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MEASUREMENT OF ATTITUDE TOWARDS THE LANDSCAPE

THE UNIVERSITY OF ARIZONA

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MEASUREMENT OF ATTITUDE TOWARDS THE LANDSCAPE

by

Marvin S Feld

A thesis submitted to the Faculty of the
DEPARTMENT OF ART
In partial fulfillment of the Requirements
For the Degree of
MASTER OF ARTS
WITH A MAJOR IN ART EDUCATION
in the Graduate College
THE UNIVERSITY OF ARIZONA

1984

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I dedicate this to Hinda and Louie who wanted of their children only that they get an education.

"Give the people what they want,
but don't ever make them your confidant."

Orville Stoeber
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ABSTRACT

Attitude is a predisposition to act. It plays two roles in relation to the landscape. First, it acts as a screen which affects our perception of the landscape. Second, it affects the actual landscape through the way it influences behavior. This second role is the more complex, and is the one on which this study focuses. Attitude, a part of the cognitive system, plays a role in determining a society's lifestyle; and lifestyle, in turn, is a major determinate in shaping the landscape. This paper explores the interlocking relationships of Perception, Lifestyle and Landscape, attempts to define the parameters of these systems, and examines methods of measuring them so that Patterns of Response can be defined. Three kinds of patterns are defined and related to four lineal continua which are used to measure nine parameters of attitude towards the landscape.
I THE PROBLEM AND ITS SETTING

Introduction

The landscape within which we live, often perceived as a mixture of man-made and natural elements, is in reality almost exclusively the product of human activity. Cities exhibit suppression of nature; rural landscapes are the product of generations of agricultural practices; wilderness is subject to human definition and management. The landscape can be viewed as a battlefield between human and natural forces in which human society seeks dominance - control. This attitude of control of the natural environment is relatively new in the history of humankind. Human society existed over three million years before the first efforts to alter the natural environment took place. Hunters and gatherers viewed the natural environment as mysterious and sacred; a perceptual change occurred to bring about civilization - the building of cities. That brave pioneer who first gathered seed from one place and planted them in another -breaking the sacred virginity of Mother Earth- set about a chain of events well beyond her understanding. The gradual demystification of nature and the application of this new knowledge have altered the face of the earth in conformance with a vision of what the landscape should be. Science, art and technology used for the purpose of reshaping the landscape constitute landscape architecture, the springboard of this
Landscape Architecture deals with the shaping of the natural environment for human use. It is the synthesis of site and society, of ecology and technology. Ecology (from the Greek oikos, meaning house, and ology, meaning study of) deals with the shifting relationships between habitats and the communities which occupy them. Technology (from the Greek techne, meaning craft) is knowledge applied towards objects necessary for human sustenance and comfort. Science, generally, is the unraveling or demystification of nature. Art is much harder to define, but art and science in combination are the basis of the quality of life which any society enjoys. And there's the rub: it has become common to think of them as two distinct and unrelated fields. We tend to think that the scientific method is something unique and far afield from the work of artists.

The scientist begins with an hypothesis, collects and analyzes data which is then used to either prove or disprove the hypothesis. The artist begins with a concept and then works towards completion in whatever medium is the artist's chosen one. The artist's work presumably has aesthetic content, that is to say it produces an effect which has value for itself without any consequences. It would be a dangerous oversimplification to assume that there are no consequences, no residual value, from the artist's work. The work of both the scientist and the artist requires vision: the power of imagination: the mode of seeing or
conceiving what is not there. Both are rigorous disciplines requiring the application of definable skills. The difference lies in that the scientist duplicates the work of others seeking to achieve the exact same result; for the artist this would constitute forgery. The process is similar but the results are different.

Our educational system takes art lightly. It tends to treat it as a plaything useful for lightening a student's day. It teaches children that a blob of paint smeared onto a piece of paper is creative, thus a work of art. It assumes that creativity is a born gift which does not need training. Creative activity, however, is primary to both art and science and is the result of analysis and synthesis. By placing emphasis on synthesis the child and our society is cheated.

In searching for the role that art plays in our society I would like to deal with the notion of quality of life. What is it? Is it based on the accumulation of physical objects - the results of technology, or something more? It is the contention of this study that aesthetic experience is necessary for human sustenance. On the assumption that language contains the logic of a society, one can turn to the dictionary and discover certain truths embedded in the meanings of words. Among these is the belief that without the capability for aesthetic experience one is merely an autonomic creature, a robot incapable of doing more than that which is required, without capacity for feeling. This feeling - soul - is the animating principle in all human
beings. It should be the purpose of all art education to animate this principle like a language one must understand in order to speak. Art education at all levels of schooling needs to open the student to the possibility of the aesthetic experience in all aspects of life, including the environment, and in particular that shared environment: the landscape.

There is no hard edge by which one can measure the point at which a student becomes an artist, a scientist or a practitioner of any discipline. There is rather a learning process by which an individual becomes aware of, acquainted with and then proficient in a particular field of knowledge. Awareness must be the first step. Art, like any field, begins when children first become aware of their surroundings. The process of art education extends through one's entire life. Just as museums become repositories of works of art, so is the landscape a rich repository of aesthetic experience. Harold Rosenberg has written that art is anything that hangs on the walls of art galleries in London, Paris and New York; I wish to extend that to the galleries themselves, to London, Paris and New York themselves, and to their context: the landscape. The fact is that art has moved out of the museums and galleries and through the work of Christo, Smithson and others has become a part of the landscape.

Returning to the matter of aesthetics. Bernard Niemann of the University of Wisconsin has shown that generally professionals and the general public do agree on what is
beautiful or ugly in the landscape (Feld, 1982). Why do people sometimes prefer ugly objects to beautiful ones? It is not that people love ugliness, but rather that there are other considerations involved. It is the purpose of this paper to examine the considerations which determine an individual's preferences. In order to do this we need to examine the link between attitude and preference. We will categorize the areas in which preferences are acted upon in ways which affect the landscape.

The statement, "We shape our buildings and afterwards our buildings shape us," is attributed to Winston Churchill. Obviously this does not apply to morality, none the less it can just as easily be said that we shape our landscape to suit our perception of ourselves, and our landscape then becomes one of the forces which help shapes our lives. We are constantly projecting images of ourselves through the clothes we wear, the cars we drive, and the houses in which we live. Our communities are often the products of a process which measures our needs by that which we already have. This process is not dissimilar from the modern major general who leads his regiment from behind. It is a process by which synthesis is subverted to analysis. What is lacking in the process is some kind of vision of what our society needs in order to fulfill its members. It is like driving into the future while looking into the rear view mirror. A significant issue is how can the design process of the landscape address the real needs of our society. My hypothesis
is that an understanding of attitude is a key to this problem.

One needs to reach some understanding of the image which the landscape projects. An image consists of form, content and style. Form is a configuration so integrated as to constitute a single unit. Content includes the elements which contribute to the form and the message which can be read into it. Style, perhaps the most difficult with which to deal, is a mode of expression characteristic of a particular time, place or attitude (Anderson, 1965). Each of these components of image can be dealt with at great length, but that which I hope to isolate in this study is style. I would further like to ignore time and place by stating that attitude is basically a product of a particular time and place, but that each time and place can produce many attitudes. It is attitude upon which this study focuses, and how this attitude, or series of attitudes, affects one's perception of the landscape, and how this in turn affects the process by which a community shapes the landscape in which it lives. I would like to concentrate on the process landscape architects use to determine client needs: programming. In order to do this I need to elaborate further on the design process which is landscape architecture.

Landscape architects design the elements which comprise the landscape, specifically landforms, structures, and plantings (Simonds, 1961). It is a design profession which uses certain skills in order to attain a desired goal: the integration of
human uses into the natural landscape. The process is a systematic one consisting of the collection and analysis of data, the development of a concept, and the implementation of this concept. It is art and science, or perhaps as was stated by Stan White, a longtime teacher of landscape architecture, it is an art which seeks not so much to be scientific as to avoid being unscientific. It is an art which needs to conform to the laws of nature as revealed by science. The data which it uses fall into two categories: those dealing with an existing site, and those dealing with the proposed uses for that site. The latter is commonly called the program.

Landscape architecture is, essentially, an extension of community lifestyle into the landscape. The program deals with the lifestyle of the client, those people who will inhabit the newly created environment. Its purpose is to define those facilities necessary to satisfy the client's needs. The designer's first product is a description - graphic, written and mathematical - of this new synthesis of site and society. This product has form, content and style. It needs to express the attitude of the client. It is the role of the landscape architect to produce a work of art which is, in its style, expressive of the community which inhabits it.

Unfortunately the skill of programing seems to have lagged behind that of site analysis in the tool box of landscape architecture, possibly because the scientific investigation of perception is of recent origin. Though landscape architects are
adept at dealing with uses, materials and forms, little thought is given to style. Designers tend to fall back upon their own personal attitudes, feeling that this is an area of expertise which is best left to the instincts of the professional designer. Designers tend to feel that, like all artists, they need to develop their own personal styles and impose them on the client. I suspect that this is unscientific, and that the profession of landscape architecture and, more importantly, our environment suffers from it. This elitist attitude has generally led to a wider and wider gap between the tastes of the general public and the fare offered it by the design professions.

The final issue which I need to explore in order to proceed is quality of life. If the landscape is, as I have asserted, a kind of mass art work, then how does the landscape architect deal with the divergency of attitudes which exist in any society. I would like to suggest that there is a direct link between quality of life and diversity of options. It is easy to assume that the greater one's wealth the higher will be the quality of one's life. This is to a great extent true, when this wealth gives the individual more options. The final tenent of this study is that there is a direct relationship between the number of options open to an individual and the quality of that individual's life. This also applies to the community. The challenge is not to define the landscape which will satisfy the greatest number of people, but rather that which will offer the
greatest number of options to them. What I will seek to do is establish a continuum of attitude within which as many options as possible are defined.

The form of the landscape is obviously dependent on its content; it is also related to style. The central issue of this study is the relationship between the style of the landscape and public attitudes toward it. Is there one?

**Problem Statement**

Can an instrument capable of measuring individual or community attitudes towards the landscape be devised?

**Sub-Problem**

What is attitude?

How can it be measured?

What are the aspects of the landscape which need be considered in order to measure an individual's attitude towards it?

**Hypothesis**

There is a core, a centrality of belief, which determines attitude towards the landscape and behavior, and through behavior, affects the landscape itself.

**Delimitations**

This study will not attempt to measure or observe actual behavior, nor will it investigate how an individual's attitudes are established or changed, nor will it deal with morality or
ethics.

**Definition of Terms**

Attitude is defined as a mental state of readiness which exerts a response to an object or activity.

Landscape is defined as the outdoor environment consisting of natural and man made landforms, structures and plantings.

Measurement is defined as a mathematical description of an object, space or concept.

Behavior is defined as an individual's or community's observable action or response to a particular object or situation.

**Assumptions**

It is possible to define and measure one's attitude towards various components of the landscape; find correlations between those measurements; and a connection between these and a central belief system.

**Importance of Study**

The purpose of this study is to develop a tool for measuring attitude towards the landscape. This tool could be of direct use to landscape architects in their design process and of use to the community in gaining an understanding of the landscape which could best serve its needs. It is hoped that this tool can also be of use in understanding how attitudes are instilled by the educational system.
II REVIEW OF RELATED LITERATURE

Landscape Evaluation

The hypothesis states that there is a centrality of belief which controls an individual's attitude towards the landscape and eventually will effect it. What is presumed is a cause and effect relationship: ATTITUDE \rightarrow \text{LANDSCAPE}.

The landscape has been variously defined as "the landforms of a region in general" to "that small portion of land that the eye can comprehend in a single view". Thomas Saarinen (1976) defines environment as that which is external to human beings. This he further breaks down into the functional environment - the portion most pertinent to the people being studied, and the geographic environment - the whole world. Saarinen defines a continuum of space ranging from personal to room geography to architectural space to small towns and neighborhoods to large cities to large conceptual regions to nations and the world. That which we normally consider to be landscape begins at the very edge of architectural space.

In 1954 Kenneth E. Boulding, the economist, took time to delve into something far afield from his academic field of interest, something he called "knowledge in life and society". The result of his ruminations was a slender book, The Image, which has become a classic and perhaps the impetus for a new
field of study, variously called environmental perception, landscape assessment, environmental behavior and environmental psychology. The field has attracted planners, architects, landscape architects, cognitists, behaviorists, geographers, social psychologists and many young people for whom this is their prime discipline. Boulding began by describing his environment, that which he could see through his office window from the desk at which he sat. He also described what he "knew" was behind him, ending with a globe, the earth, which he knew was round. "But looking further I visualize the galaxy as one of millions upon millions of others in the universe," in other words, a belief system which was part of his personal description of his environment.

To call Boulding's book the beginnings of a new awareness is to do injustice to generations of individuals who have dealt with the landscape in a comprehensive manner. What he did was create a focus for interdisciplinary study of the landscape. One must, however, extend a perfunctory bow to Darwin and the rationalists of his generation and a perplexed salute to Patrick Geddes, the Scottish biologist/sociologist of the generation immediately after. Geddes quite often created small diagrams in an attempt to connect seemingly unrelated concepts (Kitchen, 1975). One such diagram, dating from 1917 may be the true fore runner of the study of landscape evaluation. The true meaning of this diagram may very well be buried with Geddes, for I have yet
to find an interpretation of it in the literature, however, I would like to speculate that it may provide a key to what many in the field (Zube, 1983) (Porteous, 1982) have lamented as the lack of some kind of over reaching-theory to unify the profusion of "rampantly empirical" studies. Geddes was an individual who, beginning as a botanist, became an ecologist, sociologist and city planner; he was a crucial figure in the beginnings of certain specializations. Geddes fulfilled the role which Appleton (1973) described as being able to "find new way of understanding our visible environment, and bring about the cross-fertilization of ideas to stimulate...the pursuit of old lines of inquiry and accelerate the invention of new ones'. I would like to surmise that his diagram may contain the key to understanding certain concepts which may be of value now that several diverse professions are trying to come together into the field of landscape evaluation.

![Figure #1: PATRICK GEDDES' THINKING MACHINE](image-url)
First I will examine the separate literatures in environmental perception - behavior - psychology to see if one can gain through it some understanding of an over "reaching theory". It may very well be that an emphasis on verbal description has inhibited researchers from recognizing some pattern in their joint efforts. Many of them "seem to assume that all graphic techniques lack credit" (Lynch, 1976). This may very well inhibit them from examining the kinds of data Geddes communicated through his "thinking machines". The "over riding theory gap" may only exist in the minds of those researchers in the field who fail to recognize the validity of graphic techniques. The literature of landscape architecture is rampant with examples of graphic interpretation, and that field has put together a clearly defined over reaching theory on the relationship between society and its landscape (Simonds, 1961) (McHarg, 1969). There are gaps in the theory. As empirical research has filled them, there is no framework to absorb this new knowledge. The theoretical framework which follows is essentially as it has been enunciated by Stan White, a teacher of landscape architecture at the University of Illinois from 1924 - 1959, updated through a search of recent literature.

Saarinen has defined a continuum ranging from private space to architectural space to small towns and cities-regions. In dealing with the landscape, I would like to make an addition by inserting the categories of private, semiprivate and public
space (Ashihara, 1981) as the primary area of our concern. Using Saarinen as a guide, perception as that which we can experience. The landscape which we actually experience consists of objects and the spaces they define, private or public. Cognition, rather than dealing with an individual, isolated experience, deals with that with which we interact on a regular basis. Vision is that which we are aware of existing beyond our actual knowing, it is the way in which we see the universe.

Perception.

The common denominator in dealing with perception of all landscapes is the concept of space. Spaces are formed by, and contain, objects. These objects can be categorized as freestanding, barriers - those which inhibit movement, screens - those which control views, and canopies - those which provide some form of shelter (White). To this we need to add landform, the foundation of all landscapes (Simonds, 1961). These are the elements we see when we experience a landscape, and the potential building blocks of any landscape perception theory.

Perception is the process by which one becomes aware of one's environment. Though described in many ways, the terminology which best suits our purposes is that of Robert Irwin, the environmental artist (Wechsler, 1982). To perceive is to become aware of - to sense. This is the first step of the process by which we experience the landscape. We then conceive - come to know, or itemize. We then categorize, or place into a
pattern. We synthesize - give shape to that pattern- or abstract it. That pattern then becomes imprinted, or made a part of our cognative system. It would be just as valid to describe the steps as itemize, catagorize, synthesize and cognitize - the scientific method. It is the method by which an hypothesis is fashioned and can lead to attitudes.

Within the process of perception, those steps dealing with categorization and synthesis have become known to cognitists as pattern recognition; how people identify objects in an environment (Reed, 1972), knowledge which evolved from the studies of how children learn to identify letters and read words. We have in our memory a series of templates: squares, circles and triangles. These templates are applied to a silhouette of an object or feature in order to analyze its structure. By interpreting this feature as a combination of simple templates our mind can comprehend it, pass judgement on it, and place it into a category. We find again and again the human mind passing judgement. It is this tendency, and an understanding of the process by which it is done, which is the essence of environmental evaluation.

The use of slides has been a popular method for testing people's perception of the landscape and their preferences. A pioneer in this field has been Terry Daniel, a professor of Psychology and Renewable Natural Resources at the University of Arizona. Working for the Forest Service, Daniel investigated potential aesthetic response to different forest management
policies through the use of slides (Daniels, 1976, 1977). Daniel defined scenic beauty as "an interactive concept inferred by an individual in response to his perception of landscape". He tested the general public as well as selected interest, user, and professional groups. He found that estimates of scenic beauty differed between these groups. For example, cattle growers found grassy forest landscapes to be higher in scenic beauty than did foresters, who preferred landscapes where grass was choked out by intense silviculture. In other words, while there seemed to be a general consistency within the individuals, there were differences between individuals related to their professional interests. Are these findings in conflict with Niemann's that professionals and the lay public generally agree on what is beautiful and not? One cannot be sure, but obviously one needs to deal further with the concepts of beauty and aesthetic preference.

While Daniel was testing response to forest scenic beauty, Herzog, Kaplan and Kaplan (1976, 1979, 1982) were working in urban environments using similar methods. They identified and tested two properties of the urban landscape - particular content and spatial configuration; objects and space. For both of these they identified four variables:

- Complexity - number of elements present  
- Coherence - organization of arranged elements  
- Identifiability - familiarity of scene depicted  
- Mystery - promise of further information

On testing three kinds of scenes, which they identified as Urban
Nature, Unusual Architecture, and Older Buildings, they found that for Nature people generally preferred mystery and complexity, and for buildings they preferred complexity with some kind of coherence and identifiability. Most interesting is the conclusion (Kaplan, 1979) that affordance—what an object has to offer the perceiver; what he can do with it, his potential actions—is of great significance in determining aesthetic preference.

Let me dwell a moment on the methods used to determine the content of the slides being tested: To what were the respondents actually responding? Kaplan (1979) identified certain categories of spatial configuration:

<table>
<thead>
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<th>Open</th>
<th>undefined or chaotic</th>
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<tbody>
<tr>
<td>Spacious</td>
<td>well structured</td>
</tr>
<tr>
<td>Enclosed</td>
<td>screened or protected</td>
</tr>
<tr>
<td>Blocked view</td>
<td>visual access prevented</td>
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For particular content there seemed to be two factors of importance: lineal links and dominant populations. These two factors are of great significance, for they form a strong link with landscape design theory wherein they are identified as **Nodal Connections** and **Replication**. The concept of Nodal Connections has been an important factor in urban design from Egyptian times. An endless list can be made of landscapes wherein it has been the dominant concept, notable of which are the Garden of Versailles, Hausman's plan for Paris and L'Enfant's plan for Washington, D.C. It is essentially based on the belief that geometry is the key to the universal laws of the
universe. Alberti and Palladio carried the Greek concept of geometry to "finality, giving harmonic proportions not merely to a single three-dimensional room, but to a series of spaces which though not visible at one time, would strike the mind as a single harmonic chord" (Jellicoe, 1982). The use of Greek architectural forms and the popularity of L'Enfant's plan are indicative of a certain mind set, a series of values or belief system on the part of the founding fathers of this nation (Smith, 1980).

The concept of Replications seems to be indicative of a different mind set. It has been defined by Dennis Wood (Saarinen, 1976) as the recreation of similar forms at varying scales. The Indian Mandala (fig #2) is perhaps the best example

![Figure #2: THE VASTA-PURUSHA MANDALA](image)
of this concept as an expression of an underlying belief behind an aesthetic response. The Mandala was the basis of form for not only Indian buildings, spaces and cities, but for the decorations on the facades of the buildings and in the spaces (Volwahsen, 1969). Indian architecture denied aesthetic intent. Rather all parts of their environment were intended to serve as a unified expression of the philosophy that the visible world was the materialization of the invisible; that life was just a temporary state in a changeless and timeless universe. (Jellicoe, 1982) The result of their approach was a landscape of great complexity which none the less contained a unity through the device of replication. It is interesting to note that the city of Peking makes use in its plan of a series of replicative spaces of differing scales connected by the harmonic chord of a nodal connective spine (Bacon, 1979).

Perception, that which we sense, "is not a mechanical recording of elements, but a grasping of significant structural patterns" (Arnheim, 1954). The significance of these patterns to an individual seems to relate to that individual's interests. Though individuals with different interests may find the same object aesthetically satisfying, it is when one begins to deal with preferences that these differences become significant. This will be discussed in detail in the section dealing with Attitude.

Factors other than the visual need to be dealt with in examining one's perception of spaces. One cannot ignore noise
(Appleyard, 1981), the presence of sun and shade (Whyte, 1980), or a sense of security and safety (Jacobs, 1961) (Newman, 1973). Obviously one cannot ignore odors, pleasant and otherwise as affecting one's response to a space, however, this study shall confine itself to visual factors.

Until recently there have not been any efforts to come up with a theoretically based taxonomy of space (Stokal, 1978). Just such an effort was made by Palmer (1978) in examining a length of the Appalachian Trail in Massachusetts. Typical hikers on the trail, he found, felt that the trail's appeal became very different as one moved through different environments or contexts. Not only was one's experience affected by trailside activities such as logging, or trailside vistas and features, but the activity seemed to become an entirely different kind of experience as the trail moved from backwoods to countryside to rural towns to the extent that one's expectations became different. This dimension of context, urban to rural to wilderness is apparently an extremely important factor affecting one's perception of space. In trying to answer Stokal's call for a taxonomy of space, one might suggest that the first dimension of this taxonomy be context, ranging from wilderness to urban; the second dimension being space, ranging from open to structured; and the third dimension being features, ranging from complex to simple.
Cognition

Kevin Lynch's pioneering work, *Image of the City* (1960), gave rise to a fresh way of looking at the landscape. Lynch provided us with a new set of tools which could be used to analyze the way in which one acquired, represented and processed information about a particular setting (Evans, 1980). This has given rise to a technique which has been much used by practitioners of landscape evaluation - the cognitive map: a schematic structure which helps humans search for and comprehend environmental information critical to locational and orientational decisions (Evans, 1980). This map, or image, is carried in our mind. It consists, essentially, of paths - lines of movement; landmarks - distinct physical objects; nodes - centers of activity; districts, sections of a city; and edges - boundaries between districts (Lynch, 1960). By examining the map of an environment drawn by an individual one can gain insight into that individual's concept of his or her relationship to the community in which the individual functions. In analyzing these maps it was found that certain characteristic distortions occur on a regular basis: the straightening of curving roads; the squaring of non-perpendicular intersections; the aligning of non-parallel streets (Evans, 1980). However, difficulties in orientation seem to occur where the elements are extremely uniform (DeJong, 1962). Differences in cognition seem to be based on length of residence as well as socio-economic, sex and age differences and place of residence (Saarinen, 1976). In a
study conducted by Donald Appleyard as part of the design of a new city in Venezuela (1969) it was found that differences in perception were often due to undefined genuine cognitive differences!

Though an unseemly high proportion of environmental research seems to produce awareness of negative qualities of the landscape, a study by Dennis Wood of San Christobal, Mexico (1971) found a city which has a clear positive image and which was deemed to be an attractive urban environment. This he attributed to replication in which the spatial configuration established by the central patio of the typical domestic architecture is repeated in the barrio plaza and in the central square of the city, giving the city a very strong image and a great sense of unity. Similar studies of Naples and Rome (Francescato, 1973) brought out the importance of nodal connections - whereby paths or boulevards link major landmarks or nodes - in contributing to the imagibility of the city and through it a preference for Rome as a desirable city in which to live.

What seems to follow from these findings is that the human mind seems to seek out a strong geometric concept, either nodal or replicative, in order to make sense of the landscape; give it shape: a strong image. There seems to be a strong correlation between the presence of this clarity and preferences for, or acceptance of the urban landscape.
Vision.

As Cognition is to know, Vision is to imagine or believe. The vision of the world landscape was very different to those who believed the earth to be flat from that of Boulding who knew the earth to be round, whose image of the landscape permitted him to see behind him by looking forward. This is a most extreme case of how belief affects perception. A more practical and useful one for our understanding of landscape is Ervin Zube's differentiation of belief about the landscape into three symbols: awe inspiring wilderness; the axe; and the garden (Zube, 1980). The best way to understand this is to imagine three individuals sharing the same majestic view. Each negotiates it in his own way. The first sees it as a wonderful place which he would like to see maintained for ever in its majesty as a National Park. The second sees it as a perfect place to build a cabin. The third sees it as resources ripe for exploitation: the trees are lumber; the rocks are minerals; and what is left over when they are removed is a perfect land subdivision site, free of all impediments to development. Each has a different vision of that scene, though they might all have similar perception and cognition. We need to explore these differences in depth as we deal with attitude, however, at this point we need to define differences in vision as they occur from time to time, place to place, or individual to individual.

Zube's three symbols deal with the context into which individuals place their vision of ideal landscape beauty. For
the first the context remains wilderness. For the second it has become a place of habitation, no longer wilderness by the intrusion of human habitation and its subsequent use of the landscape for sustenance: along side the cabin will sprout a vegetable garden and the trees will be cleared for fuel to feed the fireplace, eventually becoming fields of wheat; in time to give rise to a small town which, with luck, will grow into a large thriving city. To the third individual the aesthetically pleasing vision of landscape beauty is an urban environment where natural beauty has been sacrificed for the beauty of human material comfort. Reverential wilderness; the garden; and the axe, not separate and unrelated concepts, but a continuum of attitudes about context.

In order to deal with concepts concerning vision of the landscape we must recognize that society is in a constant state of change brought about through the interaction of dynamic forces. These forces come into conflict due to different attitudes about change and differences in individual attitudes. It is noteworthy that those involved in environmental evaluation view themselves as one of the dynamic forces in these conflicts, and they do not hesitate to evaluate themselves (Milbreth, 1982). This is an international phenomenon. Studies from Japan (Iwata, 1981) and Australia (Ray, 1980) have reached very similar conclusions about the characteristics of "Environmentalists": Women have greater environmental concern.
than do men; environmentalists tend to live in large metropolitan areas; they tend to be less nationalistic; are less interested in personal success; are anti-fashion, but hedonistic—tending to believe in the doctrine that pleasure or happiness is the sole or chief good in life. Can this have anything to do with the aesthetic experience?

Lifestyle

In the hypothesis we state that behavior affects the landscape. Obviously not all behavior does so. That form of behavior with which we are particularly concerned is that which is commonly called "lifestyle". The interrelationship between the two is commonly assumed in the literature. McFee and Degge (1977) for example, state that the landscape "must be planned to harmonize with the life style of people." Yet, there is no clear understanding of what is meant by "lifestyle." What I shall seek is a clearer definition of Lifestyle and its relationship to behavior.

"Lifestyle" is a rather fashionable word, one that became a cliche in the 1970's. It is used to infer everything from the deodorant one uses, to the insurance by which one lives. It does not appear in the 1970 dictionary, but by the time of Webster's Third International (1976), lifestyle had entered the logic of our society. It is defined as "an individual's typical way of life: his attitudes and their expression in a self consistent manner as developed from childhood".
Acts

To behave is to act, function or react in a particular way; to conduct oneself properly. The concept of "properly" is a significant one with which we must deal, but first I would like to inventory all of the synonyms which Webster lists for behave in order to examine its multiplicity of shades of meaning. John Ciardi, a poet, has said language contains the logic of a society. Logic is facilitated by preciseness of language.

Behave: meeting a standard of what is proper or decorous.

Conduct: action or behavior that shows the extent of one's power to control or direct oneself.

Deport: behaving so as to show how far one conforms to conventional rules of discipline or propriety.

Comport: conduct measured by what is expected or required of one in a certain class or position.

Acquit: action under stress that deserves praise or meets expectations.

The characteristics with which we must deal in order to understand behavior have to do with self control, conformity, propriety, convention, expectations of others, and class or position — status. We are dealing with acts, functions and reactions. We need to deal with a transaction between humans and the landscape (Zube, 1983). Zube uses the word "transaction in the same sense that Lanier (1982) used it in talking about art "as an exchange between the viewer and the object". We are describing an experience derived from the perception of the
landscape which includes a response. This experience can fall into one of two categories: those interfered with by distractions and dispersion, or those which run their course to fulfillment when they become integrated within (Dewey, 1934). What does Dewey mean by this?

"The meaning of the message", Boulding (1956) has said, "is the change it produces in the image." Boulding uses the word "image" to describe a kind of cognitive map which guides our behavior. This map, built up -imprinted - by all past experience changes with additional messages. These changes may be gradual or accidental, regular and well defined, or revolutionary and radical - causing a reorganization of our belief system - or merely clarifying.

If the transaction, is to be of any significance, it must produce an effect within. When one says than an aesthetic experience has no consequences one does not mean that it does not have a message. One is rather referring to a motivational consequence - one which prompts us to act.

Let us at this point introduce a hypothetical person. He is male, average age, average income. Let us hypothesize that every day, twice a day, on his way to and from his hypothetical office and the place at which he parks his hypothetical car he passes a small playground. (The playground is real.) Usually he is deeply immersed in thought: what problems do this day have in store for him; the heaviness of the traffic he will face on his way home;
the condition of his tires, his bank account, his marriage, his
custom's orthodontics (what will the neighbors think if his
customs do not have straight teeth?); the thought to which we
are all heir. Never has he noticed this playground until one
exceptional day - he has gotten a raise; his children's teeth
are all straight; his wife's long forgotten uncle has died
leaving them a small fortune. In short, he feels great; his
perceptions are heightened. Or it could have been a particularly
bad day and he dreads getting home. None the less this
playground attracts his attention for the first time. He has a
response. It enters his awareness. This response may be
aesthetic - does he find it beautiful? Not necessarily. It might
be a Proustian response based on childhood memories involving
the school bully; but the playground has evoked a response, a
transaction - a message has been sent by the playground to him.
And he has received it. The playground has become an experience.
We are now dealing with behavior -a transaction- not perception.
The line between the two is not a brick wall, it is rather more
like a chain link fence. It is this link between perception and
behavior -the transaction/response- which will be examined here.

Aesthetic Response

Dealing with aesthetic preferences brings into play the
problem that aesthetic theory is imprecise; that there is not
available to us an organized body of theory or even common
definitions, but the concept of aesthetics is commonly used to
refer to the values inherent in works of art (Sadler & Carlson, 1982). Yet, it is commonly held as stated by McFee and Degge (1977), that "a people's values and beliefs are expressed through their art."

Art is defined by Sadler and Carlson (1982) as "the deliberate creation of forms symbolic of human feelings." Fine art is often described as the purest human produced medium of aesthetic content. At its least it produces pleasant sensations which have been organized by the artist (Clark, 1963), but the aesthetic content cannot be sharply marked off from the intellectual. (Dewey, 1934) Though it is almost impossible to prove the relationship between the aesthetic effect of the landscape and well being (Sadler & Carlson, 1982), it is totally relevant that we look at art in order to understand landscape, for as Walter Pater wrote in 1885, "In its primary aspect a great picture has no more difficult message for us than the accidental play of sunlight and shadow." One could undoubtedly say the same of the landscape. At a much more complex level, however, both are transactions filtered through the screens of our past experiences, our belief systems and the contexts in which we come upon them (Lanier, 1982). "Different acts, episodes, occurrences melt and fuse into a unity which is neither emotional, practical or intellectual, but a combination of all in which one of these qualities may dominate" (Dewey, 1934). What is it about a particular work of art which might cause one to respond to it; pause before it for several minutes after
having mindlessly wandered through endless corridors filled with similar works of art, and have a transaction with it? We need to look at this transaction as the passage of a message between the object and the viewer. The behavior of the viewer is dependent upon the viewers receptivity to that message (Boulding, 1956). The message, or image, has form, content and style; some congruence between the sender, the message and the receptor must exist. Kenneth Clark (1963) suggested "that stylistic changes which appear throughout history, though they may seem almost accidental to other aspects of life in that society, may indeed be part of a spiritual revolution." Barbara Novak (1980) in examining American painting of the mid 19th century discerned a direct link between awe inspiring naturalistic painting, the nature worship characterized by Emerson's amalgamation of the words "God" and "Nature", and the opening of the western wilderness made possible by the Louisiana Purchase. Art may indeed embody the spirit of the times.

Is there some kind of framework which can be used to demarcate the "spirit" contained in artworks of different eras or artists? Warren Anderson (1965) suggested a range of art expression which moves through the naturalism of a Wyeth or Vermeer to the non-objectivism of a Jackson Pollock. He has identified 11 general styles of art expression from the pure to the pictorial. In a similar vein, Kenneth Clark (1963) sees art as the connection between the blot and the diagram, with
pictorial falling somewhere between the two. Blots, he defines as "marks not intended to convey information, but which seem pleasant and memorable, which can tell us about the artist and, through association, things we have forgotten". An almost perfect description of Jackson Pollock's controlled randomness, and perhaps the chaos of untrammelled nature. The diagram, he defines, as "a rational statement in a visible form involving measurements". Is he talking about the work of Frank Stella, or of a land subdivision? Rudolph Arnheim (1971) has related these same two tendencies to the second law of Thermodynamics, that having to do with entropy: the measure of the relationship between disorder and a perceived state of order. Arnheim describes the two stylistic trends as the display of extreme simplicity, exemplified by Malevich, and relying on accidental or deliberately produced disorder. The latter he traces back to the randomly gathered subject matter and untidy scenes of early Dutch still lifes.

One might suggest that there is a "spirit" which unifies particular schools of art and different art forms of the same era, and even similar art forms of separated eras. We can think of this spirit as being either Romantic or Classical; Blot or Diagram. We can envision this spirit being submerged for several generations, then reappearing. How else can one explain the reappearance of Greek Classical forms in the Renaissance, in Colonial America and then again in the City Beautiful movement of the early 20th century, which then became submerged in
Bauhaus Classicism, in contrast to the more sensual style, foretold by the art movement of the 1960's, currently emerging as the Neo-Romantic movement? As Albert Einstein pointed out, theories can not be proven, they can only be disproved, but in order to identify some "over-reaching theory" dealing with the relationship between landscapes and the communities which build and inhabit them, one must deal with the "underlying spirit of the times" and the way in which they influence the style of the objects, spaces and communities which comprise the man-made portion of the landscape, and the response to nature; Appolonian or Dionessian, Classical or Romantic, Blot or Diagram.

Let us, for a moment, return to our man at the playground. When we left him he had for the first time noticed it after having passed it twice a day for several years. His first response is aesthetic: he pauses for a moment; has a transaction with it; then moves on. Or does he? No! He stops again! Looking around to make sure no one is observing him, he removes his jacket, places it atop his attache case on the ground, and quickly climbs up the ladder of the slide and slides down! Picking up his jacket and case, he resumes his walk to the car. This is an act; a single isolated act motivated by some unclear impulse. When he gets home to his heiress wife he suggests that they do something special to celebrate.

"Shall we go to our favorite expensive French restaurant?" she asks.
"No," he replies, "let's do something different. Let's take our beautiful children with their now perfect teeth to McDonalds. On the way we can stop at the park and play on the playground."

"Have you gone out of your mind?", she asks. "What will people think?"

"I don't care what people think; we're rich now."

The conclusion of the story is that they had such a good time at the playground that they do it again and again. It has gone from being a single act, to being a multiple one, to being a continuous act - becoming part of the pattern of their "lifestyle".

Pattern

Maslow (1970) has described "an arrangement of basic needs in a hierarchy of less or greater priority". The highest priority being survival, and the lowest, growth. Mercer (1976) categorizes needs as Primary - psychological (safety, orderliness, belongingness and esteem); and Secondary - self actualization. By self actualization I presume Mercer to mean the same thing as Maslow's growth. Cosgrove and Jackson (1972) describe a topology of time; the way one spends one's day: sleeping, personal care, shopping, work, leisure, etc.

Lineal time has been dealt with by Parr (1963) who defines different age groups by their changing needs. He has developed a continuum of Childhood - Adolescence - Adult Domesticity - Adult
Emancipation - Old age.

All of the above fall within the dictionary definition of Lifestyle which can be said to consist of 3 parameters: Needs, Pattern and Change. By pattern we mean a reliable sample of traits, actions, or other observable features characterizing an activity, the activity being lifestyle. A conceptual framework emerges by resolving these three interrelated insights into human behavior into the following hierarchy of parameters.

Maturity: "The child is father to the adult." As one matures, one moves through Parr's 5 stages; each stage being consistent with the previous one.

Need: A slight modification from Mercer's terminology to Biological, Psychological and Social might be appropriate. These needs are the motivations for human behavior at all levels of maturity.

Pattern: This is the typology of time, and the visible aspect of behavior. If one were to observe a typical individual's behavior one could establish a pattern to their typical day: self care, shopping, work, leisure; activities which occur in the privacy of the home, or in public and semi-public spaces.

It can be seen that an individual's behavior in each of these parameters is related to their behavior in all. Behavior is obviously related to maturity, it is obviously motivated by not only biological needs, but by psychological ones such as role, status, self worth, competition and achievement. (Murphy,
Shopping can be not only a form of acquisition, but of leisure and status. Leisure fulfills 3 functions: relaxation; entertainment; and personal development. (Murphy, 1974) All of these are directly related to one's maturity, and are reflections of values, attitudes and aspirations (Havinghurst, 1957).

Aspiration

To aspire is to desire a lofty object; aspiration is a strong desire to achieve something high or great. Just as our perceptions are "contaminated" by wishes, hopes, anxieties and expectations (Maslow, 1970) so is our behavior an expression of our maturity, our needs and our ambitions. In order to discern and understand a pattern one must see behavior as an accommodation between our environment and our aspirations: the external and the internal.

Vision, our imagination, is related to aspiration and plays a role in risk assessment. Why do people continue to live in areas subject to flooding on a periodic basis? In a study of natural hazards, Sorenson and White (1980) postulated two models of human response: human change and change in the environment (compliance and control). Human changes would include reactions ranging from moving away from the risk to buying a great deal of insurance. Changes in the environment could entail flood control projects. The researchers felt that societies could be classified into 4 categories by how they
respond to environmental conditions:

1. Preindustrial: rural agrarian, people adjust.
2. Transitional: rural - urban migration.
3. Industrial: complex political institutions control events
4. Post Industrial: mixed strategies based on research.

Obviously we are now in the fourth phase in which a linial continuum of reaction to imagined risk, ranging from acceptance of the natural environment to change of it, is possible, however not all members of a community necessarily share this perception, and their lifestyle may indeed be reflective of beliefs associated with a past era.

To summarize: Behavior can be viewed as an act which is motivated by external and internal forces. This stimulation produces a response (which can be aesthetic) to any object which we perceive. Acts repeated become lifestyle s, which can be defined by maturity, need and pattern. It can be described by an individual's aspirations which are reflected in an individual's current lifestyle.

**Attitude**

In the chain ATTITUDE --→ LIFESTYLE--→ LANDSCAPE we are implying that attitude is the instigator of behavior. This basic assumption has been the focus of much controversy in the literature of social psychology. Indeed, it may very well be the basis of social psychology.

In common usage an attitude is a mental position or feeling
with regards to a fact or statement. In the literature of social psychology the classic definition of attitude was postulated by Allport in 1936: a mental or neural state of readiness organized through experience, exerting a directive influence upon an individual's response to all objects and situations to which it is related. Allport further stated that it was an elastic enough term to apply to the "disposition of a single individual or a broad pattern of culture. We are consistent because of our attitudes." From the very inception of the field of social psychology the importance of attitude has never been questioned, however, the role that attitude plays in affecting behavior has been under constant scrutiny.

The uncertainty about the role of attitude was brought to the fore by a study conducted by LaPierre in 1934 during which he led a Chinese couple on a tour of the United States whereby they visited many restaurants and motels. They were everywhere courtiously received and served. Following the tour LaPierre sent questionnaires to the establishments visited ascertaining their attitudes towards Chinese. 90% of those who replied indicated that they would not serve Chinese. The field of social psychology was thrown into a state of consternation while they scurried about confirming LaPierre's findings and seeking new explanations and theories. This chaos has proven to be extremely beneficial in gaining new insights into how the mind works, for in throwing out the old assumptions about a direct link between attitude and behavior, a far richer and more satisfying theory
about their relationship has evolved. Even today there is a
great deal of uncertainty, primarily arising out of exact
definitions and terminology, but what has emerged from the chaos
is a clear consensus about process. The prime problem one faces
in wading through the literature has to do with the use of
terms.

There has been a proliferation of language in the course of
which logic is often obscured. Beliefs, opinions, concepts,
motives, tastes; these are just a few of the terms used to
describe a process perhaps best stated by Fishbein (1963) as:
"An individual's attitude towards an object is a function of his
beliefs about the object and the evaluative aspect of those
beliefs." That which he describes is a cognitive system which
consists of attitudes, values and beliefs. In dealing with the
diverse theories encountered, we will, as much as possible, be
referring back to these three terms.

Crawford (1976) defined belief systems as consisting of
attitudes - a favorable or unfavorable evaluation of a concept,
concepts - a set of rules for classifying a stimulus imput into
a pre-existant cognitive category, and beliefs - perceived
relationships between cognitive categories. Scott (1968) saw
attitudes as a subclass of motives, and motives as a subclass of
opinions. Osgood, Succi and Tennenbaum (1957) saw attitudes as
dealing with tastes, therefor unverifiable, while opinions deal
with facts and were therefore verifiable. To Bogardis (1925)
opinions, beliefs and attitudes represented an increasing degree of centrality. What is consistent to all of these is the concept of a system, somewhat like an onion, in which three layers are defined moving towards a centrality. Taking a clue from Fishbein (1965) that "increased precision and understanding can be gained by bringing our definitions into close harmony with the techniques by which attitudes are measured", it is possible to define the situation with which I am dealing.

First I am seeking to measure attitude towards the landscape - a physical entity consisting of objects. The situation which evolves is essentially some form of activity related to a piece of land. Let us for a moment return to our man at the playground, and envision the activity of play in relation to it. His attitude towards the playground can be measured: he either likes or dislikes it; but we are not certain why he has this attitude. If his attitude is positive is it because he finds it aesthetically pleasing or because he would like to play on it? Or does he have a Proustian reaction base on remembrance of things past? Whatever his attitude may be, it is based on experience, either anticipated or remembered. As Dewey pointed out (1934) "when an experience runs its course to fullfilment it becomes integrated within". One must be able to categorize the steps of the responsive process before one can define where within the system it becomes integrated. Sessoms (1974) suggests that values are patterns of behavior and beliefs are things we hold dear to our way of life. O'Reorden (1976)
defines beliefs as that which determines the extent of control individuals have over their own lives. Beliefs, in a sense being our gyroscope, are at the center of the onion. The outer layer is attitude, and between the two is values which has control of our opinions.

What is value? Though values cannot be observed directly, it has in recent years, in the eyes of many social psychologists taken on equal importance with attitude (Reich and Adcock, 1976). It was dealt with by Allport in 1963: "We know a person best if we know what kind of future he is bringing about - and his molding of that future rests primarily with his personal values." This attitude about values was reenforced by Rokeach (1973): "A value is an enduring belief that a specific mode of conduct or end-state of existence is personally preferable to an opposite or converse mode of conduct or end state of existence." Values seem to be a key tool in the human mind's striving to make sense out of the chaos of existence. Its prime characteristics seem to be that it is rational and that it contains some kind of concept of rational goals. It obviously cannot be ignored.

Motivational Response

Returning to our man at the playground: Let us assume that he has a positive attitude towards it, and that attitude is not based on either aesthetics or experience remembered, but on the playground as a unique and individual object which has a
specific activity associated with it. That activity is play, and he has an attitude towards play. This attitude is based on the value he places on play as an activity which occupies his time and affects his body; he also has beliefs about the relationship between play, leisure, work and the good life. In other words there are some central beliefs based upon which he places value on the activity he associates with the object which is the playground. By this complex series of associations he behaves rather quickly on a great multitude of options which are open to him. By observing his behavior, we can come to know about his belief system, but the connections are often obscure and deceptive. We need to understand a little bit more about attitude before we proceed.

There are, according to Rajecki (1982), several roles which attitude plays in the chain of events relating to behavior. First it is a kind of unifying device for group actions. As Allport (1935) has written, attitude "is elastic enough to apply to the single disposition of single isolated individuals, or to a broad pattern of culture". Second, it allows ease of categorization, saving the individual the effort of dealing with individual situations in that the individual may have a preformed attitude which can be applied in a multitude of similar situations. Third, it becomes a form of individual image projection. It is this third quality which is most useful to us. This propensity on the part of an individual to "project"
attitude makes attitude relatively easy to measure and it there­for can serve as a kind of "Rosetta Stone" for understanding an individual's cognitive system.

Before turning to methods of measuring attitude, is it not possible that attitudes, not necessarily being rational, may be more closely related to the arts than to science? Beliefs, dealing with facts and verifiable (Succi and Tennenbaum, 1957) sit at the center of an individual's cognitive system; while attitude, exposed to the hostile environment of the landscape, tends to act in unpredictable ways (Brennan, 1969), and it reacts to irrational stimuli such as aesthetic experience. The arts may be a key factor in affecting or changing attitudes, indeed the recent understandings of art have focused on its role in assessing values (Fried, 1973). Within this may be the key to understanding the relationship between style of the landscape and expressions of attitude.

Measuring Attitude

The first acceptable method of measuring attitude was developed in 1928 and became known as Thurstone's Equal-Appearing Interval Scale, after its author. In this method a wide variety of opinions on a specific subject are collected from newspapers, books or individuals. Using a sample population of 200-300, small index cards containing these opinions are sorted into piles, 11 being considered the ideal number, each pile represents equidistant degrees of agreement or disagreement
on the part of the individuals participating. The score for each item is the medium of the scale values of the entire sample. By this method a polarity of opinions can be established, thus giving us a continuum of attitudes towards a specific subject. Items which have been consistently assigned to the same pile are retained for further use. The obvious drawback of this method is the time and difficulty involved in coming up with the hundred or so items and the 200-300 judges.

In 1932, Likert's Summated Rating Scale was developed. Again one chooses a number of statements and asks a number of participants to examine them. This time a scale ranging from "strongly agree" to "strongly disagree" is used, with an "undecided" in the middle. Numbers are assigned to these opinions, usually 5 or 7. The sums of all the items are calculated and each participant is assigned to one of three categories: the 25% most favorable to the subject, the 25% least favorable to the subject; and the 50% who are neutral. Now each item can be checked. If the 25% most favorable agree, then the 25% least favorable ought to disagree. If there is a low correlation, then the item can be discarded. By this method one can begin to categorize items into continuums, and begin to establish the correlation between seemingly unrelated items. The availability of computer programs has made this method exceedingly popular.

Using these methods a large number of scales have been developed covering a wide range of subject matter. In fact a
compilation of these resulted in a manuscript four inches thick (Rajecki, 1982). One of these scales of particular interest to this study is the Urbanist-Wildernist scale.

The Urbanist-Wildernist Scale was developed in the North West Regional Office of the Forest Service as a tool for understanding the behavior and motivation of visitors to wilderness recreation areas: "the shared value systems governing their attitudes and motivations to visit wilderness" (Hendee et al, 1968). Its intended use was the prediction of reactions to possible management policies through an understanding of tastes and preferences. 60 items, 20 linked to features, 20 to activities and 20 to benefits, were tested on a nine point Likert scale. The items were selected so that persons with the most extreme purist wilderness attitudes would respond most strongly positively or negatively. A cumulative score was developed for each respondent and their responses to each item was related to this score using a statistical measure of association. By this method a correlation coefficient ranging from +1.0 to -1.0 could be developed for each item. For example, the activity Camping, (backpacking) received a correlation of +0.75, indicating that there was a strong correlation between this activity and tending towards being a purist wilderness, whereas the facility Developed Resort received a -0.71, indicating that wilderness purists tended to disapprove of this kind of facility. By the use of a test survey all items which
received a positive or negative score of less than 0.5 were eliminated, reducing the number of items from 60 to 30. Of these, 14 related to facilities, 10 to activities, and 6 to benefits such as Awareness of Beauty or Emotional Satisfaction.

This revised questionnaire was used to test 1,325 visitors to three wilderness areas in the Pacific North West. Each testee was given a score ranging from 10 – Strong Urbanist, to 90 – Strong Wildernist, with the categories in between being Urbanist, Neutralist, Weak Wildernist, and Moderate Wildernist. Of the population tested, 21.9% visitors to wilderness areas were classified as Strong Wildernists and only 0.7% as Strong Urbanists. Using the same test with 50 students in an introductory sociology course at the University of Washington, 8% were found to be Strong Urbanist, 8% Strong Wildernist, with the remainder of the class falling between the two categories.

When the attitude scores were related to background characteristics it was found that the Strong Wildernists tended to be more highly educated, tended to have been raised in urban areas, and tended to have more friends who participated in wilderness activities; they were also more likely to belong to conservation organizations or outdoor clubs. There seemed to be a relation between the amount of wilderness experience and the score, however, those with most wilderness experience did not always score highest on the scale.
Values

The Urbanist-Wildernist study also attempted to extrapolate values from the attitude items. For this study the original 60 items were used. Seven value factors were identified using a statistical method which produced an eigenvalue. An eigenvalue "indicates the relative strength of the groups of items in terms of variance accounted for by clustering" (Horst, 1965).

1. **Spartanism** (eigenvalue 7.35) This value implies an ethic of ablebodiedness, fortitude and dauntlessness. It was inferred from the endorsement of benefits such as improve physical health; adventure; and learn to lead simple life.

2. **Anti-artifactualism** (eigenvalue 3.39) Respondents who fell into this category were those who disapproved of improvements such as: campsites with plumbing; gravel roads; reservoirs and activities such as: powerboating; automobile touring; cutting christmas trees.

3. **Primevalism** (eigenvalue 3.05) This implies pleasure from viewing features such as waterfalls and rapids, alpine meadows, virgin forest, or rugged topography.

4. **Humility** (eigenvalue 2.23) This value was inferred from negative response to benefits such as: chance to boast, sense of personal importance, or chance to stumble onto wealth. Contrary to this attitude, urbanists tended to endorse items which seemed to assert their personal control of the environment.

5. **Outdoorsmanship** (eigenvalue 2.07) This value was based on the endorsement of activities such as backpack camping,
canoeing, hiking or sleeping outdoors.

#6. Aversion to Social Interaction (eigenvalue 1.92) The more purist wildernist respondents rejected such activities as hearing a naturalist's talk, viewing naturalistic exhibits or talking to fellow tourists.

#7. Escapism (eigenvalue 1.66) This infers being adverse to involvement with evidences of modern changes or human aggression. It was based on a positive response to factors such as absence of people, remoteness from cities, absence of man made features, and solitude.

It must be kept in mind that all of the above values were evolved from the standpoint of the wilderness purist.

Rachel Kaplan, on the other hand, has dealt primarily with urban and suburban situations. She developed an Environmental Preference Questionaire for the purpose of exploring individual differences (1977). Kaplan used 6 areas of concern (see Appendix A) dealing with Issues, Living Preferences, Satisfactions, Moods or Settings, Things, and Stress. From this she extracted 7 sources of satisfaction: Nature, Romantic Escape, Modern Development, Suburbs, Passive Reaction to Stress, and City; and 8 benefits: Peace & Quiet, Naturalism, Affiliation, Risk, Workout, Leadership, Self Interest, and Process.

Kaplan found very strong positive correlations between: Nature & Romantic Escape; Suburbs & Modern Development; Suburbs & Passive Reaction to Stress; Suburbs & Social; City & Social;
and City & Passive Reaction to Stress. There were strong negative correlations between: Modern & Nature; Modern & Romantic Escape; Suburbs & Romantic Escape; and City & Romantic Escape. In addition she found some strong correlations between sources of satisfaction and benefits. Positive ones were between: Nature With Peace and Quiet and Naturalism; Romantic with Naturalism; Suburbs with Affiliation, Risk, Workout, Leadership, Self Direction and Process; Social with Affiliation and Process; Passive Stress Release with Leadership and Process. Negative correlations, she found, existed between: Romantic with Affiliation and Modern with Naturalism.

Though none of her findings are surprising, and confirm what many had suspected, she, for the first time empiricised these understandings. Some of her categories, I feel, are ambiguous, but her conclusions are of great significance. These can be interpreted as indicating that individuals have preferences for certain settings based on the benefits they feel can be derived from activities possible in those settings, or as stated by Kaplan: "if challenges are central to self esteem, then the settings one chooses are a reflection of those values of self esteem" (Kaplan, R., 1977).

In 1979 Haas, Allen and Manfred defined a series of benefits not very different than those of Hendee or Kaplan, though perhaps more concise. these were:

Relationship with Nature
Escape From Pressure
Achievement
Autonomy, or Self Sufficiency
Reflection on Personal Values
Meetings or Social

Another possibility for categorizing benefits is based upon the time parameters of lifestyle as established by Sessions (1974):

- Family Obligations
- Work Obligations
- Subsistance
- Recreation
- Community or Social

Though these categories may be less than satisfactory, we can move forwards from them to create an amalgam of Hendee, Kaplan, Haas and Sessions whereby we can define 4 characteristics of Values:

- Community to Self
- Active to Passive
- Spartan to Acquisition
- Compliance to Control

Each of these parameters of Value has within it the potential for a lineal continuum.

Belief

Though Values give us direction for choosing between alternatives, Beliefs give us conceptions of the desirable (Sessions, 1974). Beliefs are the fundamental building blocks of the human consciousness in that they ultimately determine attitude, intention and behavior (Fishbein, 1975). They determine the extent of control individuals have over their lives (O'Riard, 1976a). Each belief is essentially an hypothesis concerning the nature of an item and the action that
should be taken towards it, or the relationship between items (Fishbein, 1965). In sum total, beliefs add up to an ideology which gives direction to a society and determines its character through the lifestyle of its people.

The founding fathers of the United States saw themselves as a special people under the protection of an almighty God: "In God we trust" became the motto of the new nation, imprinted on its coin. They felt that it was divine intervention which had permitted them to defeat the mighty British (Smith, 1980). This credo was not based on a belief that God directly intervened in their behalf. Rather they saw God as a supreme being who's only activity is contemplation, but, through a host of lesser divinities, carried out his ideas on earth. These superior beings acted with divine intervention. They were our "Founding Fathers" and their souls were immortal. This ideology is a direct descendant of the ancient Greek's system of beliefs as resurrected during the 13th century by the "Pagans" of Venice, the founding fathers of the Renaissance. Under this system all events are seen as reasonable, and are governed by strict necessity (Feld, M.D., 1982).

"The earth ruled by reason" is the basic tenet of the belief system which fuels science as we know it. All problems can be solved by reasonable people sitting down and reasoning together, given time and money. Nature is the ultimate form of reasonableness, "an omni-formed and omni-concerned cosmic designer" (Fuller, 1981).
Yet, within this basic tenet there is room for dichotomy. Indeed, "there is a profound and enduring split in the collective American psyche: equality (the single minded pursuit of happiness - money) which also calls itself by other names such as individualism, free enterprise, and so on; and community, which denigrates materialism and struggles valiantly to reestablish communities." (Smith, 1980)

Within the community of Environmentalists there is a profound sense of this dichotomy. It is defined by O'Riorden (1976b), as Ecocentrism versus Technocentrism. The Ecocentric believes in the intrinsic importance of nature in the humanity of man, and that Ecology and other natural laws dictate human morality. The Technocentric believes "that any impediments to human growth can be overcome given a will, ingenuity, and sufficient resources arising out of wealth". These two apposing statements of belief are imperative to understanding the dynamics of the landscape: wildernism - urbanism; blots - diagrams; or John Dewey's assertion that there are two possible attitudes about the environment, compliance and control (1938).

These two different belief systems influence a series of differing value, attitudes and modes of behavior; They "differ not just in their attitudes to nature but also in their morality that tempers action". One preaches reverence and humility, while the other is almost arrogant in its assumption that man is supremely able to understand and control events to suit his
purpose" (O'Riorden, 1976b). If these descriptions seem slightly prejudiced, it should be noted that they come from an avowed Ecocentric whose humility may seem almost egocentric. O'Riorden goes on to state: "This assurance of the Technocentric extends even to applications of theories and models to manipulate and predict changes in value systems and behavior".

Yi-Fu Tuan (1974) recognizes a different kind of dichotomy. He divides the world into "carpentered" and "non-carpentered". The first is characterized by straight lines and rectangles; the latter by "round like bee-hives".

Perhaps the best expression of the dichotomy is the contrast between Apollo and Dionysius. In Greek Classical times music, poetry, philosophy, astronomy, mathematics, medicine and science, in short, all fields of discipline, were under Apollo's control. He was the enemy of Barbarianism and preached moderation in all things. Dionysius, on the other hand, was the wine god, associated with the cultivation of vines. He was also known as the tree youth and was the god to whom the spring festival was dedicated; a time "when the trees suddenly burst into leaf and the whole world is intoxicated with desire." For these reasons he is associated with growing things, nature and sensuousness (Graves, 1955).

Constantly, throughout history, one can discern a dichotomy of values; a battle between conflicting systems. It seems, as Dewey has asserted, that there are only two possible attitudes — no matter how many names we give to them— and they battle for
supremacy in the hearts and minds of human society. It has been said that the history of art is one in which each generation of artists seeks to overturn the values of the previous one (Fried, 1972). Sir Kenneth Clark has said that art reflects the spirit of the times (1962). The spirit of the times is embodied in the beliefs, attitudes and values of a society.

Summary

The basic problem facing one who becomes involved in Landscape Evaluation was perhaps best defined by Portius (1982) as different disciplines approaching the problems of the landscape for different purposes; the humanists who rely on personal experience and intuition; the experimentalists who seek relevance through the use of simulations; the activists who deal with specific issues and tend towards the expository; and the planners and designers who blend theory and application in search of a new landscape. A reading of the literature suggests that there are two inhibitors to an overriding theory: a lack of shared language; and, as Kevin Lynch has suggested, a disdain for graphic methods on the part of empirical researchers.

John Ciardi has said that language contains the logic of a society. When communications break down, the cause is often lack of shared logic, however, it can also be due - since language is always evolving and changing - to semantic problems caused by isolation between communities. A new hybrid discipline dealing with the relationship between communities and their landscapes.
is emerging through the cross fertilization of these previously independent disciplines. Each discipline has its own special language - its own special meanings for words once commonly shared prior to the ultra-specialization which this century has seen. This communications difficulty is perceived by many as the lack of "over-riding theory". However, an examination of the literature permits reveals a bridge: similarities in process and meanings. By seeking a unity of language, one can perhaps bridge the theory gap.

It is commonly held that art reflects the values of a society, but what is meant by words such as Value, Attitude and Belief is often vague; words such as lifestyle are cliches; and the precise use of words such as perception and cognition are slow in achieving common usage. It is important that all of the disciplines involved in Landscape Evaluation agree upon a common language, one which could also be understood by the uninitiated.

One of the keys to an "over-riding" theory lies in viewing the landscape - like all art and science - as a process, not an object. This process involves a series of steps:

```
LANDSCAPE
 object
 perception    acts
 space
 cognition   patterns
 community
 vision       Aspirations
 context

LIFESTYLE
```

Figure #3: LANDSCAPE PERCEPTION SEQUENCE
We perceive, we react, we behave. When our behavior becomes repetitive, we have Lifestyle. This lifestyle becomes expressed in the content of planning programs which are instrumental in altering the landscape.

![Response Diagram](image)

Figure #4: RESPONSE DIAGRAM

An individual's response to an object can be either aesthetic or motivational. Motivational response is instrumental in leading to some act, and is dependent on activities one associates with a certain object, the perceived benefits of those activities, and the value one places on those activities. One can create much the same diagram for perception, or behavior, or the landscape. If we could then put these diagrams together and turn them inside out, much like a suit of clothing, we would have a mandala of landscape evaluation.

The mandala divides the process into four separate sets of data. In its over-simplification it gives us a clue to the interrelationships of these four sets. They are a series of interactions which can be diagramed as a spiral. Attitude enters
this process at two points. First it effects the way in which we perceive the landscape; and second, it is part of our cognitive system, and this plays a role in the way we behave.

EXPERIENCE — COGNITIVE SYSTEM

vision — belief

cognition — values

perceive — attitude

aesthetic — OBJECT — motivation

space — act

community — pattern

universe — aspirations

LANDSCAPE — LIFESTYLE

Figure #5: LANDSCAPE EVALUATION MANDALA

a predisposition to act towards an object in a certain way. To this activity can be assigned a presumed benefit. The value we place on these benefits is a product of our beliefs, which are essentially an hypothesis concerning an evaluation of the benefits of dealing with objects in certain ways. The specific meaning of values remain vague.

Within the literature of Landscape Evaluation are several studies, theoretical and empirical, dealing with the relationships between attitudes and objects, buildings or environments. Many of these made use of, or implied, some form of linial continuum.
Warren Anderson explored a continuum consisting of 11 modes of artistic expression, ranging from Pictorial to Pure. Kenneth Clark developed a continuum of artistic expression with the Pictorial at the mid point, flanked by the Blot and the Diagram.

Rachel Kaplan dealt extensively with the relationships between Places, Moods and Values. She equated Wilderness with Romantic, which are at the opposite end of a spectrum from Modern, which she equated with Urban and Suburban settings.

The Wildernist-Urbanist Questionaire dealt with the relationships between Places, Activities, and perceived Benefits. They noted a relationship between wilderness, backpack camping and Spartanism, as apposed to urban settings with Acquisitiveness and Sociability.

Ervin Zube defined three symbols - Reverential Awe, the Garden and the Ax - which represent attitudes toward the
landscape. These can be interpreted as being the same as John Dewey's continuum of possible attitudes toward the environment of Compliance or Control.

Thermodynamics deals with phenomena and their causes. It may very well be the closest thing to belief system shared by the scientific and artistic community. The 2nd law of thermodynamics can be explained by the following diagram:

```
    increasing Disorder <-> Entropy decreasing order
        infinity                              zero
```

Entropy, at the mid point, is the measure, within a closed system, of the relationship between disorder and an ultimate state of order. It can increase to infinity - chaos - or decrease to zero - perfect order (Mueller, 1967). This can be interpreted as the scientific equivalent of Clark's Blot to Diagram hypothesis. "Modern science maintains that nature... strives towards a state of physical order and that man's actions are governed by the same tendency. It maintains, on the other hand, that physical systems move towards a state of maximum disorder" (Arnheim, 1971). The application of these principals to phenomena of the landscape shall be examined.

On the basis of these, and other studies, six possible continua are identified which can be applied to an understanding of alternate cognitive systems:

- Blot (chaos) to Diagram (order)
- Pictorial to Pure (Expressive)
- Romantic (Nature) to Modern
- Self (Escapism) to Community (Social)
The goal of measurement of attitude towards the landscape can be accomplished by defining the factors involved with attitude towards the landscape, and developing a procedure for measuring each. It is suggested that one's Landscape Attitude Profile would contain the following parameters or sub-systems:

- Art and Objects
- Buildings
- Spaces
- Context
- Activities
- Benefits
- Beliefs
- Issues, political & scientific

A series of concepts for each of these sub-systems can be arrayed, based on the correlation between items in each sub-system. By establishing an individual's pattern of response within each of these systems, a measure of that individual's attitude towards the landscape can be established. This will be, not a single number, but a pattern of response.
III DEVELOPMENT OF A QUESTIONNAIRE

Purpose of Questionnaire

Our goal is to develop a questionnaire capable of searching out patterns of response relevant to measurement of attitude towards the landscape. The review of the literature indicated that there were nine types of data which needed to be examined. For each of these areas a set of questions can be posed. Each of these questions can be answered either favorably or unfavorably. By measuring the frequency of responses and the correlations between them, these items can be arrayed into a series. These series, when tested with a large population, should give us a bell shaped pattern of response:

```
  x x
 x   x
 x   x
 x   x
```

25%  50%  25%
favorable  neutral  unfavorable

Figure #7: SHAPE OF RESPONSE CURVE

Methodology

The development of the questionnaire was undertaken simultaneously with the review of the related literature. As they evolved, the prototypes were tested on various small populations, and discussed with a number of professional people,
including teachers, landscape architects and several individuals experienced in the development and testing of questionnaires.

The first questionnaire (see Appendix A) consisted of items taken from the Wildernist-Urbanist Survey developed by the North West Regional Forest Service; items from Rachel Kaplan's Environmental Preference Quiz; slides of 11 landscape scenes and works of art (based on Anderson's categories of art expression); and questions dealing with background information such as age, sex and income. In addition each respondent was asked to describe the place in which they grew up and their lifestyle. This questionnaire was administered to 12 individuals including a group of four landscape architecture educators who were asked to comment on and discuss the questionnaire. This questionnaire included questions in several different formats, and response was elicited to determine the most easily understood of these.

The second questionnaire (see Appendix B) was administered to a sample population of 10, including extensive interviews with 5 respondents. In this questionnaire all items were tested by a seven point Likert Scale (±3 2 1 0 1 2 3−), which was the preferred system of all those interviewed in the first go around. This questionnaire included 4 groups of slides divided into Environments, Spaces, Structures and Art; and sets of questions dealing with Places, Objects, Activities, Benefits and Beliefs. Again, background information was sought and respondents were asked to describe the place in which they grew up and their lifestyle.
Extensive interviews were held with a Landscape Architect educator, a businessman, an artist, a psychometrician and a builder. These interviews resulted in changes of the specific slides used, as well as the decision to use forced choice questions for certain categories in order to help establish some basic lineal continua.

A third questionnaire (see Appendix C) was administered to a class of 18 landscape architecture students and a select group of 6 individuals. The data from this survey is the basis of the analysis presented.

This questionnaire was also used as a teaching tool in a Site Construction class (LAR 452). The students were given copies of the questionnaire as filled out by a couple who served as hypothetical clients in a design problem. When they had completed the designs, these "clients" served as design jury. The students were then asked to evaluate how useful the questionnaire had been in understanding the "clients".

**Questioning Techniques**

Most of the items in the test questionnaire made use of the 7 point Likert scale, but on the advice of a psychometrician, several forced choice sections were included. These facilitated the development of lineal continua.

Forced choice techniques were developed during the 1940's in personality and aptitude testing (Anastasi, 1968). There are two types of forced choice questioning methods. The first is a
choice between two items where a preferred item is selected; the second is the Least-Most method, where, given three items the respondent must choose which of the items is most liked and least liked. Both of these methods were used in the test questionnaire.

**Organization of Data**

The questionnaire was divided into four basic sections: slides; statements; background; and open ended questions. Unless otherwise noted, the Likert scale was used.

There were four sets of slides: 10 Environments (Context); 10 Spaces; 11 Buildings; and 11 Artworks.

- 11 Belief statements culled from the literature.
- 11 Political Issues.
- 11 Indications of technological Progress.
- 15 Places in 17 forced choice combinations.
- 17 Objects.
- 14 Activities in 14 groups of Most/Least.
- 12 Benefits in 16 forced choice combinations.

In early questionnaires respondents had used certain words with great frequency to describe lifestyle. The respondents were now asked to select which words most and least matched in meaning the three most used descriptions of lifestyle: Tranquility; The Simple Life; Self Esteem; and Esteem of Others.

Background questions as to age, sex, income, marriage status, and education were included as well as open ended
questions as to place in which they grew up and lifestyle.

**Specific Treatment of Data**

The 24 questionnaires were coded and fed into computer programs for frequency and correlation analysis with the assistance of Instructional Research and Development at the University of Arizona. The computer produced over 360 pages of printed data, including over 30,000 correlations. This material was analyzed and interpreted into 10 series of data, each representing a lineal continuum based primarily on frequency, and modified by significant correlations. This material was the basis for a revised Landscape Attitude Profile Questionaire (see Appendix D).

In order that this revised questionnaire can be open to visual analysis, the items will be arrayed in such a way that responses will fall into one of three possible patterns:

<table>
<thead>
<tr>
<th>TYPE A</th>
<th>TYPE B</th>
<th>TYPE C</th>
</tr>
</thead>
<tbody>
<tr>
<td>+3 2 1 0 1 2 3-</td>
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<td>+3 2 1 0 1 2 3-</td>
</tr>
</tbody>
</table>

**Figure #8: PATTERNS OF RESPONSE**

A pattern of blocks for the entire Landscape Attitude Profile can then be composed, with each block containing the appropriate curve. This will constitute the pattern of response.

Two kinds of data were available for analysis: Frequency
and Pierson Correlation. Of the voluminous material supplied by the Frequency print-out, most useful was percentage breakdown for each of the possible responses for each item, means, deviation and skewness. Skewness gives a numerical measure of how the responses to each item deviates from a bell shaped curve. The items of each set of data were first arrayed in order of their mean, starting with the lowest (+3). At this point the Pierson Correlations were examined. These are correlations between items, varying from +1.0 to -1.0, indicating perfect positive or negative correlation. A figure of .4 is considered significant, and anything greater than .67 is very significant. Any two items approaching -1 were placed at opposite ends of the continuum, while any items approaching +1 were placed in close proximity to each other. The correlations were also used to compare different sets of data in order to establish whether any relationship existed between them.
IV RESULTS OF STUDY

Analysis of Data

It is not surprising that the population tested, being primarily landscape architects, felt strongly about Issues related to the Environment. They also felt very strongly about Disarmament, Disease, and Nutrition. They came out strongly against Defense Spending, Space Colonization and Genetic Engineering, but had no strong feelings about Racial Integration, Zero Population Growth or Law & Order.

Under Beliefs, they agreed that each individual can affect the future of Humankind, and strongly disagreed with the proposition - happiness is submission to God. There were very significant (+.62 - +.78) correlations between those who expressed belief in a supreme being, in happiness being submission to God and that nature was the manifestation of God’s will. A very significant negative correlation existed between those who valued enjoyment of work over money and the Issues Defense Spending, Space Colonization, Social Security, and Racial Integration. There was, as might have been expected, a strong (+.78 - .80) correlation among Full Employment, Economic Growth, and concern over Inflation.

It was found that preferences for Art followed Anderson's continuum of Pictorial to Pure rather than Clark's distinctions between Blot and Diagram. The tested population strongly
preferred the Pictorial over the Expressive. There were very strong correlations between preferences for Jackson Pollock, Franz Kline, Barnett Newman and Frank Stella, and significant negative correlations between these and works of David Hockney, Rembrandt, and Bierstadt. Though the work of Dali fell in the middle in terms of popularity, there was no significant correlation between it and any other item in the questionnaire.

Under Objects, Natural Wood Furniture, Fire Places, Handmade Crafts, and Antique Furniture were far more favored than Microwave Ovens, Unbreakable Dishes, Synthetic Fabrics and Prepackaged Dinners. Significant negative correlations existed between these groups of items, making a clear lineal continuum.

The preferences for Spaces and Context as depicted by slides and statements were almost perfectly correlated, indicating that both methods seemed to elicit the same information, however, there was no clear cut pattern of response to confirm any of Steven Kaplan's findings about spaces of differing characteristics. Ocean scenes were the most popular, followed by natural places - wilderness or woods - and urban places. Suburban scenes were least popular. This latter fact constituted somewhat of a surprise. Farms seemed to correlate well with Historic Sites, and were more popular than Urban Parks, Modern Resorts, Museums and Art Galleries. There was a significant correlation between Shopping Malls and Large Urban Centers.

The most popular activities were those associated with
Wilderness - Hiking, Backpack Camping, and Sleeping Outdoors. Least popular were Watching TV, Auto Touring, Attending Church and Picking Wild Flowers.

Of the forced choice items dealing with Benefits, the most important were Knowledge, Self Esteem and Helping Others. Least important were Tranquility, Exercise and Solitude. Most equated The Simple Life with Tranquility. Both Self Esteem and Esteem of Others were equated with Knowledge.

When asked to describe the place in which they grew up, most used words such as Farm, Rural, Small Town, City or Suburban. A few, however, talked about some landscape feature, such as a lake or a river.

When asked to describe their Lifestyle, most used words such as Tranquil, Busy, Simple or Hectic. However, a number talked about being trapped, or feeling frustrated, or used the phrase "nothing important". One said, "I often feel like too many demands are placed on me."

The Landscape Architecture students were asked to evaluate how useful the test was in helping them deal with a design program. 79% felt that it was very useful. The most useful to them were Activities, Places and Environments; least useful were Art and Beliefs.

Summary of Results

The following sets are arrayed in order of popularity. The sets exhibit similarities, particularly strong correlations
between items at the beginning and end of each. The symbol (S) is used to indicate slides, (ML) most-least, and (FC) forced choice. Issues and Progress have been combined into one series.

**OBJECTS**

Natural Wood Furn.  Fire Places  Rain Storms  Picture Windows  Hand Made Crafts  Antiques  Acorns & Shells  Computers  Telephone  Prepackaged Dinners

**ART(S)**

Hockney  Bierstadt  Turner  Rembrandt  Picasso  Stella  Pollock  Newman  Kline

**BUILDINGS(S)**


**CONTEXT(S)**

Beach  Wilderness  Desert Wash  Rural S.D.  Town Street  Town Houses  N.Y. Skyline  Suburb H.R.  Hi Dens Suburb  Lo Dens Suburb

**PLACES(FC)**

Beach  Virgin Forest  Alpine Meadow  Historic Site  Urban Park  Modern Resort  Museum  Shopping Mall  Lg Urb Center  Suburb Street

**SPACES(S)**

Woods House  Cottage  Farm  Boulevard  Urban Park  Rock. Center  Shopping St.  Park Ave.  Straight S.D. St.

**ACTIVITIES(ML)**

Hiking  Fishing  Hunting  Power Boating  Visiting Large Cities  Watching Sporting Events  Going To Movies  Reading a Book  Gardening  Going to Church

**BENEFITS(FC)**

Knowledge  Self Esteem  Helping Others  Health  Esteem of Others  Beauty  Wealth  Tranquility  Exercise  Solitude
BELIEFS

An individual can affect the future of Humankind.  
The theory of evolution best explains human existence.  
All problems can be solved by rational means.  
Each human being controls his or her own destiny.  
Society could function without clocks.  
The human race is destined to colonize space.  
Happiness is submission to God.  
A supreme being has direct control over life on earth.  
Nature is the manifestation of God's will.  
One must live by the rules of society.

ISSUES

Environmental Protection  
Disarmament  
Women's Rights  
Inflation  
Energy  
Law & Order  
Space Exploration  
Racial Integration  
Zero Population Growth  
Space Colonization

With all of the items arrayed as indicated, the pattern of response for the population tested would have had a Type A curve in each block.

Interpretation of Data

Each of the 10 series of items which have evolved from the analysis of the data, if examined in light of the lineal continua which came from the review of the literature seems, with the exception of Benefits, seemed to fall into one of 5 patterns: Romantic to Modern; Pictorial to Pure; Active to Passive; Community to Self; and Compliance to Control. The Benefit continuum of Knowledge to Solitude does not clearly fall into any one pattern, but rather seems to be a mix of several.
Following the example of Rachel Kaplan, and based on strong correlations between them, it does not seem to be inappropriate to combine Romantic to Modern with Pictorial to Pure, giving 4 patterns of lineal continua for the 10 sets of items we have tested.

I. ROMANTIC TO MODERN: Context, Spaces, Buildings, Art, Objects, Places.

II. ACTIVE TO PASSIVE: Activities & Benefits

III. COMMUNITY TO SELF: Benefits

IV. COMPLIANCE TO CONTROL: Beliefs & Issues

It is interesting to note that the population tested seems to equate wilderness with romantic, and suburban with modern, confirming Rachel Kaplan's findings. Perhaps startling was the fact that they seemed to equate both farms and cities with historic sites. It is important to note that with the extremely small sample size tested one cannot assume that any of the above described characteristics apply to any definable population.

Proposed Questionaire

A new Landscape Attitude Profile Questionaire can be developed, consisting of the following items, all to be tested with a 7 point Likert scale:

ART: 10 slides
BUILDINGS: 10 slides
OBJECTS: 10 items
PLACES: 10 items
ACTIVITIES: 10 items
BENEFITS: 10 items
BELIEFS: 10 items
ISSUES: 10 items
This gives us a total of 80 items. In addition, it is suggested that the following items be added for background information:

How well do the following describe your Lifestyle?
81. Quiet 82. Simple 83. Active
84. Stable 85. Boring 86. Exciting
87. Changing 88. Casual 89. Contemporary

90. Where did you grow up
   Rural non farm
   Farm
   Small Town
   Small City
   Large City
   Suburbs

91. AGE
   up to 25
   25 to 35
   35 to 45
   45 to 55
   55 to 65
   over 65

92. INCOME
   up to $15,000
   15 to $25,000
   25 to $35,000
   35 to $45,000
   45 to $55,000
   over $55,000

93. SEX

94. PROFESSION

These 93 items are a substantial reduction from the 179 items (not including background information) which were coded for this study. A sample of a revised Landscape Attitude Profile Questionnaire is included in Appendix D.
V CONCLUSIONS

Summary of Conclusions

The initial question upon which this thesis is based is:
Can an instrument capable of measuring individual or community
attitudes towards the landscape be devised? This question
engendered a series of sub-problems. What is attitude? How can
it be measured? What are the aspects of the landscape one needs
to consider in order to measure an individual's attitude towards
it?

Attitude is part of an interlocking cognitive system
wherein it acts in partnership with Values and Beliefs. It is a
predisposition to act in a certain way. Acts are tempered by the
Benefits we seek. The Value we place on these benefits are
partially the product of our Beliefs. Beliefs are an hypothesis
dealing with the evaluation of Benefits. For example: in the
Belief Happiness is submission to God, happiness is a benefit;
submission is an act; the belief is an hypothesis which becomes
meaningful only when the individual places value on happiness.

The landscape exists for us at three levels: perception,
that which we experience; cognition, that with which we inter-
act; and Vision, that which we believe to be true. Vision
relates to our knowledge about the universe - geography,
geology, climate and seasons - and affects the way we inter-act
with the total landscape. It, like Belief, is essentially an
hypothesis.

The obvious answer to the question is that attitude can be measured. However, that measure is not a single number, but a pattern of response. This pattern consists of 8 sub-patterns describing attitudes towards Art, Buildings, Objects, Places, Activities, Benefits, Beliefs and Issues. Each of these can take any of three possible types of form. (see Figure # 8)

The results of this study seem to indicate that there is a centrality of belief which affects attitude towards the landscape and behavior, and, through behavior, affects the landscape itself. This centrality can be described by a series of curves indicating a pattern of response. The data was arrayed so that for the population examined in this study each of curves was of type A. Each of our sets of items can be seen to fall into one of 4 lineal continua:

I. ROMANTIC TO MODERN: Context, Spaces, Buildings, Art, Objects, Places.

II. ACTIVE TO PASSIVE: Activities & Benefits

III. COMMUNITY TO SELF: Benefits

IV. COMPLIANCE TO CONTROL: Beliefs & Issues

Recommendations for Further Study

It has been suggested by John Stevens of Instructional Research and Development that it takes approximately three years to validate a questionnaire. A procedure to follow would be to review the proposed Landscape Attitude Profile Questionnaire with persons experienced in attitude testing, and after some fine
tuning begin to test it on larger populations. As a part of this testing would be the development of a series of items for Lifestyle. Relationships between age, sex, income and place of growing up and Attitude Toward the Landscape should be examined. Some additional tests could be a comparison of scores among students in different disciplines at the university, or of students in the same discipline at different levels of education, or a comparison of student and faculty within the same discipline. At some point testing should be undertaken to determine where within the learning process do attitudes toward the landscape become entrenched.

The testing of a large populations could begin to give us some indication of the relationship between curves of response to the various sets of items, and perhaps of a broad pattern of response.

Of particular interest was the emergence in the literature of the relationship between several kinds of form - Replication and Nodal Connections; Romantic and Classical; Carpenter and Bee Hive - and Belief Systems. Research needs to be done on the relationship between belief systems and forms. It is hoped that the Landscape Attitude Profile test will begin to develop pertinent information.

It has been said that the answer to every question is another question. By use of the scientific method, the results of the exploration of an hypothesis is always a new hypothesis.
Growth and change in scientific knowledge, and their resultant changes in belief systems, do not occur in systematic, predictable ways, but rather in leaps of awareness not dissimilar to artistic creativity. The subsequent hypothesis from this study can be presented in visual terms. It states that there is a pattern of attitude towards the landscape which can be expressed by 9 curves, each of which can be one of any three curve types. I would like to further hypothesise that the total pattern of these curves can indicate the form to which an individual will have a positive response; this form is related to beliefs, their symbols and form can be one of three possible types.

The theory of Dynamic Symmetry was published in 1924 by J. Hambrow, relating to the earlier studies by D'Arcy Thompson on Form in Nature (1917). It is the visual expression of cumulative progressions - 1 2 3 5 8 13 etc. These are the progressions, according to Thompson, found most often in nature. This theory has evolved from the concept of Replication and is very closely related to Entropy. The graphic projection of a cumulative progression is the spiral, a form which has been explored at great length by environmental artist, Robert Smithson. Carter Ratcliff (1980) said of Smithson that he has "turned his vision of entropy into an emblem which the art world could assimilate."

As beliefs and values change, so does our response to the symbols, emblems and forms which express them.
<table>
<thead>
<tr>
<th>SYMBOL</th>
<th>0</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>$x$</td>
<td>$x$</td>
<td>$x$</td>
</tr>
<tr>
<td>xxxxxxx</td>
<td>x</td>
<td>8xxxxxx1xxx3</td>
</tr>
<tr>
<td>$x$</td>
<td>$x$</td>
<td>$x$</td>
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<tr>
<td>$x$</td>
<td>$x$</td>
<td>$x$</td>
</tr>
<tr>
<td>CONCEPT</td>
<td>Nodal Connection</td>
<td>Dynamic Symmetry</td>
</tr>
<tr>
<td>$x$</td>
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<td>xx xx</td>
<td>x</td>
</tr>
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<td>x x x x</td>
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</tr>
<tr>
<td>0 x 0</td>
<td>x 0 x</td>
<td>x0x</td>
</tr>
<tr>
<td>$x$</td>
<td>x x x x</td>
<td>xxxxxx 0</td>
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<tr>
<td>xx xx</td>
<td>0 x</td>
<td>x</td>
</tr>
</tbody>
</table>

**Figure #9: TYPES OF FORM**
APPENDIX A

FIRST TEST QUESTIONNAIRE

LANDSCAPE ATTITUDE SURVEY

The purpose of this study is to examine the relationship between attitudes towards the landscape and lifestyle preference. All data obtained will be used statistically without any specific references.

BACKGROUND

<table>
<thead>
<tr>
<th>AGE</th>
<th>SEX: M</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>up to 15,000</td>
<td>25,000</td>
<td>over</td>
</tr>
<tr>
<td>optional $15,000</td>
<td>25,000</td>
<td>50,000</td>
</tr>
</tbody>
</table>

PROFESSION: __________________________

Describe the place you grew up:

PART I

Write a brief paragraph describing your lifestyle.
LANDSCAPE ATTITUDE SURVEY

PART II
On a scale of from +3 to 3- (+3 indicating that you strongly like and 3- indicating that you strongly dislike and 0 indicating that you feel neutral) indicate how you feel about the place depicted in the following slides as a place to visit or to live in. Under Comments indicate what you like most or least about the place depicted.

<table>
<thead>
<tr>
<th>SLIDE</th>
<th>Live in</th>
<th>Visit</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>+3 2 1 0 1 2 3-</td>
<td>+3 2 1 0 1 2 3-</td>
<td></td>
</tr>
<tr>
<td>#2</td>
<td>+3 2 1 0 1 2 3-</td>
<td>+3 2 1 0 1 2 3-</td>
<td></td>
</tr>
<tr>
<td>#3</td>
<td>+3 2 1 0 1 2 3-</td>
<td>+3 2 1 0 1 2 3-</td>
<td></td>
</tr>
<tr>
<td>#4</td>
<td>+3 2 1 0 1 2 3-</td>
<td>+3 2 1 0 1 2 3-</td>
<td></td>
</tr>
<tr>
<td>#5</td>
<td>+3 2 1 0 1 2 3-</td>
<td>+3 2 1 0 1 2 3-</td>
<td></td>
</tr>
<tr>
<td>#6</td>
<td>+3 2 1 0 1 2 3-</td>
<td>+3 2 1 0 1 2 3-</td>
<td></td>
</tr>
<tr>
<td>#7</td>
<td>+3 2 1 0 1 2 3-</td>
<td>+3 2 1 0 1 2 3-</td>
<td></td>
</tr>
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<td>#8</td>
<td>+3 2 1 0 1 2 3-</td>
<td>+3 2 1 0 1 2 3-</td>
<td></td>
</tr>
<tr>
<td>#9</td>
<td>+3 2 1 0 1 2 3-</td>
<td>+3 2 1 0 1 2 3-</td>
<td></td>
</tr>
<tr>
<td>#10</td>
<td>+3 2 1 0 1 2 3-</td>
<td>+3 2 1 0 1 2 3-</td>
<td></td>
</tr>
<tr>
<td>#11</td>
<td>+3 2 1 0 1 2 3-</td>
<td>+3 2 1 0 1 2 3-</td>
<td></td>
</tr>
</tbody>
</table>

PART III
On a scale of +3 to 3- indicate how you feel about the following works of art. Under Comments indicate what you like most or least about the work of art depicted.

<table>
<thead>
<tr>
<th>SLIDE</th>
<th>LIKE</th>
<th>DISLIKE</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>+3 2 1 0 1 2 3-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#2</td>
<td>+3 2 1 0 1 2 3-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#3</td>
<td>+3 2 1 0 1 2 3-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#4</td>
<td>+3 2 1 0 1 2 3-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#5</td>
<td>+3 2 1 0 1 2 3-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#6</td>
<td>+3 2 1 0 1 2 3-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#7</td>
<td>+3 2 1 0 1 2 3-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#8</td>
<td>+3 2 1 0 1 2 3-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#9</td>
<td>+3 2 1 0 1 2 3-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#10</td>
<td>+3 2 1 0 1 2 3-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#11</td>
<td>+3 2 1 0 1 2 3-</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
LANDSCAPE ATTITUDE SURVEY  

Part IV

For each of the following objects, activities and organizations circle the number that best expresses how you feel about the idea associated with that phrase with +3 indicating that you favor it and -3 indicating that you are opposed.

A. PLACES TO LIVE

<table>
<thead>
<tr>
<th>Number</th>
<th>Object</th>
<th>Like</th>
<th>Dislike</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Can'till Located Apartment</td>
<td>+3</td>
<td>2 1 0 1 2 3</td>
</tr>
<tr>
<td>2</td>
<td>House in remote area</td>
<td>+3</td>
<td>2 1 0 1 2 3</td>
</tr>
<tr>
<td>3</td>
<td>Quiet Suburban Street</td>
<td>+3</td>
<td>2 1 0 1 2 3</td>
</tr>
<tr>
<td>4</td>
<td>Colonial Architecture</td>
<td>+3</td>
<td>2 1 0 1 2 3</td>
</tr>
<tr>
<td>5</td>
<td>Adobe House</td>
<td>+3</td>
<td>2 1 0 1 2 3</td>
</tr>
<tr>
<td>6</td>
<td>Central Air Conditioning</td>
<td>+3</td>
<td>2 1 0 1 2 3</td>
</tr>
<tr>
<td>7</td>
<td>Up to date Kitchen</td>
<td>+3</td>
<td>2 1 0 1 2 3</td>
</tr>
<tr>
<td>8</td>
<td>Front Lawn</td>
<td>+3</td>
<td>2 1 0 1 2 3</td>
</tr>
<tr>
<td>9</td>
<td>Enclosed Patio</td>
<td>+3</td>
<td>2 1 0 1 2 3</td>
</tr>
<tr>
<td>10</td>
<td>Desert Plantings</td>
<td>+3</td>
<td>2 1 0 1 2 3</td>
</tr>
</tbody>
</table>

B. SHOPPING

<table>
<thead>
<tr>
<th>Number</th>
<th>Object</th>
<th>Like</th>
<th>Dislike</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Organic Food</td>
<td>+3</td>
<td>2 1 0 1 2 3</td>
</tr>
<tr>
<td>2</td>
<td>Unbreakable Dishes</td>
<td>+3</td>
<td>2 1 0 1 2 3</td>
</tr>
<tr>
<td>3</td>
<td>Hand Made Crafts</td>
<td>+3</td>
<td>2 1 0 1 2 3</td>
</tr>
<tr>
<td>4</td>
<td>Natural Wood Furniture</td>
<td>+3</td>
<td>2 1 0 1 2 3</td>
</tr>
<tr>
<td>5</td>
<td>Antique Furniture</td>
<td>+3</td>
<td>2 1 0 1 2 3</td>
</tr>
<tr>
<td>6</td>
<td>Synthetic Fabrics</td>
<td>+3</td>
<td>2 1 0 1 2 3</td>
</tr>
<tr>
<td>7</td>
<td>Indian Jewlry</td>
<td>+3</td>
<td>2 1 0 1 2 3</td>
</tr>
<tr>
<td>8</td>
<td>Mexican Foods</td>
<td>+3</td>
<td>2 1 0 1 2 3</td>
</tr>
<tr>
<td>9</td>
<td>Large Shopping Malls</td>
<td>+3</td>
<td>2 1 0 1 2 3</td>
</tr>
<tr>
<td>10</td>
<td>Small Specialty Shops</td>
<td>+3</td>
<td>2 1 0 1 2 3</td>
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</table>

C. ECONOMICS

<table>
<thead>
<tr>
<th>Number</th>
<th>Object</th>
<th>Like</th>
<th>Dislike</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Controlled Growth</td>
<td>+3</td>
<td>2 1 0 1 2 3</td>
</tr>
<tr>
<td>2</td>
<td>Environmental Controls</td>
<td>+3</td>
<td>2 1 0 1 2 3</td>
</tr>
<tr>
<td>3</td>
<td>Land Use Planning</td>
<td>+3</td>
<td>2 1 0 1 2 3</td>
</tr>
<tr>
<td>4</td>
<td>Flood Control Dams</td>
<td>+3</td>
<td>2 1 0 1 2 3</td>
</tr>
<tr>
<td>5</td>
<td>Central Arizona Project</td>
<td>+3</td>
<td>2 1 0 2 3</td>
</tr>
<tr>
<td>6</td>
<td>Nuclear Energy</td>
<td>+3</td>
<td>2 1 0 1 2 3</td>
</tr>
<tr>
<td>7</td>
<td>Solar Energy</td>
<td>+3</td>
<td>2 1 0 1 2 3</td>
</tr>
<tr>
<td>8</td>
<td>Social Security</td>
<td>+3</td>
<td>2 1 0 1 2 3</td>
</tr>
<tr>
<td>9</td>
<td>Medicaid</td>
<td>+3</td>
<td>2 1 0 1 2 3</td>
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</table>

D. ORGANIZATIONS

<table>
<thead>
<tr>
<th>Number</th>
<th>Organization</th>
<th>Like</th>
<th>Dislike</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sierra Club</td>
<td>+3</td>
<td>2 1 0 1 2 3</td>
</tr>
<tr>
<td>2</td>
<td>Audubon Society</td>
<td>+3</td>
<td>2 1 0 1 2 3</td>
</tr>
<tr>
<td>3</td>
<td>National Rifelman's Association</td>
<td>+3</td>
<td>2 1 0 1 2 3</td>
</tr>
<tr>
<td>4</td>
<td>Chamber of Commerce</td>
<td>+3</td>
<td>2 1 0 1 2 3</td>
</tr>
<tr>
<td>5</td>
<td>National Association of Manufacturers</td>
<td>+3</td>
<td>2 1 0 1 2 3</td>
</tr>
<tr>
<td>6</td>
<td>Congress of Industrial Organizations</td>
<td>+3</td>
<td>2 1 0 1 2 3</td>
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</table>
### LANDSCAPE ATTITUDE SURVEY

**Part IV (continued)**

#### E. LEISURE TIME

<table>
<thead>
<tr>
<th>Activity</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attending Sporting Events</td>
<td>+3 2 1 0 1 2 3</td>
</tr>
<tr>
<td>Watching TV</td>
<td>+3 2 1 0 1 2 3</td>
</tr>
<tr>
<td>Active Sports</td>
<td>+3 2 1 0 1 2 3</td>
</tr>
<tr>
<td>Gardening</td>
<td>+3 2 1 0 1 2 3</td>
</tr>
<tr>
<td>Art Galeries, Museums, Historic Sites</td>
<td>+3 2 1 0 1 2 3</td>
</tr>
<tr>
<td>Concerts, Theater, Movies</td>
<td>+3 2 1 0 1 2 3</td>
</tr>
<tr>
<td>Socializing with Friends</td>
<td>+3 2 1 0 1 2 3</td>
</tr>
<tr>
<td>Listening to Music at home</td>
<td>+3 2 1 0 1 2 3</td>
</tr>
<tr>
<td>Walking</td>
<td>+3 2 1 0 1 2 3</td>
</tr>
<tr>
<td>Shopping</td>
<td>+3 2 1 0 1 2 3</td>
</tr>
</tbody>
</table>

#### F. VACATION ACTIVITIES

<table>
<thead>
<tr>
<th>Activity</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Backpack Camping</td>
<td>+3 2 1 0 1 2 3</td>
</tr>
<tr>
<td>Hiking</td>
<td>+3 2 1 0 1 2 3</td>
</tr>
<tr>
<td>Sleeping Outdoors</td>
<td>+3 2 1 0 1 2 3</td>
</tr>
<tr>
<td>Solitude</td>
<td>+3 2 1 0 1 2 3</td>
</tr>
<tr>
<td>Enjoyment of Nature</td>
<td>+3 2 1 0 1 2 3</td>
</tr>
<tr>
<td>Camping with Car</td>
<td>+3 2 1 0 1 2 3</td>
</tr>
<tr>
<td>Automobile Touring</td>
<td>+3 2 1 0 1 2 3</td>
</tr>
<tr>
<td>Campsites with Plumbing</td>
<td>+3 2 1 0 1 2 3</td>
</tr>
<tr>
<td>Developed Resort Communities</td>
<td>+3 2 1 0 1 2 3</td>
</tr>
<tr>
<td>Visiting Large Cities</td>
<td>+3 2 1 0 1 2 3</td>
</tr>
</tbody>
</table>

**PART V**

For each of the following objects or concepts express your attitude on the following scale:

1. Rejection
2. Begrudgingly Accept
3. Accept with Reservations
4. Accept without Reservations

<table>
<thead>
<tr>
<th>Object</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Micro Wave Ovens</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>Video Games</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>Home Computers</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>Nuclear Energy</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>Space Travel</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>Space Colonization</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>Walkways</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>GENETIC ENCOD.</td>
<td>1 2 3 4</td>
</tr>
</tbody>
</table>
1. How important do you consider each of the following major issues? Please circle the number in the margin, where

1=unimportant 2=not very important 3=moderately important 4=important 5=quite important 6=extremely important

1 2 3 4 5 6 race
1 2 3 4 5 6 population
1 2 3 4 5 6 law and order
1 2 3 4 5 6 environmental decline
1 2 3 4 5 6 inflation
1 2 3 4 5 6 generation gap

2. If you were guaranteed a comfortable income regardless, how much would you like to spend most of your life in each of these? (1=not very ... 6=great deal)

1 2 3 4 5 6 city
1 2 3 4 5 6 suburbs
1 2 3 4 5 6 small town or village
1 2 3 4 5 6 rural countryside or backwoods area

3. Please indicate how much satisfaction you get from each of the following, using a scale where 1=none or almost none ... 6=great deal

1 2 3 4 5 6 babies, enjoyment of
1 2 3 4 5 6 bargaining, buying and selling
1 2 3 4 5 6 cities
1 2 3 4 5 6 conversation, all kinds
1 2 3 4 5 6 food
1 2 3 4 5 6 gardening, farming
1 2 3 4 5 6 medical care (caring for those who are ill)
1 2 3 4 5 6 nature, enjoyment of
1 2 3 4 5 6 odors, perfumes, etc.
1 2 3 4 5 6 ownership of property
1 2 3 4 5 6 parties
1 2 3 4 5 6 people
1 2 3 4 5 6 physical exercise
1 2 3 4 5 6 religion
1 2 3 4 5 6 routine activities
1 2 3 4 5 6 self adornment
1 2 3 4 5 6 sports-watching

4. Please indicate your preference for each of the following moods or settings, using a scale where 1=strongly dislike ... 6=like very much

1 2 3 4 5 6 a totally woodland area
1 2 3 4 5 6 the deserted street of a large city at night
1 2 3 4 5 6 a front lawn in a suburban area
1 2 3 4 5 6 a farmland region
1 2 3 4 5 6 an industrial area
1 2 3 4 5 6 a city park
1 2 3 4 5 6 a modern housing development
1 2 3 4 5 6 a quiet residential street
1 2 3 4 5 6 a clearing or opening in the woods
1 2 3 4 5 6 a stroll through a woodsy area or along a deserted beach
1 2 3 4 5 6 the bustle and excitement of a large city

83
5. Things I like

(1=strongly dislike ....... 6=like very much)

1 2 3 4 5 6 setting sun
1 2 3 4 5 6 beachcombing
1 2 3 4 5 6 campfire
1 2 3 4 5 6 wilderness
1 2 3 4 5 6 rainy days
1 2 3 4 5 6 caves
1 2 3 4 5 6 open spaces
1 2 3 4 5 6 windy days
1 2 3 4 5 6 collecting seashells or pine cones
1 2 3 4 5 6 fire in the fireplace
1 2 3 4 5 6 bright sunny days
1 2 3 4 5 6 lakes, rivers
1 2 3 4 5 6 snow
1 2 3 4 5 6 waterfalls

6. When you have been harried or under pressure, to what degree would each of the following help make you feel better? (1=not at all .... 6=great deal)

1 2 3 4 5 6 going to the movies
1 2 3 4 5 6 going for a walk in the city, or in a residential neighborhood
1 2 3 4 5 6 going for a walk on the beach, in the woods, or in some other natural setting
1 2 3 4 5 6 being with friends
1 2 3 4 5 6 writing a letter
1 2 3 4 5 6 eating
1 2 3 4 5 6 sleeping
1 2 3 4 5 6 going for a ride in the country
1 2 3 4 5 6 going for a ride in an urban or industrial area
1 2 3 4 5 6 watching TV

What else do you think would help a lot?
APPENDIX B

SECOND TEST QUESTIONNAIRE

BELIEF/VALUE/ATTITUDE PROFILE  7/18/83

PART I: PHOTOGRAPHS

Indicate whether you like (+3) or dislike (3-) the content depicted in each of the following photographs.

ENVIRONMENTS

1: +3 2 1 0 1 2 3  - Monument Valley
2: +3 2 1 0 1 2 3  - Farm
3: +3 2 1 0 1 2 3  - Town Houses
4: +3 2 1 0 1 2 3  - Modern Villas
5: +3 2 1 0 1 2 3  - New Homes
6: +3 2 1 0 1 2 3  - Single Family Housing
7: +3 2 1 0 1 2 3  - Single Family Housing
8: +3 2 1 0 1 2 3  - Town Houses
9: +3 2 1 0 1 2 3  - Row Houses
10: +3 2 1 0 1 2 3  - B. & B. Inn
11: +3 2 1 0 1 2 3  - M. Y. C

SPACES

1: +3 2 1 0 1 2 3  - Beach
2: +3 2 1 0 1 2 3  - Modern Villa
3: +3 2 1 0 1 2 3  - Square
4: +3 2 1 0 1 2 3  - Courtyard Park
5: +3 2 1 0 1 2 3  - Live Suburb
6: +3 2 1 0 1 2 3  - Linear Garden
7: +3 2 1 0 1 2 3  - Mall
8: +3 2 1 0 1 2 3  - Plaza
9: +3 2 1 0 1 2 3  - Riot Garden
10: +3 2 1 0 1 2 3  - Black Funeral
11: +3 2 1 0 1 2 3  - Black Funeral

STRUCTURES

1: +3 2 1 0 1 2 3  - Simple
2: +3 2 1 0 1 2 3  - Complex
3: +3 2 1 0 1 2 3  - Modern
4: +3 2 1 0 1 2 3  - Pictorial
5: +3 2 1 0 1 2 3  - Poetic
6: +3 2 1 0 1 2 3  - Abstract
7: +3 2 1 0 1 2 3  - Gothic
8: +3 2 1 0 1 2 3  - Decorative
9: +3 2 1 0 1 2 3  - Mysterious
10: +3 2 1 0 1 2 3  - Classical
11: +3 2 1 0 1 2 3  - Original

ART OBJECTS

1: +3 2 1 0 1 2 3  - Black
2: +3 2 1 0 1 2 3  - White
3: +3 2 1 0 1 2 3  - Blue
4: +3 2 1 0 1 2 3  - Red
5: +3 2 1 0 1 2 3  - Green
6: +3 2 1 0 1 2 3  - Yellow
7: +3 2 1 0 1 2 3  - Orange
8: +3 2 1 0 1 2 3  - Pink
9: +3 2 1 0 1 2 3  - Purple
10: +3 2 1 0 1 2 3  - Grey
11: +3 2 1 0 1 2 3  - Brown

PART II: BELIEFS

Indicate whether you agree (+3) or disagree (3-) with the following statements.

1: +3 2 1 0 1 2 3  - Happiness is submission to God.
2: +3 2 1 0 1 2 3  - The bible is a literal explanation of human existence.
3: +3 2 1 0 1 2 3  - Government should enforce our code of moral behavior.
4: +3 2 1 0 1 2 3  - Work well done is its own reward.
5: +3 2 1 0 1 2 3  - Without clocks society could not function.
6: +3 2 1 0 1 2 3  - The theory of evolution best explains human existence.
7: +3 2 1 0 1 2 3  - Government should insure equitable distribution of wealth.
8: +3 2 1 0 1 2 3  - The human race is destined to colonize space.
9: +3 2 1 0 1 2 3  - Each individual controls their own destiny.
10: +3 2 1 0 1 2 3  - Each individual life affects the destiny of humankind.
11: +3 2 1 0 1 2 3  - One must live by the rules of society.
### PART III: SiEEFITs

Indicate how important (+3) or unimportant (3-) each of the following is to you.

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### PART IV: ACTIVITIES

Indicate whether you enjoy (+3) or dislike participating in the following.

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86
PART V: OBJECTS

Indicate how much you like (+3) or dislike (3-) the following:

1: +3 2 1 0 1 2 3 - Organic food
2: +3 2 1 0 1 2 3 - Hand made crafts
3: +3 2 1 0 1 2 3 - Natural wood furniture
4: +3 2 1 0 1 2 3 - Antique furniture
5: +3 2 1 0 1 2 3 - Synthetic fabrics
6: +3 2 1 0 1 2 3 - Unbreakable dishes
7: +3 2 1 0 1 2 3 - Telephone conversations
8: +3 2 1 0 1 2 3 - Micro-wave ovens
9: +3 2 1 0 1 2 3 - Video games
10: +3 2 1 0 1 2 3 - Computers
11: +3 2 1 0 1 2 3 - Walkmans
12: +3 2 1 0 1 2 3 - Fire places
13: +3 2 1 0 1 2 3 - Rugged topography
14: +3 2 1 0 1 2 3 - Rain storms
15: +3 2 1 0 1 2 3 - Acorns & shells
16: +3 2 1 0 1 2 3 - Prepackaged dinners
17: +3 2 1 0 1 2 3 - Digital Clocks

PART VI: PLACES

Indicate how attractive (+3) or unattractive (3-) the following are to you.

1: +3 2 1 0 1 2 3 - Virgin forests
2: +3 2 1 0 1 2 3 - Alpine meadows
3: +3 2 1 0 1 2 3 - Rugged topography
4: +3 2 1 0 1 2 3 - Ocean beaches
5: +3 2 1 0 1 2 3 - Natural lakes
6: +3 2 1 0 1 2 3 - Farms
7: +3 2 1 0 1 2 3 - Campsites with plumbing
8: +3 2 1 0 1 2 3 - Modern resorts
9: +3 2 1 0 1 2 3 - Quiet suburban streets
10: +3 2 1 0 1 2 3 - Front lawns
11: +3 2 1 0 1 2 3 - Large shopping malls
12: +3 2 1 0 1 2 3 - Small specialty shops
13: +3 2 1 0 1 2 3 - Centrally located apartment
14: +3 2 1 0 1 2 3 - Museums, Art galleries & Historic sites
15: +3 2 1 0 1 2 3 - Zoos
16: +3 2 1 0 1 2 3 - Urban parks

87
### PART II: ISSUES

How important (+3) or unimportant (3-) is government actions in the following directions to you?

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### PART VIII: PROGRESS

How important (+3) or unimportant (3-) is scientific progress in the following fields to you.

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### D/V/A PROFILE

**7/18/83**

**BACKGROUND**

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**INCOME:**

- up to $10,000
- 10 to $25,000
- 25 to $50,000
- over $50,000

**EDUCATION:**

- 8th Grade
- High School
- College
- Post Grad

**PROFESSION:**

Describe the place in which you grew up:

Describe your lifestyle:
APPENDIX C

THIRD TEST QUESTIONAIRE

LANDSCAPE ATTITUDE PROFILE 8/5/83

PART I: PHOTOGRAPHS
Indicate whether you like (+3) or dislike (-3) the content depicted in the following photographs.

A. ENVIRONMENTS
1: +3 2 1 0 1 2 3-
2: +3 2 1 0 1 2 3-
3: +3 2 1 0 1 2 3-
4: +3 2 1 0 1 2 3-
5: +3 2 1 0 1 2 3-
6: +3 2 1 0 1 2 3-
7: +3 2 1 0 1 2 3-
8: +3 2 1 0 1 2 3-
9: +3 2 1 0 1 2 3-
10: +3 2 1 0 1 2 3-

B. SPACES
1: +3 2 1 0 1 2 3-
2: +3 2 1 0 1 2 3-
3: +3 2 1 0 1 2 3-
4: +3 2 1 0 1 2 3-
5: +3 2 1 0 1 2 3-
6: +3 2 1 0 1 2 3-
7: +3 2 1 0 1 2 3-
8: +3 2 1 0 1 2 3-
9: +3 2 1 0 1 2 3-
10: +3 2 1 0 1 2 3-

C. ART OBJECTS
1: +3 2 1 0 1 2 3-
2: +3 2 1 0 1 2 3-
3: +3 2 1 0 1 2 3-
4: +3 2 1 0 1 2 3-
5: +3 2 1 0 1 2 3-
6: +3 2 1 0 1 2 3-
7: +3 2 1 0 1 2 3-
8: +3 2 1 0 1 2 3-
9: +3 2 1 0 1 2 3-
10: +3 2 1 0 1 2 3-

PART II: BELIEFS
Indicate whether you agree (+3) or disagree (-3) with the following statements.

1: +3 2 1 0 1 2 3- There is a supreme being who has direct control over life on earth.
2: +3 2 1 0 1 2 3- Happiness is submission to God.
3: +3 2 1 0 1 2 3- Nature is the manifestation of God's will.
4: +3 2 1 0 1 2 3- Enjoyment of work is more important than monetary reward.
5: +3 2 1 0 1 2 3- Society could function without clocks.
6: +3 2 1 0 1 2 3- The theory of evolution best explains human existence.
7: +3 2 1 0 1 2 3- The human race is destined to colonize space.
8: +3 2 1 0 1 2 3- Each human being controls his or her own destiny.
9: +3 2 1 0 1 2 3- An individual can effect the future of humankind.
10: +3 2 1 0 1 2 3- One must live by the rules of society.
11: +3 2 1 0 1 2 3- All problems can be solved by rational means.
PART II: ISSUES

How important (+3) or unimportant (3-) is government actions in the following directions to you?

1: +3 2 1 0 1 2 3- Racial integration
2: +3 2 1 0 1 2 3- Zero population growth
3: +3 2 1 0 1 2 3- Law & Order
4: +3 2 1 0 1 2 3- Environmental protection
5: +3 2 1 0 1 2 3- Inflation control
6: +3 2 1 0 1 2 3- Full employment
7: +3 2 1 0 1 2 3- Women's Rights
8: +3 2 1 0 1 2 3- Defense spending
9: +3 2 1 0 1 2 3- Disarmament
10: +3 2 1 0 1 2 3- Social Security
11: +3 2 1 0 1 2 3- Economic Growth

PART III: PROGRESS

How important (+3) or unimportant (3-) is scientific progress in the following fields to you.

1: +3 2 1 0 1 2 3- Genetic Engineering
2: +3 2 1 0 1 2 3- Space Exploration
3: +3 2 1 0 1 2 3- Space Colonization
4: +3 2 1 0 1 2 3- Environmental Assessment
5: +3 2 1 0 1 2 3- Cheap energy
6: +3 2 1 0 1 2 3- Computer networking
7: +3 2 1 0 1 2 3- Mental Illness
8: +3 2 1 0 1 2 3- Nutrition
9: +3 2 1 0 1 2 3- Disease
10: +3 2 1 0 1 2 3- Armaments
11: +3 2 1 0 1 2 3- Transportation

PART IV: PLACES

If forced to make a decision, where would you prefer to spend time. (circle X)

X Virgin Forest   X Urban Park
X Alpine Meadow  X Front Lawn
X Virgin Forest  X Ocean Beach
X Ocean Beach    X Man Made Lake
X Modern Resort  X Virgin Forest
X Museum        X Alpine Meadow
X Farm          X Quiet Suburban Street
X Campsite with Plumbing  X Virgin Forest
X Large shopping Mall    X Small specialty Shop
X Large Shopping Mall    X Historic Site
X Art Gallery   X Modern Resort
X Virgin Forest  X Farm
X Farm         X Modern Resort
X Farm         X Large Urban Center
X Urban Park   X Modern Resort
X Campsite with Plumbing  X Museum
X Historic Site  X Museum
PART VI: OBJECTS

Indicate how much you like (+3) or dislike (-3) the following:

1. +3 2 1 0 1 2 3 Organic food
2. +3 2 1 0 1 2 3 Hand made crafts
3. +3 2 1 0 1 2 3 Natural wood furniture
4. +3 2 1 0 1 2 3 Antique furniture
5. +3 2 1 0 1 2 3 Synthetic fabrics
6. +3 2 1 0 1 2 3 Unbreakable dishes
7. +3 2 1 0 1 2 3 Telephone conversations
8. +3 2 1 0 1 2 3 Micro-wave ovens
9. +3 2 1 0 1 2 3 Video games
10. +3 2 1 0 1 2 3 Computers
11. +3 2 1 0 1 2 3 Walkmans
12. +3 2 1 0 1 2 3 Fire places
13. +3 2 1 0 1 2 3 Picture windows
14. +3 2 1 0 1 2 3 Rain storms
15. +3 2 1 0 1 2 3 Acorns & shells
16. +3 2 1 0 1 2 3 Prepackaged dinners
17. +3 2 1 0 1 2 3 Digital Clocks

PART VII: ACTIVITIES

From the following groups of 3, pick the one you like Most and the one you like Least (circle K and L):

K L Back Pack Camping        K L Going to Church
K L Automobile Touring        K L Going to Lovie
K L Gardening                K L Reading a Book
M L Hiking                   M L Hiking
M L Hunting & Fishing        M L Automobile touring
M L Back Pack Camping         M L Attending sporting event
M L Sleeping Outdoors        M L Power boating
M L Watching T.V.            M L Hunting & Fishing
M L Going to Church           M L Visiting large City
M L Hiking                   M L Power Boating
M L Fishing                  M L Visiting large City
M L Gardening                M L Power Boating
M L Hiking                   M L Watching T.V.
M L Watching T.V.            M L Going to Sporting Event
M L Going to Movies           M L Reading a book
M L Attending Sporting Event M L Visiting large City
M L Attending Large Party    M L Going to Church
M L Attending Concert        M L Gardening
M L Purchasing Souviners     M L Reading a Book
M L Picking Wildflowers      M L Hiking
K L Reading a Book
PART VII: BENEFITS

Which of the following are more important to you? (circle X)

- Physical exercise
- Solitude
- Self Esteem
- Physical Exercise
- Chance to acquire wealth
- Chance to relieve tension
- Chance to acquire knowledge
- Awareness of beauty
- The simple life
- Tranquility
- Solitude
- Physical Exercise
- Chance to help others

PART VIII: VALUES

For the words on the left choose the words that least and most match it.

TRANQUILITY

- Solitude
- Chance to relieve tension
- Esteem of others

THE SIMPLE LIFE

- Tranquility
- Breathing fresh air
- Awareness of beauty

SELF ESTEEM

- Wealth
- Health
- Knowledge

Esteem of others

- Wealth
- Health
- Knowledge
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<td>over $50,000</td>
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PROFESSION: ____________________________

Describe the place in which you grew up:

Describe your lifestyle:
APPENDIX D

PROPOSED QUESTIONNAIRE

LANDSCAPE ATTITUDE PROFILE TEST 3/12/84

For each of the included slides or statements circle the number which comes closest to expressing your attitude, +3 meaning very strongly favorable, -3 meaning very strongly unfavorable.

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OBJECTS
| +3 2 1 0 1 2 3- 21. Natural Wood Furniture |
| +3 2 1 0 1 2 3- 22. Fire Places |
| +3 2 1 0 1 2 3- 23. Rain Storms |
| +3 2 1 0 1 2 3- 24. Picture Windows |
| +3 2 1 0 1 2 3- 25. Hand Made Crafts |
| +3 2 1 0 1 2 3- 26. Antiques |
| +3 2 1 0 1 2 3- 27. Acorns & Shells |
| +3 2 1 0 1 2 3- 28. Computers |
| +3 2 1 0 1 2 3- 29. Telephone |
| +3 2 1 0 1 2 3- 30. Prepackaged Dinners |

PLACES
| +3 2 1 0 1 2 3- 31. Beach |
| +3 2 1 0 1 2 3- 32. Virgin Forest |
| +3 2 1 0 1 2 3- 33. Alpine Meadow |
| +3 2 1 0 1 2 3- 34. Historic Site |
| +3 2 1 0 1 2 3- 35. Urban Park |
| +3 2 1 0 1 2 3- 36. Modern Resort |
| +3 2 1 0 1 2 3- 37. Museum |
| +3 2 1 0 1 2 3- 38. Shopping Mall |
| +3 2 1 0 1 2 3- 39. Large Urban Center |
| +3 2 1 0 1 2 3- 40. Suburban Street |
**ACTIVITIES**

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**BENEFITS**

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**BELIEFS**

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<td>An individual can affect the future of Humankind.</td>
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<td>Society could function without clocks.</td>
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<td>The human race is destined to colonize space.</td>
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**ISSUES**

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BACKGROUND:

How well do the following describe your Lifestyle?
+3 2 1 0 1 2 3- 81. Quiet
+3 2 1 0 1 2 3- 82. Simple
+3 2 1 0 1 2 3- 83. Active
+3 2 1 0 1 2 3- 84. Stable
+3 2 1 0 1 2 3- 85. Boring
+3 2 1 0 1 2 3- 86. Exciting
+3 2 1 0 1 2 3- 87. Changing
+3 2 1 0 1 2 3- 88. Casual
+3 2 1 0 1 2 3- 89. Contemporary

90. Where did you grow up
____ Rural non farm
____ Farm
____ Small Town
____ Small City
____ Large City
____ Suburbs

91. AGE
____ up to 25
____ 25 to 35
____ 35 to 45
____ 45 to 55
____ 55 to 65
____ over 65

92. INCOME
____ up to $15,000
____ 15 to $25,000
____ 25 to $35,000
____ 35 to $45,000
____ 45 to $55,000
____ over $55,000

93. SEX
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