For centuries the lure of exotic environments has induced travel. But, at no time has tourism been so highly and so massively developed, especially in America. The social and physical environmental impact in some localities is approaching that of industrialization. Therefore, it demands attention.

Among ecologists, developers, investors, and tourists, opinions vary regarding whether all the environmental changes now being made to accommodate tourism are for the better—either for tourists or the environment. (Gunn, 1972) It has been recognized that while touristic development has contributed to environmental improvement in many cases (Travel Research Association, 1970), there is a growing need for acceptance of environmental limitations on development, (Parks and Recreation Administrators Institute, 1969). If one views the impact of tourism upon the environment, there appear to be several modes of expression: enhancement, degradation and neutral interaction. Following is a brief review of these factors.

Enhancement

When one states that because of tourism the environment has been enhanced, he runs the risk of defining whose environment he is speaking about—that of the natural coral in John Pennekamp Coral Reef State Park at Key Largo, Florida or that of the tourist visiting the created Barkley and Kentucky Lakes. One could argue that if it were not for the large volumes of tourists visiting the Aransas Wildlife Refuge in Texas, the administrators of the Bureau of Sports Fisheries and Wildlife could not defend their budgets to support the management of habitat for the whooping crane. Certainly, there are many ways in which the tourist's environment has been enhanced in the last four or five decades. In some instances, the impact has been specific, in others very general. For tourism, some natural environments provide the basic lure. For much of tourism, however, undeveloped natural environments are quite hostile.

Enhanced Transportation Environment

In spite of legitimate criticisms of aspects of modern transportation, tourists of today are far better off than in the past. The dusty gravel roads, open automobiles and sooty train coaches of the past demanded that camera equipment and picnic supplies be well insulated. Modern highways, and particularly
automobiles that provide temperature control and other comfort features, reduce riding fatigue and allow greater opportunity for pleasurable and meaningful participation than in the 1930's. The increased speed of travel has provided the chance to spend many more hours at tourist destinations. The interstate system, even though poorly designed in many instances, does offer a much greater number of interesting urban and rural travel vistas than along old highways. Creative landscaping eases the driving chore, thus enabling the driver as well as his passengers to enjoy the scenery. (Forest Service, 1965; Appleyard, et al, 1967; Snow, 1967).

Enhanced Environmental Understanding

Guided tours and attraction interpretive programs have increased greatly in recent years. The National Park Service, the U.S. Forest Service and many state parks lately have initiated interpretive programs that describe to the visitors the characteristics of both historic and natural features. Package tours articulate the environment for many more visitors than ever before. The revolution in communication media--color TV, color printing, paperbacks--has expanded the opportunities for journalists and advertisers to promote tourism. What was once available only from grade school geography books is now proliferated throughout several media. Many more guide books are available to tourists, giving both on-site and pre-trip information in elaborate detail. Over 6,000 plant tours in the United States are now available to both foreign and American visitors.

Climatic Modification

Few factors are as important in explaining increased tourism in the South as that of air conditioning. The modification of man's travel micro-climate has virtually produced poly-directional dispersal of tourism, once confined to the cooler areas of the North in summer. Engineering improvements in central heating have made fall, winter and spring travel more acceptable in the North. Anyone old enough to recall the very uncomfortable cabins of the 1940's, heated by wood stoves, oil space heaters or the questionable gas space heaters, is very grateful for modern central heating-cooling systems. The innovative use of outdoor air conditioning in the theme parks such as Six Flags Over Texas and Disneyland contributed greatly to their success. Climate control has not been limited to the commercial attraction, however. Application of new fabrics and insulation materials to the development of camping equipment has provided even the most rustic backpacker with a life-support system rivaling that used on moonwalks. Camping has further been revolutionized and popularized by technological innovations in recreation vehicles that enable the tourist to carry with him the amenities of modern urban development. (Clark, et al, 1971)

Improved Biological Management

Because of the expanding number of tourists, some species of plant and animal life have increased rather than dwindled. The hunting and fishing organizations have lobbied for and obtained governmental investments and operat-
ing budgets that have increased the opportunities for seeing and hunting more fish and wildlife. Many streams and lakes have been modified to increase the yields and diversity of species. (Little, 1967) Hunting pressure has often been increased in order to maintain better balance between certain species, such as deer, and their natural food supply. In some cases more animals have been produced and their habitat improved for special hunting preserves. Many game-forest management programs have been implemented that have increased both animal and tree production. (Thomas and Marburger, 1965) Increased tourism has provided the motivation and economic support for many of these programs.

Greater Environmental Opportunities

Today's tourist has at his disposal the greatest multitude of opportunities to view and experience cultural and physical environments than ever before in the history of man. The number of "developed" destination areas and attractions has been multiplied greatly in recent years. Hundreds more parks, preserves, recreation areas, playgrounds, refuges, forests, historic sites and other areas have been dedicated by governmental agencies to tourist use in the last five years. (Travel Research association, 1970; Darling and Milton, 1966)

The non-profit sector--women's societies, youth organizations, churches, quasi-educational organizations, historical societies, foundations, and conservation organizations--has increased greatly the bank of special environmental settings for tourists to participate in. Few laymen realize the importance of such organization sponsorship of environmental enhancement: Mt. Vernon, freedom from billboards in Hawaii, Mystic Seaport, Williamsburg, Boy Scout camps, etc.

The private sector has also added greatly to the multiplicity of environmental settings. Reduced air fares have stimulated the introduction of many alternative destinations for persons previously out of the market. Thousands more vacation home sites, affording millions of people an opportunity of getting close to mountain, lake, and scenic settings, are now available.

The prospects of adapting the hostile environment of space to accommodate extraterrestrial tourists of the future are already being discussed. (Clarke, 1959; Hilton, 1967; Krafft, 1967; Tabler, 1962) Such a development would be in keeping with the historic truism that discovery, exploration, and associated transportation innovations have a direct effect on tourism by making travel to previously inaccessible destinations possible.

Quality Design

Although design specialists may not agree upon the modern design expressions, it can be argued that more of the environmental modification for tourists today is being influenced by professional designers than ever before. The parks, motels, resorts, recreation areas, theme parks, airports, highways and many other physical land developments of today are esthetically and functionally much better designed than the crude cabins, play areas, and roads of the past. More and more the environmental modifications made for tourists are done by highly trained, talented and experienced teams representing specialists from many fields, such as
economics, marketing, sociology, geography, ecology, geology, biological science, horticulture, archeology, history, as well as the more traditional design professions, such as landscape architecture, architecture, planning, and engineering. These efforts are producing new beauty as environmental modifications are made for tourist use.

Sanitation and Safety

Compared to the many dirty and poorly maintained services of years ago, much higher levels of cleanliness and safety are available to today's tourists.

As tourist service centers have grown, they have come under greater surveillance regarding water quality, food sanitation, employee hygiene, and waste disposal. Because of tourism and recreational potential, and increasing number of environmental campaigns and legal controls are forcing the improved cleanliness of recreational waters throughout the country. One major factor in the success of Disneyland has been the very high level of maintenance and sanitation of that man-created environment.

Much of touristic activity involves risk by the participant. In fact, taking a risk may be the prime attraction of many sports, such as skiing, mountain climbing, river-running, hunting, racing, and scuba diving. However, much progress has been made by both manufacturers of equipment and suppliers of services to provide safer experiences in the environment. Boat motors, ski lifts, ski bindings, underwater support systems and management plans such as the "Ski patrol" on ski areas, have much improved environmental safety for the user. A dramatic improvement in safety has been accomplished in highway travel since the building of limited access freeways.

Recent improvements in car safety are cutting down on the seriousness of automobile accidents. Safety modifications, such as the "blanket" windshield, anti-burst latch, bendable dash panel, "cushion" steering wheel, lap belt, lap-shoulder belt, head restraints, side bumpers, and disc brakes are some of these valuable safety measures contributing to better travel environments for tourists. (Fales, 1972:61)

While the means may be controversial, many resort areas are much more habitable for tourists because of insect pest control.

Degradation

At the same time that the tourist's environment for his activities is enhanced, it must be admitted that tourism frequently has negative environmental impact. It may work against other human activities and long-range protection of natural resource assets that may be needed in the future for either touristic or non-touristic uses (Patterson, 1970). How this environmental degradation compares with that of other land uses has not yet been assessed.
Pollution

In some instances, touristic development is actually causing pollution of air and water. Some remote resort communities pour all raw sewage directly into nearby waters. The volumes of tourists who travel by automobile certainly must contribute to air pollution as long as exhaust emissions remain at present levels. The tourist segment of air travel contributes its share of increasing the pollution from airplane exhaust. Some equipment, such as houseboats and cruisers, not only spill oil and gasoline and emit toxicants into the waters but also dump raw sewage directly into the waters.

Insecticides, herbicides and fertilizer additives used around resort and vacation home areas sometimes create pollutants in runoff and percolation waters. It has been found that the practice of salting of highways for prevention of ice can produce ground water contamination nearby.

Wear and Tear

Some touristic uses, particularly from great masses of people, apply such pressure upon the natural resource base to cause its deterioration. Foot trampling in picnic and camping areas can erode natural ground covers, exposing the surface to excessive sheet erosion from rains. Use of dune-buggies and excessive foot traffic can open up severe wind erosion "blow-outs" in beach dune areas. Compaction of soils can kill trees and other plant materials. One of the most serious aspects of mass tourist use is the wear and tear upon historic sites and buildings. The patina of age is essential to touristic participation and yet the construction of durable walkways, stairs, lookout points and information areas for masses of tourists sometimes destroys the image. The removal of plants, coral, animals, artifacts, semi-precious or precious stones and other collector's items produces severe wear and tear upon many rare environments. Because much of tourism is urban in its characteristics, it carries all the detrimental wear-and-tear aspects of urbanization, such as vandalism. Technological changes, such as the manufacture of sno-mobiles, trail bikes, and hover craft have increased environmental wear-and-tear, particularly on fragile resources. The limitations on use inherent in certain environments must be recognized and the balance between the cost of losing the resource and that of maintaining it must be assessed as accurately as possible. (Clawson and Knetsch, 1966)

Scenic Erosion

Probably the most serious negative environmental aspect of touristic development is that of damage to natural scenic assets. The construction of motels, hotels, restaurants, marinas, ski runs, and other facilities often creates dramatic changes in the landscape. Popular scenic settings, such as mountains and beaches probably are the most abused. Major resort destinations, such as Miami Beach or Waikiki have virtually been "walled off" by highrise apartment and hotel building for tourists. (Wehriem) Because of the great volume of automobile travelers, critical scenic areas have been seriously scarred with drives and parking lots. (Nowbray, 1969) The promiscuous use of billboards, signs, and unsightly construction by both touristic and non-touristic use also impairs many
otherwise scenic vistas. Many would say that the creation of ugliness is probably tourism's greatest contribution to the environment.

Poor Location and Site Development

Precious and limited resource assets are often abused by excessive land development. The fragmentation of ownership and lack of coordinated planning and decision-making frequently produce tourism development on much greater acreages of land than needed for proper functioning. Extensive camping, for example, long accepted among park and conservation people, is a touristic land use that takes up much space, requires long drives, long water supply lines and waste systems and inefficient management. At the same time it is often developed on sites better suited to sight-seeing or nature study. As serious is the mis-allocation of resource assets. Often, unique site assets are never identified and protected and, therefore become swallowed up by highways, buildings and other construction that could function as well or better on other sites. Because of incomplete knowledge of differential resource assets, some forms of tourism (vacation homes) may preempt other land uses (agriculture).

Drain on Services

Explosive growth of resort and tourist development can force a heavy drain on community services nearby. Even though individual sites may be well planned and managed, the added electric power, natural gas, and fuel oil must be provided by someone who extracts additional resource assets from the earth. The added governmental services, such as police, fire protection, health services and schools, in turn face an added drain on the area's or region's resources. Already, hundreds of vacation homes have been built on lands devoid of fresh water supply on faith that some solution will be forthcoming.

Environmental Conflicts

In many areas, physical environments are called upon to serve conflicting tourist uses and use standards. (Clawson, 1963) The water surface needed for water skiing is much greater than that for swimming. The beach acreage desired by one user may be hundreds of times larger than that of another. Environmental requirements during peak hunting and fishing seasons may be quite different than at other times. Because of the gregarious nature of many segments of tourists, limited beach and water areas are sometimes called upon to serve conflicting uses: waterskiing, surfing, canoeing, boating, beach lounging, shore fishing, and coastal hunting.

Domestic and Visitor Environmental Conflicts

Many local communities take a proprietary attitude toward their environmental characteristics and surroundings even though they may have limited ownership or control of them and therefore resent the intrusion of tourism. Tourist development interrupts their past images and changes patterns of land use. Many
citizens of communities prefer that their environmental assets be utilized for local interests only.

Conflicts in basic cultural heritages may be even more serious. This most often occurs when the affluent and highly developed tourist cultures are imposed on relatively primitive cultures. Distraction of the original culture through accelerated change may be the result. (Foster, 1964; Sutton, 1967)

Neutral Interaction

Compared to agriculture and manufacturing, many of the resource assets of tourism are psychological rather than physical. Therefore, the "product" is frequently something that is seen or thought about rather than consumed.

Scenery

When a tourist views a distant forest or photographs a scene, the function of the act in no way has any environmental impact upon the scene. The environmental impact of his standing, throwing discarded photo materials on the ground, or parking his car may be of considerable consequence. But, viewing sunsets, enjoying children at play, seeing wildlife in native habitat, sketching or painting of landscape scenes, writing of poetry or prose about nature, reflecting upon past touristic adventures, enjoying movies and literature about exotic environments are important touristic activities and do not deteriorate the basic attraction.

Historic Sites

The act of looking upon a statue, a document, an artifact, a building, or a site does not impair that visual objective, except, as noted above, that the individual makes environmental impact from his other physical needs and actions.

Use of Certain Watercraft

Several forms of watercraft, such as canoes, kyaks, non-powered rafts and electrically-driven boats make little if any environmental impact upon the waters that support them. In other words, the resource emerges virtually unimpaired for further use. Associated with such use are qualities that do have a detrimental effect upon the water environment, such as littering, waste disposal and congestion.

Conclusion

The relative importance of each of the above factors varies greatly with each location and situation in question. Therefore, it is difficult to make a generalized statement with any accuracy that indicates that positive environment-
tal impact outweighs (or does not outweigh) the negative impact. Nor is the question resolved in science. It is resolved by the political and social processes by which land uses for tourism are acceptable environmentally. In other words, the trade-off of increased taxes for additional services needed by tourism may be accepted by a community if it believes sufficiently in the positive values of tourism.

For example, if accurate accounting of the development of Cape Cod National Seashore were available, it might reveal that the many nearby communities now have an increased burden of providing for sea rescue and many park services that may not be covered by increased revenues from weekend tourists and increased land or sales taxes. However, from a social welfare point of view, the increased enrichment by more people through contact with natural resources may be well worth the costs. Because tourism is primarily an export business in Hawaii, the economic advantages may outweigh the changes that have taken place in the environment. The question of the degree of environmental change is a social as well as a physical one and one could argue that by means of improved technology, collaboration, design, planning and management, tourism can take place with much less environmental stress than at present. Tourism development and improved environmental quality are not mutually exclusive goals. Disney World, by spending only five percent of its development cost of $300 million insured an environmental-development balance. The techniques are available. All that is needed is the appropriate stimulus for the application of these techniques. Some may see it as the role of government to provide this stimulus. (Kimball, 1971) Others are searching for means by which the stimulus may be generated within tourism as a cooperative effort of the public and private sectors. (Cornell Quarterly, 1970; Gunn, 1969)
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