimposed upon the regular rhythmic patterns of the cosmos, the cycle of day-night and of season. Such was the environment in which mankind passed over ninety five percent of his existence on earth, and such were the stimuli to which he, through evolutionary adaptation, became attuned. Greenness, irregularity, diversity, openness, soft sounds, gentle odors - a constant input of rather pleasant and seldom monotonous sensory stimuli. Acute dangers there were, but these were generally of brief duration and separated by long periods of relaxed vigilance. Within such surroundings man became a flexible creature, capable of coping, on the one hand, with external environmental conditions and with the internal organization of the social group, on the other. Being a generalized rather than a specialized creature, man was able to invade and survive in a remarkable variety of physical and biological environments.

During the recent and very brief period of his history wherein man has become "civilized" he has surrounded himself with an artificial environment of clothes, buildings, and cities. With increasing urbanization of the human society, man is experiencing less and less contact with the natural environment of his past, and the world of nature is being neglected and destroyed as though it were no longer essential to the existence of the human species. Upon close inspection, however, it is clear that, through his hereditary make-up, man is himself first and foremost a biological creature which, in spite of a certain amount of insulation, is still bound to the natural environment. His functional make-up is biological, and his nature is of the field and forest. Man's diet must include adequate quantities of carbohydrates, proteins (involving certain essential amino acids), fats, vitamins, minerals, and water. For respiration he requires a continuous supply of gaseous oxygen. Like other animals man returns to the environment gaseous carbon dioxide and liquid and semi-solid organic wastes. Man's body is attuned to the rhythms of nature, and he responds through hormonal and activity cycles. In the face of stress situations he reacts with hormonal mobilization of the body's defenses, and when subjected to prolonged stress he suffers hormonal depletion resulting in arthritis, nervous disorders, and a spectrum of related ailments. From the drab, monotonous screeching, reeking jungle of the urban environment man seeks escape. He must have surcease from the deadening stimuli and

routine of the factory, the office, and the city street. The world of nature is an inescapable part of man's past, present, and future, and doctors the world around recognize the restorative values of renewed contact with natural surroundings. Although science has not yet documented the case in detail, it seems likely that greenness, irregularity of pattern, the far view, the absence of time pressure, the muted smell and sound are all involved in the restorative process. This then is man, derived of nature and, of necessity, bound to periodic communion with its elements.

The natural community : But what is nature ? Plants, animals and microbes of a region live together in a state of balanced harmony which is called the natural community. Every natural community contains hundreds of species, each of which is governed by a particular spectrum of hereditary characters perfected through thousands of years of natural selection experiments. This process of elimination of the genetically unfit is referred to as adaptation. In this way individual species and whole communities have become adapted to the local set of soil and climatic factors of the region. The factors which shape adaptation are not the same from one place to another, hence the hereditary spectrum of a given species and the make-up of the total community varies from one locality to another. A forest of oak or pine is not the same from one area to the next, and the difference is clearly worth nothing on both biological and economic grounds.

Within each natural community the many species are integrated through functional relationships which impart to the system as a whole an inherent stability often referred to as the "balance of nature". Thus, the size of the populations of the individual species and of the entire community are subject to internal regulation.

Each natural community exists within the context of a non-living environment which it influences and by which it is partially controlled. Chemical materials and energy are cycled through the community and exchanged with the environment, and there is evidence that the rates of cycling are likewise controlled. A forest community, for example, regulates the soil moisture content, rate of water run-off, atmospheric oxygen and carbon dioxide levels, humidity, rainfall, and temperature.

Each natural community is a storehouse of genetic variability specifically adapted to the particular region. The diverse species are bound together in a self-balances system. In sum, the natural community contributes to the overall balance of water, weather, and atmospheric gases of a region. It stabilizes the environmental factors at levels which are favorable to the existence and comfort of the human species.

Man and nature : What is the importance of nature to man ? The case for saving remnants of nature may now be documented in some detail. Scientific evidence presently available points to the fact that the control of the natural atmospheric cycles of water, oxygen, carbon dioxide, etc. is being carried out effectively by the natural communities and that they will continue doing so if human society does not contaminate the atmosphere too much and if sufficient natural areas are left intact around the world. We know also that each natural community is a veritable storehouse of unique genetic material which we are already using to improve the strains of crop plants and livestock. The practice of medicine has been revolutionized by the discovery that soil microbes naturally produce antibiotics which can provide humans with miraculous protection against infectious agents. We know that man, himself, is mentally and emotionally refreshed by periodic contact with natural environments. We are sure that sciences has only begun to scratch the surface in its attempts to understand how the natural community regulates the cycling of materials, knowledge which will eventually aid in our understanding of the animal called man. Finally, we are certain that if we preserve remnants of each type of natural community our children will find many new uses for the species which we save, and some of the uses may be critical to their survival. The plants and animals of each region constitute a major natural resource, a national and regional treasure which must be guarded. Natural area protection is a matter of national concern. It can not be left to chance.

#### Planning for Man's Future

Perspective of the regional planner : It is the responsibility of the regional planner to insure that the future environment of man develops by design rather than by accident. He must be aware of human needs and values, on the one hand, and the resource potentials and environmental limitations, on the other. He must plan, not only for immediate objectives, but for long-range future goals. Since the regional planner is neither all-knowing nor all-powerful, he must seek to bring together the resource scientist, sociologist, environmental engineer, legislator and administrator so that the best available information may be translated into objectives and these, in turn, into action programmes. His concern is with the needs of the total population rather than with the desires of the powerful minority or the individual with special vested interest.

Traditionally, the planner has directed his attention to problems, policies, and controls related to commercial, industrial, and residential land use, as well as to public facilities such as transportation. Planning on a regional scale, while it has been practiced in the United States (witness the thirty-year

old programme carried out under the Tennessee Valley Authority), has been spotty and, for the most part, concerned with urban expansion and the related problems of air and water pollution. Efforts to preserve prime agricultural land and natural areas for resource conservation have been pitifully few and far between. In most cases they have received massive public support only under the threat of easily recognized public disaster. For example, the new state of Hawaii, threatened with the loss of a significant share of its agricultural and scenic resources to the malignancy of urban sprawl, has followed its own century-old policy (water and forest preserves were set up under the Monarchy) in the establishment of state-wide zoning controls for permanent protection of the resources upon which the growth, and possibly survival, of the islands depends. In this case the tragedy of land disappearance was rapidly becoming obvious to all. In most cases, however, urban expansion and the development of extensive recreational facilities which entail destruction of the "close-in" environment are seldom recognized as causing a real loss if the areas are converted to some intensive human use. It is easy for everyone involved to assume that anything destroyed is duplicated somewhere else many times over.

As he witnesses the dramatic in the human population, its gravitation towards the benumbing environment of urban complexes, and the resulting regional sprawl, perhaps the planner, more than any other public servant, is becoming aware of the disappearance of the natural resource base. As this pattern of complete regional exploitation is multiplied on a global scale he desperately seeks to know if something of critical value is being overlooked and lost. To this the ecologist replies that whatever is being overlooked is bound up in the natural landscape, the soils and the plant and animal communities. Long-range planning must provide for the preservation of regional representatives of the native communities if the future environment is to reflect that elemental balance upon which the human species unconsciously depends.

Accomplishment of natural area preservation : The word "conservation" has come to be synonymous with the word "recreation" in the minds of many people in public office. At the outset the planner must recognize the concept of resource preservation and the role which he may play in saving the natural environment. Further, the planner must not embrace the concept of "multiple use" of natural areas if secondary uses by the public at large will in any way interfere with the primary purpose of preservation.

Even if the planner understands the need for natural area preserves, however, he is in no position whatever to determine which specific tracts of land are the most valuable. This is a decision which can only be made within the community of environ-

mental scientists, specifically the ecologists and taxonomists, who know the native fauna and flora and who alone can recognize a disturbed area from an undisturbed one. The necessity for a working dialogue between the planner and the ecologist is clear, but in actual practice the individual ecologist is seldom in a position to provide immediate clear-cut information regarding all the areas of a region which merit preservation. Furthermore, once areas are protected, management and use policies must be developed, carried out, and periodically modified. Land inspection and scientific and educational use are continuing activities.

The most effective arrangement for the preservation of natural areas of a region involves the establishment of an ecological advisory board which maintains periodic contact with the regional planner and whose functions include the location and designation of natural area preserves as well as the administration, management, and scientific and educational use of the preserves. The planner can generally point out the directions in which urban development is moving at any given time. The scientist must be willing to inspect portions of the region which do not lie in the immediate path of the bulldozer, to identify what is worth saving and what must be saved, and to support his case with appropriate maps, text, and illustration. Armed with this kind of evidence the thinking and principled planner is likely to lend his support in the establishment of the legal framework within which preservation and management may be accomplished. Outright purchase, purchase of development rights and easements, offering of tax benefits and application of police power (zoning) have all been used at the local, regional, state and national levels within the United States to effectuate the public interest in regulating or otherwise securing the proper uses of land. In extreme cases, where a highly important area is about to disappear, emergency legislation or exercise of the right of eminent domain may be justified to prevent the destruction of the resource, and such action may prove financially expensive.

Success in the business of natural area preservation resides not only with socially active ecologists and enlightened planners. The public is also involved, and successful preservation programmes recognize the importance of public support. Whereas, certain of the preserves will be small or very sensitive to human disturbance, others will not. Wherever possible appropriate public uses should be allowed, perhaps through well-marked nature trails along which are given guided tours. In his search for the best potential natural areas the ecologist will encounter some which, although disturbed and not quite as valuable for scientific study, are nevertheless nearly natural

and of some value as preserves. Such areas might be acquired and developed as nature study areas which would be more freely available for public education and general use. The value of public support for preservation projects can not be overemphasized and public support begins with public understanding. The scientist and the planner must work together to educate the public at large as well as the legislator and administrator. Natural areas must be protected from development, vandalism, and political whim. Regardless of the party in power at any given time the national treasures are not to be touched.

Moral aspects of natural area preservation : We have seen that man evolved as a beast of the field and that he carries deep within his biological make-up, even yet, the shadow of his past. Has man progressed beyond the animal ? Does our planning only postpone the inexorable operation of ecological laws that will eventually destroy the wretched species which glimpsed a vision of eternal harmony but which failed to achieve it because of an uncontrollable reproductive drive ? In historical perspective the measure of man will be how he controlled himself and his recognition of responsibility to future generations as well as to the other species of this planet. Man can not be viewed as a phase of life in separation from all others, as if his origins and destiny were separable from the rest of the cosmic spectrum. We who plan for the future welfare of humanity are profoundly convinced that man is on the threshold of his greatest moral crisis and that the decisions made now will influence not only our immediate practical actions but the long-range survival of the human species.

### 13. 2. "Parks and natural areas in the natural landscape"

by Joseph L. Fisher

About a year ago I had the opportunity of visiting the great national park here in Bariloche in connection with a conference on natural resources sponsored by the Direccion General de Parques Nacionales and the Fundacion Bariloche. One night I walked by myself down to the shore of Nahuel Huapi Lake. The moon was bright enough for me to trace the silhouette of the mountains across and back of the lake. The wind stirred the water gently making a rough path of moonlight across the surface of the lake to the far shore. It was, I was told later, one of the coldest nights; in Buenos Aires that night the temperature went below freezing. I picked up a stone and threw it far out into the lake, and thought I could hear it strike the water. Nothing was visible except the outlines of land, water, and trees, but I could fill in the detail, as much or as little as I wished, from the fresh memory of having been on this spot early that afternoon. The experience was transcendent; one

of those occasions in a lifetime when one is lifted from the ordinary plane of living and finds himself a part of the whole design.

Nearly thirty years ago I had a similar experience near the northern end of the new world, this time at McKinley National Park in Alaska. That night was a cold one also, minus 55 degrees centigrade which is about as cold as it ever gets at McKinley Park. I walked away from the lodge about fifty yards. The cold penetrated almost immediately through my overcoat, but I stayed out long enough to look up at the great bulk of Mt. McKinley, the highest mountain in North America though falling short of Aconcagua by nearly a thousand meters. The moon was bright, or would have been except for the more spectacular play of the northern lights across the sky and across the mass of the mountain. The great shafts of red, yellow, orange, and purple lights moved rhythmically across the snow. Again the experience was a transcendent one that I shall never forget; for a few frozen moments I was unmistakably a part of the whole design.

In between Nahuel Huapi and McKinley are fourteen thousand kilometers, twenty five countries, and more than 400 million people. At present rates of population increase the year 2000 will see more than one billion people living in the Americas. This vast expanse of land and water, this western world, which must have seemed limitless to its European discoverers a few centuries ago, is being drawn together ever more rapidly by transportation and communications, economic and cultural exchange, and the entire logic of our modern situation. I examined the airline schedules recently and found that the ordinary traveler could go from McKinley Park in Alaska to San Carlos de Bariloche in Patagonia between the morning of one day and noon of the next. We have come a long way in the few centuries since Columbus, Magellan, Orellana, Drake, De Soto, Coronado, and Bering. And we are only beginning.

One of the most startling things about the evolution of the new world is the rapidity with which we are moving from a situation in which wilderness and natural areas were everywhere to one in which the bulk of the population is concentrated in cities far removed from wilderness and natural areas. From an abundance of nature we are forced to make a rapid transition to a scarcity of nature, at least from the viewpoint of most people. In sharp distinction from the past, in the future we shall have to plan for parks and natural areas, protect them, invest in them, and manage them; otherwise presently there will be none. Or, if not none in the absolute sense, then very few in relation to the needs of people for them.

My plea here is not for a particular park or natural areas in this or that country. It is for something much more difficult,

namely a new way of looking at parks and natural areas. My plea is for looking at parks and natural areas as a necessary element in the national landscape of each country. Just as land areas are needed for cities, farms, highways, forests, reservoirs, and the grazing of livestock, so land areas, and water also, are needed for parks and natural areas. Parks and natural areas should not be the remnants, the left-overs, the very remote and largely unusable areas. They should be selected deliberately to meet the needs of people and to provide the opportunities, services, and satisfactions people want. A natural area that is not needed for people or wanted by them is probably not worth having. Of course I include among the areas that people need those containing magnificent scenery, unusual and interesting species of flora and fauna, and unique scientific reserves which frequently embrace whole ecosystems, as well as those areas of direct and immediate recreational use for outdoor recreation such as camping, hiking, boating, swimming, hunting, fishing, painting, and photographing.

The diversity of possible uses leads to the need for a variety of areas from the remote mountain or lake of superb beauty to the more ordinary beach or forest. In some areas more than one kind of use can be satisfied; others will be single-purpose in character. Fortunately the countries of North and South America among them offer many types of parks and protected natural areas. Between the Arctic and the Antarctic extremities lie great mountain ranges, deserts, tropical jungles, high plains and low plains, lakes and immense rivers, and much beautiful seacoast and island scenery. The plant and animal life is equally rich and diversified. The larger countries such as Brasil and Argentina, The United States and Canada, have within their own boundaries great variety of natural areas. The more numerous smaller countries have a narrower range, but still each of them has a number of significant and interesting possibilities.

There is much to be said for viewing parks and natural areas, not alone as part of particular national landscapes but also as parts of the continental landscape. In this way my country, the United States, can feel a sense of relationship to Brasil and other Latin-American countries which have tropical rain forests, while some of the Central-American countries which have no deserts can similarly feel a relationship with Chile, Peru, the United States, and Mexico which have an abundance of desert land.

One of the mistakes sometimes made by park planners is to think solely in terms of the geographic areas and their physiographic and related characteristics. Of greater importance are the people who may use the areas. How many users are there and

how many may there be in the future ? What do we know about their interests in parks and natural areas, and how may existing interests be satisfied and new ones aroused ? How much money do people have to spend for visiting parks and natural areas ? How much money will governments devote to the acquisition, improvement, and management of such areas ? How far will people travel to visit parks and what kind of vehicles will they use ? In short, how may the demand for the use of parks and natural areas be more completely understood ?

The demand side of the equation has not been studied in a comprehensive and systematic way. Only recently have the various countries begun to gather the statistical information, define the concepts and tools for measurement, without which park planners will have to work in semi-darkness. In my own country analysis of the demand side in the last few years has progressed rapidly. This work has involved statisticians and economists, sociologists and psychologists, political scientists and public administrators, and of course land and water planners. Measured in terms of visits, the use of parks and natural areas in the United States for many years has been increasing by nearly 10 % annually. This places outdoor recreation among the rapid growth industries of the country along with electronics, plastics, and others. The principal reasons for this increase are not hard to find : they include the growing population, rising family incomes, increased mobility, more leisure time with a somewhat shorter work week and longer annual vacations, and finally an increased desire on the part of nearly everyone to escape from dull and sedentary work by going into natural areas. Most of these factors will continue to work for many years into the future so that realistically one must expect the demand for parks, natural areas, and outdoor recreation to continue to grow. Reinforcing these trends will be an increasing need to set aside natural areas for scientific purposes as storehouses for genetic materials that would otherwise be lost, and for the preservation of undamaged ecological systems.

A special and most interesting case is the possible need for preserving areas not for any particular use but simply to preserve them against the erosion of time and development. In my own country, for example, there is much sentiment for preserving a certain amount of wilderness which will be very lightly used, if at all. Apparently many people find value simply in the idea that there is protected wilderness somewhere in the country even though they will probably never visit such an area except in fancy.

These same forces on the demand side are to be found in other countries, although perhaps they are most keenly felt in the higher income, industrialized countries. Certainly I have

the impression that the national parks and magnificent natural areas in Argentina and other Latin-American countries are quite well known and that large numbers of people want to visit them. As an indicator of the recreation demand that may well flood over the Latin-American countries in the future, recent projections of the number of individual visits annually to national parks and forests in the United States point to more than 1.000 million by 1980 and nearly 9.000 million by 2000, based on postwar trends. This will mean about 27 visits on the average of each of over 300 million Americans in the year 2000. In addition is a very large projected use of other outdoor recreation areas such as other federal recreation areas, state parks and forests, and city parks, not to mention privately owned areas. In the United States during recent years a doubling of per capita income has been associated with about a five-fold increase in per capita visits to national parks. By the time per capita incomes in Latin-America taken as a whole reach the 1967 United States level, the population of the countries from Mexico south to Argentina and Chile may be twice or three times that of the United States population now. These factors taken together represent a potential increase in demand for national parks and similar areas so high as to be almost unbelievable.

Fortunately potentialities are numerous for parks and natural areas in most, if not all, of the Latin-American countries. Population density in most places is still relatively low and there are vast extents of land and water which can still be brought into a parks and natural area system at reasonably low cost. The International Union for the Conservation of Nature and Natural Resources, and especially its Latin-American members, are to be complimented for perceiving the trend of demand and the need for setting aside additional areas now and in the immediate future rather than waiting until the supply has diminished and the cost has become high.

Progress in this field would be hastened in most countries by thinking in terms of developing whole park and natural area systems. By a park system I mean an interrelated set of areas selected and managed to meet a range of human needs. The needs include outdoor recreation, scientific experimentation, scenic and wildlife preservation, among others. The types of areas will include remote and large areas of superb scenic beauty such as this one we are now in, intermediate areas of slightly less scenic attraction and uniqueness but more numerous and closer to the cities, and finally close-in areas of easy access to large numbers of people. In addition will be the scientific areas necessary for ecological, genetic, zoological, botanical, and other purposes. By a park system I mean to convey the importance of linking in a comprehensive and logical way the range of demands that people have, or may have in the future,

with the kinds of areas that are available, or may be made available.

It seems to me that only when parks and natural areas are placed in a systems framework will the full potential for them be realized. By orienting the system as much or more to people and their needs than to the geographical areas and their physical features, I believe the whole subject can more readily gain popular understanding and support. Furthermore I believe the national and regional planners and developers can more readily see the importance of parks to national and regional economies if a systematic approach of this kind is taken. Until park development becomes as respected a part of national planning as electric power, agriculture, and basic industry, progress will be slow and halting. Parks and natural areas are too important to be left entirely in the hands of amateurs and sentimentalists; they must be made appealing to budget makers and politicians. I think the systems approach I have outlined, based solidly on demand trends and supply possibilities, is the way forward.

Of key importance in any accelerated planning and development of parks and natural areas will be the selection of the areas and the establishment of criteria or standards for their use. These standards will vary from area to area, depending upon the wishes of the people and the ecological constraints against overuse. A park systems planning council might be established advantageously in each country to undertake the job of advising on the selection of areas to be included in the system and establishing the standards of use for each type of area. In many instances national or regional park services already exist to do this work. Clearly this kind of planning needs to be placed on a long range basis and needs to be reviewed from time to time. The whole exercise should be geared in with the established procedures for national and regional planning in general, and not be done in an airtight compartment without direct reference to planning in other sectors.

Fortunately in most countries there is considerable flexibility in the development of parks and natural areas depending upon the level of investment and management that can be applied. Thus, in many parks the number of users can be doubled or tripled if enough funds are invested in roads, trails, shelters, maintenance, and management generally. In some instances the substitution of intensive management for sheer open and unmanaged space can increase the enjoyment that people have in visiting the area without any sacrifice of protection from ecological damage.

There will have to be feedback between the selection of areas and the establishment of standards of use. Use standards will to some extent determine the number, location, and types of areas needed; while the kinds of areas potentially available will, to some extent, govern the standards that are possible. The day is passing when natural areas can be left entirely to themselves; we are entering the era in which all land and water areas that conceivably could be placed in a park and natural area system will have to be managed as integral parts of the landscape in each country. The only question is how.

But I want to go a step beyond a national approach; I want to urge a hemispheric approach which will bring the entire western world into its perspective. A month ago my country unveiled a new transport airplane which, properly fitted out, could carry comfortably nearly a thousand passengers at nearly a thousand kilometers an hour. Another decade could easily see thousands of North Americans wanting to spend a two weeks holiday in parks in South America, such as this one at Bariloche, and equal numbers of South Americans wanting to go north to the Yellowstone or McKinley parks. To go from Buenos Aires to Rio de Janeiro will soon be no more unusual than a trip from Buenos Aires to Rio de Janeiro was only a few years ago. We must respond to new technological events and social forces with scope and imagination. For park planners, it seems to me, this has to be in terms of a system of parks and natural areas conceived as a hemispheric system and developed accordingly. I hope this conference will provide both the inspiration and the basis for such a step forward.

To conclude, let me summarize the main points I have tried to make. The demand for parks and other natural areas will continue to grow rapidly everywhere in the Americas as population increases, incomes rise, and people become more mobile and have more free time. Levels of recreational use already experienced in the United States and Canada may be expected in the Latin-American countries in a relatively few years. So as not to be overwhelmed, each country will need more parks and natural areas and a higher level of investment in land acquisition, protection, and management.

My central proposal is that each country plan and develop its parks and natural areas systematically and comprehensively by relating the various types of areas to the different ways that people wish to use the areas. The spectrum of uses ranges from pure science to ordinary outdoor recreation for the millions of city dwellers. The spectrum of natural areas ranges from the mountains to the coast, from deserts to rain forests, from remote and superbly beautiful scenery to recreation areas close to the cities. Such parks and natural area systems can be developed more soundly and rapidly if they are integrated with

national plans and programmes that cover other land and water uses, and the economy generally. Park planning must become the business of national investment planners and budget makers.

Furthermore, I believe the time has come for thinking of parks and natural areas on a hemispheric scale in view of technological advances in transportation and the prospect for more than a billion people in the western world by the year 2000. In such an approach the needs and desires of people in all of our countries could be brought together with the full extent and variety of our existing and potential parks and natural areas, from Bariloche to Alaska. The Porteno and the New Yorker alike would then have the exciting prospect of being able one day, not too far off, to visit any park anywhere in the hemispheric system. They would be assured of a planned and well-managed area which would be a credit to their countries and a testimonial to the foresight of us here today who are trying to understand the possibilities for improving the future landscape of our two continents.

14. 1. "An approach to regional planning in relation to urban areas"

by Carl A. Carlozzi (U.S.A.)

The title of my paper implies a relationship between the urban area and the region. What I will stress in this paper is that a general relationship between urban areas and their regions is very hard to define, especially in the mid 1960's. Rather I propose that several types of relationships exist in varying degrees of strength. These are ecological, economic and cultural. With the exception of the most primitive gathering societies or perhaps simple agrarian societies, it is unlikely that all types of relationships can be drawn in equal strength between a center of population and its region.

When Lewis Mumford put forth the concept of "urban implosion" to describe the earliest formation of cities, it became easy to imagine that the city was bound to the countryside by compelling ties of ecological, economic and cultural forces. The thrust of human energy and the weight of economic production resulted from action related to the land. Cities were centres of religion, government, mutual defense and storage of surplus product, but the sustenance of the population and most of its material well-being were derived from the soil, water and forests of the region. The early cities functioned as service centres and provided social order for populations that lived outside their walls.

Such a simple relationship was not destined to last. As Mumford points out, human minds latent with inventiveness and creativity were stimulated by the interactions of the urban environment. All forms of artistic, technical and cultural skills bloomed, and with them the majority of social activities shifted to the urban arena. This shift of emphasis in human effort and activity was mostly economic and cultural rather than ecological. The city still depended on its immediate region for raw materials and food. In ecologists' terms, its energy and matter cycles were site-bound; the total system was closed.

Where the fundamental ecological lines of dependence were clearly drawn, civilizations could persist successfully if they exploited the land within the framework of nature and her processes. The fact that numerous civilizations did not live within that framework is recorded in the historical lists of national and cultural collapses.

In part we may assign some of those failures to the ecological ignorance of our predecessors. They had just enough power at their command to physically alter their environment but insufficient knowledge to project long run ecological problems and create social constraints to avoid them. We also know that wars upset otherwise functional adaptations to the landscape such as irrigation systems, agricultural regimen and transportation routes. Many early cultures never recovered from that kind of destruction, and both man and land suffered.

But this is the 20th century, and while we have surely not resolved the issues of war, we do have some capability to illumine the ecological processes by which our living world operates and upon which we are dependent. In this respect we are faced with a very basic question of how our knowledge of those processes relates to the ordering of our social and physical growth and change that seem directed today by the irrevocable forces of world-wide economic-technic urbanisation. The idea of planning the region in relation to urban areas admits of those forces and its language admits of a hierarchy of planning priorities. It is the countryside which will be developed or not developed as factors and forces in the cities demand.

As an ecologist, I wish I could say with conviction that urban areas might be in their construct and function subservient to the ecological processes of their surrounding region. I can not, however, because the direct lines of ecological dependence between the 20th century urban centre and its adjacent region are only partially drawn or vaguely operative. Indeed many of the major urban areas of this hemisphere and Europe appear to have very little material dependence on their immediate region.

The energy powering the workings of the city, the raw materials supplying its industries, and much of the food feeding its people may originate from regions far removed. Today our major cities are not "site bound", unless we are willing to extend the concept of "site" to encompass a geography that in its least scope is usually national and in its greatest scope is almost global. Since ecology is the mother of economics, anything said about urban-region relationships in the ecological sense is essentially true in the economic sense. Because we are preoccupied with economics rather than ecology, we tend to view the problems of our urban societies as mainly economic problems and seek solutions to those problems through economic means. If unemployment in the cities is a problem, we plan factories to take up the unemployed. If we must import materials to supply our new factories, then the balance-of-payments problem resulting is treated by finding export markets for our industrial product. With each increment of economic problem solving there is a further separation of the urban-industrial centre from its region. Reciprocating effects are felt less and less between city and surrounding countryside and more and more between the city and some market or economic entity across the sea or on the other side of the continent. This modern mercantilism is not entirely undesirable. It is mainly by these means that much of the small improvement in the material quality of life for millions of the world's people has been possible. Without a global economics, resource poor regions or nations would remain economically poor. It appears almost axiomatic that societies that are ecologically and economically site-bound are in the 20th century terms, "backward".

I conclude then, that it is not wise to avoid or reverse the trend toward continued expansion of inter-regional and inter-national economic interdependence. I say this not because we have managed to resolve the social or political difficulties of a global economy, or that we have found a way to adjust to nature's uneven distribution of naturally produced wealth without doing long-run ecological damage, but because I believe those problems are susceptible to human will and ingenuity.

The issues that emerge when we wish to plan the use of the region's resources are, however, confused by the absence of clear-cut relationships to the urban centres. We detect this confusion in our failure to construct an acceptable social-psychological image of what our environment should be and how we relate to it. Having lost an explicit ecological framework within which to judge the rightness or wrongness of our actions on the land, we have found no effective substitute in the economic-technic structures that today form most of our lives. To speak of an explicit relationship between the contemporary metropolitan area and its region is often to speak of exploi-

tation in its most undesirable sense - urban sprawl, pollution, soil erosion, and ruined hydrology. These problems are the opportunity costs incurred by the economic activities that make up most of what we in faith and hope call progress. They degrade that very progress, however, and their cost is high in both the long and short run.

It is possible to reconstruct the man-environment relationships along other lines. If we cannot recognize a material or commodity relationship, there is every likelihood that we can recognize a service and amenity relationship. We can create a closed system between the urban area and its region with respect to environmental quality rather than resource quantity. In the philosophical and aesthetic sense this, it seems to me, is what progress is all about - to achieve a more human and humane life with an equitable arrangement between man and the living land.

Where the root causes of the breakdown of man-land or urban-region relations are not understood then there is a tendency to treat only the symptoms of the problems. We apply cosmetics to restore landscape beauty and perform physical therapy to restore landscape functions. Truly effective regional planning goes beyond cleaning up today's mess in order to allow us greater efficiency in making tomorrow's mess. For example, regional flood control plans should not be seen as a means for creating greater economic inputs in the flood plain.

The approach to identifying the root causes of urban-region problems that I am suggesting is one that uses the relative openness of ecological-economic systems as its framework for analysis. The need for planning, the purposes of planning, the policies and priorities for which planning is conducted, and the technical-institutional means for implementing plans may each be drawn from analysis of the degree of openness.

It is apparent as one looks at various ecological and economic situations that four basic types of systems can be delineated. In the static sense they can be seen as points along a continuum from fully closed to fully open. In the dynamic sense they can be seen as progressions through time leading from the closed primitive system to the open metropolitan-industrial system.

#### The Internal Supply and Internal Market System (Type I)

In the classic condition this system is fully closed. It is primitive in its general structure, having very few resources processes and social institutions. The system is usually based on gathering, agriculture, or pastoralism. Its economy is automatic and maintains a state of equilibrium between the

population and resource use. Population densities are low and stable or very slowly growing. Growth is a simple extension of existing conditions to a larger regional base. Materials tend to cycle through the system in much the same way as they do in natural organic systems. As long as the essentials of the system remain the same, there is no need for planning. Tomorrow will be the same as today.

#### The Internal Supply-External Market System (Type II)

The major economic activities of this system depend on a regional resource base and an external market. Resources processes tend to be extractive such as mining, forestry, cash crop agriculture, and grazing. Economic functions are relatively few and continuous through time. Urban centres are evident in regions supporting this type of system. Cities typically are points of trans-shipment of regionally derived materials and may contain industries which partially refine or elaborate raw materials. The rate of flow of materials is sensitive to the demand in the market over which the region has little control. Growth of the economy is related to market growth. When the supply region enjoys the existence of a resource that is scarce in the nation or world it may rapidly deplete its resource base in an effort to maintain market advantage and gain the benefit of a current high selling price. When the region supplies materials or crops that are plentiful elsewhere, it may suffer periodic advancements and declines in its economy.

#### The External Supply-Internal Market System (Type III)

Regions evidencing this system are dependent on other regions for their materials and energy. Their economies are complex, with industrial activities predominating but with commercial and service activities highly operative within the local region. The basic functions of this system are to elaborate materials into finished products for an internal market. Populations are usually high and growing and there is a tendency to increase the kind and number of functions carried on in the urban areas in order to provide employment and expand the market for products. It is expected that the sources of supply should respond to such increases automatically, and so the urban area will attempt to exert some control over the supply regions to insure a steady flow of materials. This is often done through the control of capital and credit to the supply regions. The pull generated on distant resources tends to be depletive in character because the market region is ingrown in its concerns and will see supply regions as important so long as they are capable of maintaining a flow of materials. This system may seem to describe the relationship between a metropolitan country and its colonies, but it is also true of metropolitan centres in relation to supply regions within a nation.

The External Supply-External Market System (Type IV)

This system approaches openness. It is characteristic of the larger metropolitan areas in the world. Geographically such systems occupy positions where all forms of transportation are joined. Their economies are highly commercial through industrial activity may also be present in significant degree. The system relies on external sources for energy and material and on external markets to buy its products. Very often the external supply and markets are international which may make this system the worst of all possible worlds - to have to buy what you need from someone else to produce what you must sell to someone else and hope the difference between buying and selling results in profit.

When supply regions are naturally internal and markets are beyond National control, then the whole system may become resource depletive. I believe this is part of what is called neo-colonialism.

I would now like to discuss the dynamics of the four types of supply-market systems to outline how planning goals and policies may be suggested.

It has always been intriguing to read Utopian novels because they consistently present social-economic systems that are ecologically ideal which is to say they are closed systems operating in a state of equilibrium. I believe the universal fascination and nostalgia over primitive societies can also be understood on the same ecological terms. There is a kind of appreciation for the balanced state of affairs whether in relation to man to man or man to nature. Brenton Mackage wrote in 1928 about regional planning and set forth the concept of the "indigenous region". He didn't call it a closed system, but that is what he was describing.

What I am suggesting is that regional planning should strive to close systems that are open or are about to become more open. Utopian authors recognize that all open systems are inclined towards a bad use of the human being and are depletive of environment and resources. Planners should be aware of that also. It is significant that as we study the closed systems in the world today we describe them as backward, undeveloped, or underdeveloped. We do not, however, describe the societies as unhappy, poorly adjusted or as a scourge on the landscape. It is only when we change one or several elements in the closed system, such as cultural values, death rates or resources processes that the primitive society is degraded and its equilibrium is upset. This kind of change typifies the first step in economic development shifting the closed Type I system to a Type II system. It is historically obvious that such opening

of closed systems has occurred or we would all still be very primitive. But it is equally obvious that the opening of primitive systems has caused a considerable amount of long-lasting damage to man and nature. That we should continue today to develop underdeveloped regions without understanding the problems ecologically inherent in that activity is to perform with 20th century technology what our for-bearers did out of ignorance.

Planning the development of regions with closed systems should immediately recognize the basic problems that are inevitably attendant. These are :

- a) Exploitation of renewable resources at rates faster than natural cycles can accommodate.
- b) Use of mechanized modern equipment to increase resources processes but still follow older traditional resources use patterns.
- c) Migration of the region's population to urban areas following improvement of transportation and communication and the substitution of capital for labor.

Several factors may stimulate the opening of systems, such as : the discovery of fossil fuels and minerals; an improvement in technology or social institutions that make a non-economic substance a resource; or a change in market demand that brings slightly used resources in to vogue. Whatever the factors, the development of the regions usually depends on one or only a few resources. This leads to depletion because the market for the resources is not directly involved in the process of supply. Urban centres arising within the developing region might bring use rates into balance in the case of renewable resources or reduce the likelihood of environmental damage from the extraction and initial processing of non-renewable resources, if the source of control resided in the region. Almost always it does not. Capital and credit for resources use and often the means of transportation reside in the market. It is in the Type III or IV regional systems that pull is exerted on the supply and real control is affected on resource use rates.

Several planning policies are called for in order to close the system and bring about a means for creating equilibrium. First is the recognition that the region being planned must include both the supply and market areas. Assuming that both areas are within one country then the geographical extent of the planning region can be institutionalized.

Second, the plan should include a means for allocating resources to potential users in a way that guarantees the rate

of use will not exceed the natural production cycles under the existing state of possible management or create exclusivity of ownership that could lead to a false scarcity or surplus of resources through single control of the supply. This is what I call conservation policy. That is, the imposition of the public's interest in the long run ecological health of the environment as determined by science and economics between the resource and the first resource user. This may be done by public resource ownership, laws, tax and subsidy inducements and technical assistance.

Because there is an universal and intensifying wish by all societies to improve their material existence, it is difficult to keep a supply-market system closed. All regions or nations do not contain all the resources and energy to accomplish a truly closed system and improve living conditions even on the National level. As economic power increases through resources use and social organization there will be a need to look beyond the existing system for resources, energy or technical processes if further advances are to be made. The system must be enlarged again. Utopia only can exist where the closed system contains all the resources that it needs or if human aspirations are limited.

History has recorded an ever unfolding of larger and larger supply-market systems as technology and institutions have progressed. Our present capacity to continue this expansion is seemingly boundless. Our present attempts to close the enlarged systems are pitifully inadequate, though some efforts are made through national planning and certain types of international agreements. These are not likely to succeed as they are now carried on because they are not ecological in conception. Although the nation is a supply-market system that can be closed, it is rarely the system that should be closed; and we tend to treat only with the Market part of the system when we do act at the international level.

We achieve only a little bit on the supply end through international means. We can do this when the resources in question occupy a space which is common to all nations such as air - the treaties protecting migratory birds - or oceans - international fisheries conservation. There is the beginning of progress in preserving special or unique resources through the creation of international parks. These actions are but tokens of what is still to be done in establishing a conservation policy for the supply-market systems under which we now operate.

If planners can begin to conceive of the relationships of urban areas and regions in the fullest extent of their function and if planning can be carried out within the ecological frame-

work of what whole systems are, then there is every possibility that an equitable arrangement between man and resource is possible. This will require a much broader interpretation of ecology by the ecologists and a more effective means for bringing ecologists into planning at all levels of decision making.

There is no reason to believe that the theories of a common supply cannot be at least as well worked out as those of a common market. They will have to be if we ever hope to plan effectively. This may be asking for a great and difficult advance in science and planning institutions. But, if we are to continue the process of world-wide metropolitan growth, then developing a closed system planning approach is the only basis I know for making this the best of all possible worlds.

14. 2. "Landscape Planning with reference to urban areas - the position in South America"

by Jorge E. Hardoy, Argentina

Economically developed cities and economically developing cities

In an article published a few months ago, one of the wisest observers, who at the same time did excellent research into the urban problems of the United States, pointed out the serious problems that faced the cities of his country. "Water and air will be dangerously contaminated. An increase in contamination to levels at present characteristic of our largest cities will make relatively pure air and water one of our scarcest and most costly natural resources. Traffic congestion in our cities and in the air space above them will be unbearable. Open spaces near to built-up areas will be so scarce that the use of parks and other open recreation areas will have to be promoted". He then expressed his concern for the difficulties which the governing bodies of the cities will raise, and the decline of local authorities owing to the persistence of cliques, and that the greater part of construction would be extensions of present-day suburbs.

The physical and environmental problems of urbanization in an industrialized society based on a highly developed and specialized economy, are there clearly drawn out. My impression is that the urban problems of this society have, in principle, a solution, if the society that faces them decides to choose massive systems of speedy transport, as an alternative to the car, as a matter of policy, which allows the state to control the unnecessary subdivisions and bad usage of urban and suburban land. To impose a control on the disposal of industrial waste, and to subsidize highly the areas with low incomes so as to enable them to improve with better education and health pro-

grammes, and to evict tenants, and to face other solutions as far as their incomes will allow. The developed countries have the technical resources to analyse the problems and to carry out solutions, and financial resources can either be created, or exist already although diverted to other debatable objectives. Basically, it is a question of incorporating into the necessary economic and social programmes, an urban policy at national level and urban policies at city and metropolitan levels, which consciously place the interests of the community above those of specific groups, and to give them preference over other decisions, not so clearly definable, of national and international policy.

The United States, like all countries with a developed economy, has a relatively low urban potential in comparison with countries with a developing economy; especially is this the case if we take into account that countries with developed economies are generally highly urbanized, and that their increase of rate of birth and of growth of rural population are also comparatively low. In the countries with developing economies the situation is very different. Generally they are scantily industrialized nations, with a high percentage of their population working in agriculture, with livestock or in mines. For the most part they are also little urbanised and have a high birthrate, with an increasing rural population. In other words they possess a high urban potential, and are therefore urbanly very unstable.

The physical and environmental problems that face the countries that have not reached a very pronounced state of urbanisation are completely different, and are aggravated by the limited technical and investment resources that can be allocated to the necessary solutions. In other words, they face a state of urbanization without the adequate human resources to analyse the problems and to carry out the solutions, and without the financial resources indispensable to maintaining minimum standards of living and working conditions.

The physical and environmental problems of urbanization in the United States are also present in the economically developing cities, although not with the same intensity and on a lesser scale. On the other hand, in cities with a developing economy, other problems appear, which do not have the same importance in economically developed cities, or are comparatively less visible, as they have been faced in their time with the necessary investment and technical resources. These problems are :

- a) A population without a fixed legal address, subject to periodic threats of eviction, which lives in districts deprived of indispensable services and living quarters, or on land that is subject to frequent floods or

shifting, which are generically termed "shanty towns", and which frequently comprises a very high percentage of the total population of a metropolitan or urban area.

- b) A population which is not incorporated into society and the economy, which is partially segregated, and which has not yet been finally incorporated into the institutions and systems characteristic of urban and industrial society.
- c) A percentage of the population which has not been incorporated into the employment structure, owing to lack of opportunity, to lack of the necessary training, or to lack of physical fitness and state of health to adjust to the different requirements and standards, and which then ends up by swelling the already exaggeratedly wide third sector, or the already too large group with disguised jobs, or the unemployed.
- d) A system of urban communication and transport so deficient in most cases, that it minimizes the social and economic advantages derived from the scale of large conglomerations.

It is a fact that, as with the cities of the United States, the traveller who approaches Buenos Aires by sea sees the city under a roof of industrial smoke; and that at certain hours in the centre of Lima or Caracas it is easier to move on foot than in a car; and that in nearly all cities the most practical expedient to solve the problem of industrial waste, which is thrown into a city stream, is to encase the stream; and that the only choice many inhabitants of La Paz, or of Rosario, or of Bogota, have on a their day off is to throw themselves under a tree at the side of an access route to the centre of the city. Some of the already mentioned problems of the economically developed cities are therefore partially present. But the cities with developing economies generally do not have the same scale, or their industrialization is less and not so concentrated : far fewer cars travel along their streets, and a large proportion of the population simply does not have the income to pay for a telephone service or to waste it on taking a family to a park, or hill, or beach which is too far from their place of residence. In such circumstances the physical and environmental problems of future urbanization in countries with developing economies acquire a fundamental social importance, because the natural environment, irrespective of its degree of deterioration, is for some the only possibility of recreation.

This study is based on five suppositions :

- 1) That given the political and power structure that exists, for example, in the South American countries, it is unlikely that they can bring about the real incorporation

of the great rural and urban masses into the national economic effort and its political life.

- 2) That if the previous supposition is accepted, urbanization is an inevitable fact, regionally uncontrollable, and quantitatively of a size never known until the present; its impact is aggravated by a tendency to spontaneous concentration in a few dynamic urban centres chosen from the largest in each country.
- 3) That no South American city is at present technically, financially and administratively ready to absorb the new urban population, and to establish standards of services, equipment and essential living conditions, and at the same time to supply employment; therefore, until they earn a better level of general income, or have lower service costs, the only alternative for a growing proportion of the urban population is not to endow it with services, but only to subsidize services.
- 4) That the real cost of lodging the new urban population in acceptable living conditions, added to the cost of absorbing the existing deficiency of housing, services and the cost represented by the annual quota of rehabilitation exceed the real possibilities of investment in the South American countries, given the present situation of the economics of the governments of the area; in all the countries the deficit grows quickly.
- 5) That socially and politically urbanization constitutes a positive process, and a reflection of the spontaneous, and usually silent rebellion of those who find no alternative for work, education and survival but to move to the cities.

If we examine the process of urbanization that is operating in any of the South American countries, we will find that the five enunciated suppositions are very evident realities, although they differ in size and characteristics for every country, in spite of the fact they have not been carefully analysed and quantified. The problem that faces Brasil, which has to absorb by 1980, that is in the next thirteen years, an increased population of about 27.655.000 people, is of a very different size from that of Uruguay, an urbanly stable country which is endowed with a higher and better distributed income per capita, and with an already ancient tradition of housing, education and health service programmes.

In the same way Argentina, a country which can be considered urbanly moderately stable, does not have at its disposal the same technical and investment resources as Bolivia, as implied in its recent process of urbanization, though basically a rural

and agricultural country. However, in spite of the different extents of urbanization and different available resources, one can see a similar phenomenon in both countries : gradually man has been losing control of his environment, which has become always less propitious for life in society and for the efficient function of operations inherent in a city.

We are aware that irrespective of what we do, urban environment in the future cannot be the same as at present, not even a scheme a hundred or five hundred times larger than was carried out during the colonial period, or during the republican period, or during the first phase of industrialization. One mistakenly tends to accept the fact that the city of the future has to be an enlarged version of the city of the past.

We must, above all, recognize that it is very difficult to predict the future of our cities, just as it is difficult to predict the future of our society or economy. The present-day city is a complex organism whose internal structure is constantly affected by modern technology. This is one of the great differences between cities with developing and with developed economies. In cities with developed economies the incorporation first of all of the car, then of the new means of commercialization and communication, and the changing attitudes with respect to the desirable forms of life in society, have determined a significant redistribution of economic activities on a scale which in the twentieth century has lost its urban quality to the metropolitan wave of urban-area. The age-old compactness of the preindustrial city was destroyed. The decentralization came about spontaneously, without its effects on the urban environment, and on the social-cultural ties of this new type of society being foreseen.

But the availability of technical and financial resources does not constitute, in itself, a guarantee that the countries that can count on them are capable of securing an adequate urban landscape. In some developed economies of today, such as, for example, in Sweden, Holland and Denmark, a wise and visionary policy of constant acquisition of land has made possible the control and guidance of urban and metropolitan development, the advanced foresight of the uses and densities of land, the conservation, and even the realization, with the work of man, of the most important values of urban landscape. The attitude in other countries was different. An American author says, referring to the United States, that "no nation has inherited a more naturally endowed country than ours", and then he adds, "the only drawback is that we are about to transform this beautiful heritage into the largest tenement building on the face of the earth". However, in the United States there exists a reaction to the decay of the city and the racial

conflict and social tensions that erupt from time to time. In the United States there is a greater general enthusiasm for the city and its problems, and a renewed interest in urban life. This is reflected in the formation of civic groups which seek the revitalisation of the central cities in metropolitan areas, the conservation of urban open spaces and of the most significant architectural groups, and which extend their interest to sub-urban and rural landscape. It is significant that the United States government has created a Ministry of Housing and Urban Development, and that the Senate has passed important, although insufficient grants for the modernisation of cities. Faced with the growing shortage of housing and civic services in the developing economies, their solutions have to be different from those countries with developed economies. Nevertheless in these countries they insist on repeating the monotonous ugliness of the enormous Los Angeles suburbs, on allowing allotments to sell useless products, on financing expensive housing and on maintaining a disorganised and unproductive bureaucracy. It is even more necessary to foresee and anticipate the future of cities with developing economies than that of economically developed cities; partly because in the majority of the former, considering the urban potential of many of these countries, urbanization is in its initial stages; also because every decision and investment acquires a relatively greater importance, owing to the scarcity of resources that can be made available, at least for long term, for the solution of the principal urban problems. For example, the foresight of the effects that any new technology will produce on them, will acquire a greater urgency because its replacement or substitution constitutes a financially difficult expense. For this reason, in countries with high urban potential, that is with very unstable urbanization, it can be important to take into account that the plans for a new city or the expanding of an old one is simpler and generally cheaper than the redesigning of an existing city.

I do not doubt that economically developed cities are in a state of crisis, and that their inefficiency in satisfying human necessities increases in spite of the growing cost of construction and building. But in developing economies I anticipate cities that constitute, by sheer size and poverty, an immediate challenge. The two hundred and seventy million new urban inhabitants who will flood into the cities of Latin-America in the next generation will not live in past or present cities, but the great majority will live in a type of city that is rising nowadays, which differs in structure, form and landscape from what up to now we have known.

Evolution of the form of the cities of South America - the classical colonial model, the republican model, the first industrial phase model and the industrial model

In the last decades, numerous theories about the future of cities have been enunciated and published, and many of them have received general attention. On the other hand, a real situation, like the accelerated process of contemporary urbanization in which the economically developing countries live, and which are realized without the minimal indispensable investments, have not received the same interest and publicity in so far as its influence over the urban forms of the future. The most frequent defect in the theories about the cities of the future lies in their lack of calculations about investment and finance, which, in the first place, by not worrying about this theme, can make one think that the urban society of the future will not be very different from present-day urban society. If this is quite possible, though improbable, in economically developed countries, then on the other hand it is possible to expect radical changes in the structure of future urban societies of developing countries. To make good the five suppositions enunciated in the first section of this work, we would find ourselves faced with a insoluble situation, which would mean maintaining internal structures which have not shown any real interest in the change. So one must ask oneself : what kind of urban society will an urbanization without investment and technical resources produce ? What urban forms will this urbanization produce ?

In the second part of this work I will synthesize four models which will show successively the evolution of the form of the cities of South America in relation to the most important social and economic processes.

The typical South American city is of colonial origin. The colonial origin evokes in most peoples minds the existence of a quadrangle placed rigidly on the land independent of the width and characteristics of the site. This image of the colonial city is correct for the majority of those founded during the conquest and Spanish colonization, except for some maritime ports, some mining centres and occasionally some regional centres, for reasons of topography, position and spontaneous origin. However in Brasil, conquered and colonized by the Portuguese, the model was entirely different.

Model 1 - The classical model of the Hispano-american colonial city

Sector 1 : The civic and commercial centre. This was organized around the main square. This square generally had the same square or rectangular form as the blocks of buildings. The

principal buildings were built around it : the cathedral or main church, the Town Hall, and depending on the importance of the city, the viceregal palace or the Governor's residence. The houses of the principal citizens, the merchants, the most powerful mine- and land-owners and the principal members of the colonial administration, and the best business premises, were built around the other sides of the square, often under arcades or lining the streets that grew from the four corners of the square. In this sector the convents of the main religious Orders, which, with their Cloisters, walled gardens and outbuildings covered considerable areas", were built; as were the Schools, hospitals, the University buildings in the towns which had them, and the houses of the wealthy classes, which in the first colonial period generally had only one floor, to which was later added an upper floor, which were organized around one, two and sometimes even three regular shaped patios. Some streets in this sector were paved and had some lighting. The greatest concentration of public and private fountains was to be found in this sector.

Sector II : The residential sector. This was a truly transitional zone where the lesser employees of the administration, the small merchants, the free craftsmen, and, by and large, the white and mestizo families with middle or low incomes lived. The houses were on a smaller scale, and with simple doorways, almost devoid of ornament. There was a much lower number of churches and business premises. At the backs of some houses there still existed walled gardens. The streets were delineated by the simple whitewashed walls, and were seldom paved. Lighting was practically nonexistent.

Sector III : The suburbs of the Hispano-american colonial cities consisted of widespread buildings extending from the central diameter of the city. The expansion of the colonial cities was slow, even in the Sees of the Viceroys and the Audiencias, and in the main ports : in 1755 one third of the surface within the walls of Lima was not built upon, and only near the end of the colonial period did the construction outside the walls of Habana reach any state of density. The villas of the suburbs continued for several miles, and were used as summer residences for the wealthy classes, or supplied fruit and vegetables for the provisions of the cities. Urban services did not exist in this sector; there were occasionally a convent, chapel or hermitage or some shop at a crossroads.

Sector IV : Beyond the suburbs extended a zone of farms, which had differing characteristics according type of exploitation peculiar to the region. Vineyards and orchards around Santiago de Chile, Mendoza or San Juan; dairies, olive groves and

intensive farming in the neighborhood of Lima; fruit trees especially peach trees, fields of corn and maize, and pasture fields around Buenos Aires. Only the bailiffs, wage earning peasants and slaves lived in this sector. The landowners lived in the city.

During the colonial period, only occasionally did a city exceed 100.000 inhabitants, and only a few exceeded 20.000. The original site could then absorb the gradual growth, without the physical surroundings suffering greater changes.

#### Model 2 - The Republican Model

The classical model of the colonial city lasted well into the 19th Century. The independence of the old Spanish and Portuguese colonies provoked a greater development in foreign trade which became controlled, especially by England, the United States and France, but which was not sufficient to prompt an urban growth. Besides the natural growth of the population, nearly all the countries entered a period of civil strife during which personal ambitions were mixed with external interests. Towards 1855 Buenos Aires was not very different from the city in which the first independent Government was proclaimed almost half a century earlier; Santiago de Vicuña Mackenna was not essentially different from the place where the battle of Maipú was fought, nor was Caracas, in the first years of Guzmán Blanco's government, different from the city in which Bolívar was born nearly a century earlier. The transformation of the urban landscape was slow, and in many cities it was almost imperceptible. Two storey houses were more usual in Sector I, although the lower floor was not altered. There appeared on the outside elements which were sometimes imported, though usually they were modifications of ornaments used during the colonial period. But the limited investment resources did not allow the construction of new buildings to house the institutions that the new governments created, which had to be housed in already existing buildings. Neither the water and lighting services nor the street paving and railings, were very different from what existed during the colonial period. The streets and squares of the central sector of the republican Lima or "the large village" as Buenos Aires was then called, kept a simple image, defined by the vertical planes of the whitewashed houses, hardly interrupted by the protruding balconies and some iron lamp post on the corner, and the horizontal plane of the street.

The changes in sector II, III and IV were even less. Sector I expanded at the expense of Sector II, and so on successively, as a consequence of the general growth of the urban population, and the expansion of the exporting groups, and the bureaucracy which, depending on its means, resided in

either sector I or II. A public transport service did not exist in any city, which, on the other hand, was still unnecessary given the small area covered by the Latin-American city at the beginning of the second half of the XIX Century. The original site did not undergo any modifications; it was still in a position to absorb the slow growth operating during the first decades of government of the new republics.

### Model 3 - Model of the first industrial phase

The impact of immigration and of the first stage of industrialization directed at the substitution of imported products by those which could be manufactured locally and at the transformation of primary national production for a foreign market, were fundamental in the transformation of the urban landscape of the Latin-American cities. This transformation took place from 1860 to 1870, and with a growing intensity as the decades passed, for the cities of the Atlantic coast, of which Buenos Aires, Rosario, Montevideo, Rio de Janeiro, San Pablo and Porto Alegre were the most significant examples. In all these cities the expansion of an economy based on country produce - cattle, cereals or coffee, according to each particular case - in conjunction with public and private colonization, attracted several million European immigrants to the ports of Argentina, Uruguay and Brasil. The immigration contribution was decisive in the quantitative growth of the urban population and in the expansion of the economy, especially in local trade, in the building industry and in other industries orientated towards internal and especially local consumption. The impact of immigration made itself felt much later on and with less intensity in the countries of the Pacific and of the north of South America, which were more difficult to reach and had more backward communications.

Between 1870 and 1920 the above mentioned cities suffered transformations of such a kind, that they could really be called new cities. The population of Buenos Aires increased nearly twelve times between 1869 and 1914; as did Rosario in the same lapse of time; the growth of San Pablo was even more accelerated.

Immigration meant the contribution of a human group more predisposed to the changing of traditional craftsmanship in industries as well as the incorporation of capital, technical innovations and a different sense of enterprise directed towards a capitalist conception. It also meant the formation of a new urban social class, with interests that differed from the traditional, and as a consequence the incorporation of the countries of the area into international trade with dependent roles which were clearly established and difficult to change. All the institutional, economic and social change, which broke

the traditional cultural roots, and which produced profound political change, was reflected in the model of the city in the first industrial phase.

Sector I : The civic and commercial centre did not change its position. The old main square continued to be the physical centre of the city, and just as centuries earlier, the Public Administration building, the Church Cathedral and the Town Hall concentrated around it. But now trade expanded along the central streets and, with the expansion of a national market - for which the main cities acted as intermediaires - and especially of a continually growing local market with the general increase in purchasing power of the new urban population. New institutions emerge in the centre : Banks, Insurance Companies, newspapers with national influence and distribution, hotels and clubs with imposing facades in French Neo-Classical, Italian Renaissance, English Tudor and Neo-Andalucian styles.

The nucleus of architects and engineers trained in Europe introduced new styles, and produced their most important works on the mansions of the landlords, mining magnates and coffee, sugar or cocoa merchants. Sector I was modernized; the streets were paved, water and drainage services were constructed, tramway lines were installed and the large railway stations appeared. The simple facades of the colonial and republican streets suddenly disappeared. Sector I lives through a constant and spontaneous redevelopment. The influence of its activities spreads out all over the city. It is still the place of residence for the wealthy classes and the most powerful of the middle class, but it is beginning to lose its social homogeneity. In consequence the land usage becomes more heterogeneous, and the centre loses its architectural unity. They build without any sense of the importance of the whole to arrive at a formal equilibrium. Land speculators come on to the scene. The past is rapidly replaced, and only the churches and their convents, a few very important large houses, and a few public buildings escape the work of transformation.

Sector II : Sector II of the previous two models has been almost completely absorbed by the expansion of sector I during this phase. So a new Sector II is formed on the old zone of villas, although its boundaries cut into and are diffusely mixed with those of the new Sector I. Sector II is almost exclusively residential with complementary services; district trade, churches, school and a few stores. Also repair shops and a few small industries appear. Not all of Sector I is provided with water, drainage and electricity, nor are its streets paved. The tramway service is produced along the principal routes, and under its influence, more intense and commercial employments are established along both sides of the streets. Sector II does

not have social uniformity. The greatest densification of immigrants occur in the employment of localized industries, of the port if it is a city with a port, of stores and in the progress of public works. In some district of Sector II, the real pockets of promiscuity, tenement buildings with two or three stories are built where the new wage-earning urban proletariat takes refuge. It is a new physical element in the urban landscape, and is in response to an also new social group, in this dynamic, forming society. But in Sector II the monotonous expansion, on a large scale, of the city based on the tireless repetition of the colonial pattern to which is incorporated houses with narrow frontage and useless depth, as a result of a factor which gradually would become fundamental to the shape of urban landscape : land speculation rising to inexhaustible limits. The houses in Sector I are one storey high. Their facades lack the colonial simplicity and incorporate plaster adornments and ironwrought balconies in designs copied from abroad. The middle class which is being formed live in Sector II, those who work in the banks and in business, in the public and private offices built in Sector I.

Sector IIIa : Industrialization in the new countries was concentrated in a few cities, generally in the main national and regional centres, which used to be at the same time state capitals and exporting ports. Foreign investment was concentrated in them, as they preferred loans to governments, and investment in urban services and railways, in banks and insurance companies, and in industries which convert the national and regional primary products, such as refrigerators, flour and textile mills, coffee processing, etc. or in industries whose production is for the local market, such as breweries, and factories for toilet articles, wine blending and building materials, etc. Its position in the city is determined by the need for water, to make it easier to ship abroad, or for use in its industrial process, and the need for railway lines when there are any, or simply by the availability of land. Its position determines the concentration of workers' houses, or the formation of new mixed districts - factories and housing - in the suburbs. Neither smells, nor smoke, nor noise are taken into account. The new industries are sometimes located a few blocks away from the traditional centre and the presence of these and their adjacent warehouses causes in a short while the obsolescence of complete districts. Industrial discharge begins to dirty the streams and rivers. Its location is a decisive factor in the tendencies for cities to grow.

Sector IIIb : Some towns, considered as independent units in Model II, find themselves incorporated into the central city by tramways and the first suburban railways. Some of these towns were summer residences in Model II; in this phase others

grew up with this function. They constituted the physical introduction to the criteria of modern metropolitan space. The intermediary area between these towns and the central cities continued to be used for villas, or were hardly inhabited. In these areas are planned at this time what are nowadays some of the main metropolitan parks.

Sector IV : The suburbia of the city in the first industrial phase had few city, and many country characteristics. The only definite outline is that of the roads that leave the centre heading inland, or the few access roads to the farms and hamlets without any continuous building along them, with the only permanent residents being from the newly forming urban society and economy. It was not sense and did not have visual and institutional characteristics, nor a way of life peculiar to the city they could see in the distance. It was not like the suburbs of industrial cities of Europe and the United States at the same period. The suburban train and tramway had not yet provoked important subdivisions. Cultivated farms, brick furnaces and empty plots were mixed with a few improvised hamlets where the workers of a few small suburban industries lived.

Sector V : The farms retreated even further. Land acquired a new value in the expectation of the hoped for physical growth of the city. The farms supplied many of the products that were consumed daily by the city. The landscape had rural characteristics, but it showed the intensive cultivation which distinguished it from the agricultural and cattle raising zones. A group of trees would mark the position of a dairy, a vegetable farm, or the position of a storehouse, a social centre for the inhabitants of this transitory sector between the city and the country. Further away were the fields of extensive farming.

The main Argentinian and Uruguayan cities were close to this model. They were the first in South America to receive the impact of immigration and industrialization. Their transformation was quick and anticipated by twenty, thirty, or more years what Santiago and Bogota would undergo in the middle of the century, and which was belatedly felt by Lima and Caracas, and which only in the last few years has reached La Paz and Asuncion. The majority of the main cities in South America and in Latin-America in general, did not undergo this first industrial phase and the impact of European immigration. They jumped from the republican to the industrial model, with migration from the rural interior of each country coming at the same time as industrialization. Without a prior and preparatory phase there began an amazing and unprecedented growth.

The first industrial phase brought about complete modifications in the natural landscape. They were carried out without considering the near future; the extensions of each city reached

Such a scale that the conservation of the natural elements became much rarer. The gorges were covered with buildings, the rivers and streams were contaminated, the trees of the former villas were destroyed and the hills were levelled out. No one thought or was interested in the fact that these elements should be preserved, so as to introduce some variation into the monotonous spectacle of concrete, bricks and asphalt. The creation of a few parks showed that some enlightened people were interested in retaining some preserved green. Soon they were insufficient, Buenos Aires and Rosario grew along the banks of two of the largest rivers; the banks of the Mapocho and the Rimac were not used for the inhabitants of Santiago and Lima. In Mar del Plata the rigid quadrangle was planned without taking into account the topography; summer resorts grew up without taking into account the natural beauty of the coast and woods. Only in Montevideo and Rio de Janeiro were projects on a grand scale carried out to transform the coast into residential and recreational places. The cities in the first industrial phase transcended the possibilities of their original sites. In spite of the fact that their population was fifteen or twenty times that of the colonial city, and the area covered was fifty or more times greater, there still existed the possibility of guiding the growth of controlling the form and of determining the use of the land and its lines of trade. Little or nothing was tried, and when, in the last years of the Second World War, urbanization reached its most advanced expression, there was no clear consciousness as to what was happening, and the unleashing of present-day urban chaos was witnessed with complete passivity and lack of vision.

#### Model 4 - The industrial city

Slowly the attraction of certain cities, in conjunction with the centralising nature of the Latin-American governments, brought about the pre-eminence of a centre on a national scale, and occasionally of two, three or more centres in their respective regions. The slight distinction of scale of the regional urban systems of the colonial and republican periods was gradually widened. While in the interior there remained many cities that were still adjusting to Models 1 and 2, and while the characteristics of Model 3 could scarcely be seen in some of the regional centres of the most economically developed countries, or countries with the most extensive surface areas, large metropolitan areas had developed with unprecedented speed. Their size and population are about to turn them into some of the quantitatively most important human conglomerations in the world. But urbanization came about without sufficient industrialization. Internal and external forces maintained power structures interested in preserving the agrarian and exporting economy. The foundations of the agrarian economy and society did not undergo substantial changes, and the low development of some regions

prompted increasing migrations. Internal migration replaced immigration, where the former was important, and it constituted in all countries the greatest factor in the accelerated urban growth which is operating in the area, greater even than the already considerable natural growth of the national and urban population of the country- So there evolved a city whose structure differed entirely from that of a highly developed country, a city with a high percentage of people unemployed or without fixed jobs, without indispensable housing and services, with a fragmented and unconnected urban structure, with signs of poverty and general decay clearly visible in the urban landscape.

Sector I : After several centuries the Main Square stopped being the commercial centre of the city, although it continued to be the civic centre. The most important public offices - the Ministries and Official Banks - existed or were built around or in the neighborhood of the Main Square. The Church Cathedral, The Curia and the new Seat of the Municipal Government kept their traditional positions. But the commercial centre expanded and branched out; when the banking and financial activities in general expanded with the development of the countries, they brought about an intense concentration of offices in the traditional centres. The centre stopped being the exclusive residential area of the wealthy classes; their houses were demolished to make way for commercial stores and businesses, banks, public and private offices, and the whole range of institutions connected with a society whose activities are always more diversified. The nucleus of this sector, which during the day is a boiling mass of humanity and traffic, at nightfall it becomes empty. Hotels, cinemas, theatres, restaurants, and confectionary give prestige to certain streets, to the extent of making them truly lineal centres, intensified and reduced in length at night. In spite of this some apartments blocks, built during the first industrial phase, were still inhabited, and the sector maintained a high permanent residence in some areas.

At first this sector expanded along the main avenues and what were traditionally reputable streets. Then, with its ascendance the neighbouring streets suffered a similar fate, until Sector I exceeded in extension the whole urban area of Model I and even a good part of Sector I and II of Model 2.

The illuminations, the advertisement posters, the noise of a continually moving human mass, show the attraction Sector I, in alternating districts, has for the whole population of the modern industrial metropolis, and even of its respective country.

Sector II : The extent and characteristics of Sector II depend on the size of the city. Generally it is devoted to residences and the commercial services and institutions that go with it;

but while in the large metropolitan areas it has a high density and very intense urban characteristics, in cities of less than half a million inhabitants, these characteristics rapidly decline. However, one can never call any sector homogeneous. Rather it is a question of areas or pockets with similar uses, but which, because of the differing purchasing power of its inhabitants, present a greater diversity of density, and a whole range of varied architectural expressions which stretch from the tenement buildings and alley ways of the first industrial phase to high class apartment blocks. The common denominator is the residential use for which it is destined. The quality and variety of institutions, the contrast between the limits of some avenues and the modest aesthetical small streets, are intimately bound to the social group which lives in each are. Within Sector II are areas of great prestige, which were being formed during the decades of Model 3, and which have become completed and consolidated over the years. Some of the areas with a significant housing plan, and general outline, do preserve a social homogeneity, others have begun a slow but progressive deterioration. Their land prices are the highest in Sector II, although they are generally lower than in Sector I.

Sector III : Further away from the traditional centre, and joined to predominantly residential Sector I, one can find an interruption in the gradient of uses which became less intense and varied the further from the centre and the nearer to the periphery. This gave way to a mosaic of uses, often homogeneous and confined to a relatively small area. Their position and pre-eminent uses depend on a series of factors that have an influence on the model, among which, the economic base of the city, the topography, the transport system and the class structure are essential. In this mosaic it is possible to distinguish some zones.

Zone IIIa : Industrial. Some industrial zones stay in the same original zones as in Model 3. Whilst the country industrializes and diversifies and specializes in its type of industry, the factors of positioning the new industries grow larger. So new industrial districts emerge in the suburbs looking for advantages of rapid access to primary materials from the interior, and a better distribution of manufactured products in the growing suburban market. The lorry has replaced the railway, as a means of transport, even in the countries with quite important railway grids. The electricity, water and drainage services have been enlarged. The options are therefore greater. The first phase industries directed towards a foreign market have been incorporated into the growing fold of the city; their positions are no longer on the boundaries. The new industries directed to the same purpose look for sites outside the metropolitan congestion, and are placed in cities with good internal and

external transport within a bigger radius of the region under the immediate influence of the metropolitan area.

Zone IIIb : Residential areas for high and middle incomes. The expansion of public transport services - buses and suburban railways - and the incorporation of the motor car induced the overturning of the traditional model (Model 1, 2 and partly 3) in favour of a model with some points in common with what grew up in the United States in the 1920's and 1930's. The technology of each country can apply, and the purchasing power of the population has a decisive influence on the urban form that will emerge spontaneously. So with regard to the lines of transport, the avenues for access to Sectors I and II, and the routes of access to the metropolitan area, a chain of zones emerge, generally outside the administrative limits of the central city, which correspond to the mentioned factors. Building is less dense. Detached houses with gardens predominate in districts that throughout Models 1, 2 and 3 were isolated farms, then weekend villas for the wealthy class. Trees line the streets. It is usual that each family possesses a car. The communities are self-sufficient, and except for the place of work, which continues to be in Sector I or IIIa, they possess everything that is necessary for the education, the provisions and the recreation of the inhabitants. Zones alternate and succeed each other between the characteristics of higher or lower class, according to the incomes; the prestige classes settle down according to which direction this succession is orientated along this or that line of expansion of the city. The topography, the amenities of the place added to a sometimes age-old tradition demand prestige zones. But the city grows from the centre in all direction in the shape of a star, by dint of the lines of communication, the intermediary zones being filled by zones with mixed uses.

Zone IIIc : The migration from the country to the main cities constitutes a comparatively recent phenomenon. It gave rise to the shanty towns of Argentina, Brasil, Chile etc. They sped towards Buenos Aires from 1930, to Lima from 1945, to Caracas from 1950, find even more recently to la Paz. This constitutes a problem that is characteristic for all Latin-America, although with different degree of magnitude. It constituted an element that formerly had little importance in urban structure, but with its acceleration it influenced economic and social principles as well as political and psychological ones. Generally they were spontaneous invasions, though nowadays they are frequently organized. They live on waste land belonging to the State or to private individuals, and there exists an obvious and sure relation between the preferred sites and the main lines of movement of the city. These unoccupied spaces are often floodable, or are slopes, river banks or deserts, and circumstances that make these districts of precarious houses sometimes penetrate nearly into

the middle of the town, like in Lima, Rio de Janeiro and Caracas, The occupants are squatters. They build their houses with a variety of materials, though they are usually precarious. These districts have none of the most indispensable services, and usually no schools or other communal amenities. In spite of the fact that they constitute ten to forty percent of the population of some of the most important Latin-American metropolitan areas, and that they continue to grow in absolute and percentage values, no State has seriously faced in depth a solution to the housing education and sanitary problems, without calculating that the lack of jobs constitutes one of the roots of social and economic borderlines in which they find themselves. The shanty towns have stopped being a transitional zone, and has become the environment for a lifetime of a growing group of the population. They are a characteristic of the cities with developing economies, and they reflect the problems of economic and social development, and the growing though often intermitent political participation of the popular masses.

Sector IV : The edge of metropolitan areas in the process of Industrialization are indefinable and with mixed and usually not complementary uses. Visually they lack unity. They do not alternate between solidly built districts, with low density, and cultivated land with trees, and empty in a near natural state, but are rather an always half urbanized, unattractive extension, and in continual expansion because of the successive uncontrolled and unguided industrialization. Its inhabitants usually have low incomes; they usually work in the industrial zones (IIIa), the secondary urban centres of the metropolitan area (V) and to a lesser degree in the centre (I). Services are generally rare and unsatisfactory; the community amenities are scattered and insufficient. Socially they seem to have the characteristics of a disintegrated society. The houses are detached; modest permanent constructions, one storey high, little houses or huts made of perishable materials. Public transport, which for the great majority is the only means of travel, is rare and congested.

Sector V : Various lesser conglomerations, some of which were really middling sized towns physically separated from the central town in Models 1 and 2 and sometimes in 3, have been incorporated into the extensive modern urban patch, when the public transport services were extended. They normally serve a residential function; some are cities for sleeping in, and light industries and workshops exist in others. Visually they are copies, on a small scale of Sector II, and socially they possess many of the facilities of these same districts.

Sector VI : The zone of villas and farms have moved to ten, fifteen, twenty or sometimes even more kilometres out from the centre of the city. Much land is left uncultivated in the hope that it will be urbanized. Its fragmentation, motivated by

speculative reasons, usually make its rational and economic exploitation impossible. The population lives very spread out; it mostly depends upon the exploitation of the land or it finds jobs in the brick furnaces or in not very remunerative jobs. Services are nonexistent.

In fifty, thirty or sometimes twenty years the urban landscape has undergone a complete transformation. Urbanization, in its development, changed the natural landscape beyond recognition, to such an extent that even in these countries unspoilt areas constitute an element that can scarcely be found.

People do not seem to give importance to what is happening. They are not worried by the destruction of the general environment where they live, or they think that they can do nothing to stop it, and they have very limited ideas about what values the particular environment should have which constitute the immediate surroundings of their work and living places. People indifferently accept without protest the bad taste and ugliness that constitutes the daily movement of the urban population; and they are ignorant of the natural elements that can be preserved by human hand and be realized for the construction of a more favourable environment. Without protesting people allow rivers and streams, trees and woods, lakes and ponds, air, grass, fauna and flora to be destroyed, to deteriorate or be modified beyond recognition. They allow micro-climates and micro-landscapes which constitute a few more different aspects of the environment of a metropolitan area, to be levelled by uniform criteria.

The importance of a natural landscape is realized when man begins to live permanently in it. The landscape of a national park, the simple formal beauty of a seaside beach, or the vital force of a chain of mountains, do not belong to the everyday or frequent experiences of city dwellers. They belong to annual experiences, or occasionally sensorially necessary ones, and therefore are biologically nought after; but every city dweller is conscious that it constitutes the exact opposite of his daily experience. Therefore it is important to discover the values of the immediate environment, to preserve them, to enhance and combine them, in order to introduce into the city dweller the sense of equilibrium which is necessary for our perception of urban space.

Basically urban space should be formed by natural space - which man finds when starting his settling, and the space created by man - by the alternation of solids and empty spaces which can define a city. But the limits of natural space and the space created by man within the urban space, are not clearly defined, nor has its interaction been satisfactorily produced. By explaining the successive models of the Latin-American city, I have tried to explain how gradually the space created by man,

with the growth and expansion of city territory, has begun by affecting, then by rendering useless, and finally by destroying this clear division - between what is natural and what is created by man - which was so clearly drawn out in the initial model. Lets see what can be done.

#### Factors conditioning future urban form

It is difficult to predict the future urban forms of the countries of this area. The technology that may be used, the level of incomes and the investment policies of the public sector which may be decided, will all greatly influence them. In spite of the superficial and polemic character of this study, it would seem that these three factors will be decisive. Some facts are obvious. Whilst the models became more complex, it is evident that we cannot clearly distinguish the sector boundaries, and on the other hand, it is easier to talk of the degrees within each sector; in other words the changes in land usage and in the social structure of each sector are replaced by discrepant uses and considerable heterogeneity, to the extent that the model divided in to sectors and zones is questionable.

Moreover, present-day uncontrolled urbanization could be regionally directed, guided and controlled to the extent that some of its problems could be overcome and minimized, if new focal points are accepted.

- a) Uncontrolled urbanization is the result of pressures exercised on the cities as a consequence of regional disequilibrium and an unequal distribution of income. It reflects a state of socio-economic injustice. The groups which exercise the greatest pressure and constitute the most important percentage of the new urban population which will try to become established, lacks the incomes indispensable to comply with the contemporary minimum standards of living, services and amenities. The usual programmes emphasize high levels of earthworks and amenities to the detriment of inconclusive housing on a larger scale, or as a possible and preferable option, the acquisition of land for future urbanization and the provision of complementary services. This alternative has several advantages :
  - 1) it benefits a group several times larger by concentrating investment on what is indispensable;
  - 2) it controls the elements whose good or bad use is essential to the definition of land usage and to the treatment of urban landscape;
  - 3) it permits one to limit the population and to furnish it with a base from which to channel its own savings (from work or investment) into its own houses and community;

- 4) it makes use of public investment as a means of leveling out, by directing it into functions and uses, to which can be incorporated, even with their small incomes, a considerable larger percentage than could be able to comply with a housing programme with the usual standards.
- b) The need for urban and suburban land grows annually, and depends on the greater or lesser success of each country in incorporating into its cities the criteria for the densification of the population, and therefore for the use of the land. It is fundamental to understand that whilst the rhythm of urbanization increases and accelerates the percentage of urban and especially suburban land which is badly used or momentarily useless for adequate purposes considerably increases by not adapting planned criteria of investment and control. Depending on the criteria and policies that it adopts, between 1960 and 2000 Latin-America will have to incorporate between 135.000 square kilometres (20 people per hectare) and 18.000 square kilometres (150 people per hectare) of urban and suburban land. With the exception of Haiti, El Salvador, Costa Rica and other countries with small areas and deficient in sufficiently agricultural land, it is not the lack of land that these countries should be concerned with. Their concern should begin in the fact that the low density impedes the construction of public services and cheap and efficient community equipment, the integration of new urban groups and the plan of an urban landscape which visually and psychologically works out favourably.
- c) The cities that have achieved a successful urban environment have been, on the whole, those of Holland, Sweden, Denmark and Switzerland. An obvious reason is that they have learnt the lesson from those countries which experienced the impact of the first industrialization. But this reason alone would not be sufficient if they had not adopted with due anticipation a continuous policy of acquisition of urban and suburban land, foreseeing its future development. Laws and regulations exclusively could not achieve the same results, and the densely urban feeling that they possess has been achieved by the ability of their inhabitants in employing wisely the materials they had at their disposal. In all of them the natural site was fundamental to the shape and plan. The natural positions of Stockholm and Copenhagen are marvelous, but also are those of Quito, Caracas, Rio de Janeiro and Bogota. But while in the two European cities the quality of natural areas of different size and characteristics contrast with simple and compact expressions in

architecture and town-planning, while the variety of squares and streets, great and small, interconnect one with another providing an adequate frame to the buildings, in the cities of Latin-America the imposing natural landscapes have been destroyed and the cities grow without personality. In the already mentioned European cities the trees, plants, rocks, slopes, lakes and streams are protected with respect and the architecture allows the open spaces to be displayed and unfold, connecting with each other in extended and varied sequences, while the natural landscape in the Latin-American cities is being hidden by the disorderly proliferation of dwellings or destroyed by the bulldozer.

- d) Cities famous for their beauty, Paris, London, Florence, Rome and others, have grown slowly. Their history stretches back and many architectural and urban styles of different epochs are impressed upon their features. In this way each one of these cities has unique and unmistakable characteristics. On the other hand nothing comparable has been attained up to now in the new and great cities planned since the last century, in Chandigarh, Islamabad, Brasilia, Canberra and others. It is not easy precisely to determine what these cities lack. Perhaps that which springs most vividly to the notice is they lack the variety of districts with "lively urban life" which characterises the former cities. Because it is not only for their urban beauty that the former cities are attractive, but also for the continuity of a framework, often architecturally neutral, which encourages the people to go out into the streets; now, in Latin-America we face an urbanization of such proportions that the growth of the principal cities of the area cannot be slow. Moreover, in spite of the fact that the level of income and education of the urban population of the area is higher, and will be even more so in the future, very much higher than that of the middle of the century and of the last century, the resources that will be able to be canalized into the creation of urban districts of beauty will be reduced or nonexistent with the already existing necessity of finding practical solutions to concrete problems. More than ever then, it is necessary to incorporate into cities of perishable materials profoundly bare of aesthetic interest, elements that attract the people and encourage a "lively urban life", even in an incomplete and casual form. These urban elements and the best designs, like the institutions they create, must be carefully analyzed in relation to the necessities, motivations and expectations of a population not wholly integrated into our concept or urban life. These elements and areas of natural landscape, incorporated into the great extension of precarious dwellings, will constitute two fundamental aspects of the future urban concept as it is actually developing.

## Conclusions

The future metropolis of Latin-America will be much more extensive dynamic and complex than any of its predecessors. Its extension will be such that it will, with difficulty be contained by the natural limits of the site where it was implanted and even by its immediate geographical limits. The changes that will occur will be most frequently in the operation of better transport and communications, and better accessibility of sectors and zones today badly served. Thus we cannot speak of the shape of the future metropolis. The concept of property that may prevail in the future : governmental decision to act with greater energy in controlling land speculation and in co-ordinating investment : the incorporation of new technology, especially applicable to systems of transport, means of communication, methods of construction and industrial progress, and the levels of middle-class incomes will notoriously influence the form of the future metropolis. The metropolis should reflect the enormous diversity of the community and not favour an enlarged version of a worn-out pattern. For this it should seek flexible plans that permit the incorporation of better standards of supply and more varied prospects. This is reflected in the changing uses of the land at the moment of concretion of these standards and prospects and in continually renewed institutions.

If the future pattern will be, as until now seems to be on the way to being, an enlarged version of the sequence of analysed patterns, the prospect is very gloomy. It does not need much imagination to foresee an immense blot of hamlets, some with services and others without, alternating with waste-land. The centre will be larger and more congested, the intermediate housing sectors will be extended and new industrial districts will have appeared without a clear judgment of location. But the dominant sight will be of shanty towns, extending in all directions in great patches of poverty and filth. Some formulas can be tried :

- a) The technology which is incorporated in the solution of urban problems should be carefully analyzed and selected. No economically developing country can indulge in the luxury of incorporating techniques that will in a short time be obsolete, but neither is it in the position to adopt others which imply a financially unsurpassable burden. For this, preventive measures, although they can at first cause opposition, must be clarified and implemented. This is valid in the design of avenues, in the collective transport systems, in the prohibition of the use of the automobile in certain hours and places, in the systems of commercialization, etc.

- b) The natural countryside, once destroyed, is irreplaceable. And anyway, its preservation and valuation can be achieved with very little cost. Essentially with vision and sensibility. In the enormous metropolis of the future the presence of natural landscape of different size and quality will be a necessity even more important than in the present industrial city. A careful analysis of the site could provide a register of the most important elements, those which could be declared of interest to the community and incorporated in the general design of the area.
- c) The miserable shanty towns will be, in the long run, an important element in the future urban image unless unexpected changes are produced in the social-economic policies of our countries. We cannot ignore them; that is to say, it is impossible that nothing should be done for them in the expectation of fundamental solutions. It is possible to accept them as a result of an unjust but modifiable situation, then to face their improvement by a rigorous typology.
- d) The control of urban expansion and the use of land by part of the State is the only viable solution in the face of the disaster of the private sector in the management of the land market, the chief cause of the lamentable deterioration suffered by the natural countryside in areas where it produced urbanization and urban landscape.

#### References

Harvey Perloff; "Modernizing urban development"; Daedalus, summer of 1967; p. 789

Harvey Perloff; *ibid*; p. 789

Taking into account three indications which represent potential causes of urbanization and which are the percentage of rural population over the total, the measure of increase in urban population and the measure of increase in rural population, we have defined comparatively four grades or urban stability among the ten South American countries. Uruguay is stable, Argentina and Chile moderately stable, Venezuela unstable, and Colombia, Peru, Bolivia, Paraguay, Brasil and Ecuador, in this order, very unstable. See Jorge E. Hardoy, Raul Basaldua and Oscar Moreno; "Policies of the land and mechanism for its regulation in South America"; information prepared by the Centre of Housing and Town-planning of the United Nations, October 1967

Richard Meier says : "Cities develop above all to facilitate human communications"; and then adds "... the proliferation of the technique of communication is a fundamental feature of urbanization"; see R.L. Meier, "A communications theory

of urban growth"; Joint Centre for Urban Studies; Cambridge  
1962

Peter Blake; "God's own junk yard"; p.8; Holt, Rinehart and  
Winston New York, 1964. Study attentively the excellent  
photographs.

This positive attitude has not always existed and the anti-urban  
tradition and literature is extensive. See Morton and Lucia  
White : "The intellectual against the city"; Ediciones  
Infinito, Buenos Aires, 1967

One of the most brilliant analyses of the changing urban land-  
scape of the United States is that of Christopher Tunnard  
and Boris Pushkarev; "Man's made America"; Yale University  
Press; New Haven, 1962.

It is forecast that the urban population of Latin-America will  
pass 90 up to 360.000.000 persons between 1960 and 2000.

Jorge E. Hardoy; "Aspects of urbanization in Latin-America";  
Cuadernos del CEUR, No.6, Buenos Aires, 1966.

## RESOLUTIONS

The following resolutions concerning Landscape Planning were adopted at the Latin-American Regional Conference on Renewable Natural Resources :

### 11. Landscape Planning - Development Projects

Considering the importance of the social, cultural and scientific values of landscape as a heritage of the peoples, and

considering the experience that the expansion of agricultural development and different public works tends to an increasing occupation of land in many Latin-American countries, and

in view of the fact that such development often leads to pressure upon natural and semi-natural areas,

the IUCN Latin-American Regional Conference on Conservation of Renewable Natural Resources, meeting at San Carlos de Bariloche, Argentina, on 2 April 1968,

RECOMMENDS that all such development projects should be executed in the frame-work of landscape planning, in which "protective" and "creative" measures should be integrated as a joint responsibility of ecologists, forestry experts, agronomists, civil engineers and landscape planners.

### 12. Landscape Planning Services

Considering the cultural, economic and ecological values of recreation and tourism and the necessity to study rationally the development and protection of the landscape,

the IUCN Latin-American Regional Conference on Conservation of Renewable Natural Resources, meeting at San Carlos de Bariloche, Argentina, on 2 April 1968,

RECOMMENDS to the Latin-American governments the establishment, within their respective institutions in charge of national planning, of a service to undertake the study of the development of recreation and tourism in relation to landscape planning, according to internationally accepted conservation principles, and in coordination with institutions of other countries that have direct responsibility for the control and preservation of renewable natural resources.

13. Landscape Planning - Urban Areas

Whereas the majority of the population in an increasing number of countries is concentrated in urban areas, and

whereas the modern way of life and mobility enable the population to seek easily accessible outdoor recreation areas,

the IUCN Latin-American Regional Conference on Conservation of Renewable Natural Resources, meeting at San Carlos de Bariloche, Argentina, on 2 April 1968,

RECOMMENDS that these social needs should be carefully considered in landscape planning, in relation to urban and sub-urban areas.

14. Landscape Planning - Training Landscape Planners

Whereas there is a pressing need in many countries of Latin-America and elsewhere for the planning of landscape in all rural and urban areas, and

whereas there is a serious shortage of adequately trained technical personnel in this specific field,

the IUCN Latin-American Regional Conference on Conservation of Renewable Natural Resources, meeting at San Carlos de Bariloche, Argentina, on 2 April 1968,

RECOMMENDS that the training of qualified landscape planners should be furthered at both the higher and medium levels of education. Moreover, the acquisition of knowledge and experience should be advanced by cooperation between the education centres of the different countries,

15. Landscape Preservation

Considering the importance of social, cultural and ecological values of landscape, which for these reasons constitute a property of the community and therefore should not be modified without prior detailed study,

the IUCN Latin-American Regional Conference on Conservation of Renewable Natural Resources, meeting at San Carlos de Bariloche, Argentina, on 2 April 1968,

RECOMMENDS to Latin-American governments the adoption of adequate measures in the field of public works, urbanization and establishment of state-promoted industries, to preserve the landscape for the general benefit of the community, and

FURTHER RECOMMENDS the adoption of legal and statutory rules to enforce observance by private owners.