# CHILDREN, NATURE, AND THE URBAN ENVIRONMENT:

## Proceedings of a Symposium-Fair

**USDA FOREST SERVICE GENERAL TECHNICAL REPORT NE-30**
**1977**

FOREST SERVICE, U.S. DEPARTMENT OF AGRICULTURE
NORTHEASTERN FOREST EXPERIMENT STATION
6816 MARKET STREET, UPPER DARBY, PA. 19082

We all share
dreams and hopes
for children
and for children yet to be
and, caring, shall assemble
to recall the child within.

To gather for a symposium
on tender human growth,
in this alarming age
of nature's destruction
and nuclear peril,
is an act of faith.

Joined in common fate
let us together
affirm and nurture
life on earth.

**—Karl Linn**

**Cover from a Photograph by Jerry**

For Sale by the Superintendent of Documents, U.S. Government Printing Office
Washington, D.C. 20402

Stock No. 001-001-00428-6

# CHILDREN, NATURE, AND THE URBAN ENVIRONMENT:

## Proceedings of a Symposium-Fair

Proceedings of the Symposium-Fair held 19-23 May 1975 at the C. H. Marvin Center of the George Washington University, Washington, D.C.


:d and presented by:

Service, USDA
:ollege, Rutgers,
:tate University of New Jersey
of Education,
Washington University

In conjunction with:

The Pinchot Institute of
Environmental Forestry Research,
Consortium for Environmental
Forestry Studies

## FOREWORD

Urban children of today have become increasingly divorced from the natural environment of forests and fields that was part of the surroundings in which children developed just a generation ago. Rather than understanding their place in the natural world through close association with nature, today's urban children often learn about nature secondhand. The effects that this separation may have on today's urban children, in terms of their psychological development, self-concept, and preparation for responsible citizenship, are not known.

It was with the specific purpose of gaining a better understanding of the role of nature in the urban child's development that a Symposium-Fair titled, "Children, Nature, and the Urban Environment" was held at the Claud Heck Marvin Center of the George Washington University in Washington, D. C., from May 19 to 23, 1975. Here, we cannot possibly reproduce the Symposium-Fair itself, and we have made no attempt to do so. No volume of proceedings can do more than coldly celebrate an occasion of intense interpersonal exchange.

A total of 113 presentations were made during the five days of the Symposium-Fair. This volume offers only a selection of papers presented at the meeting. Many excellent papers had to be omitted for lack of space. Presentations of visual materials could not be duplicated here. Interested readers are referred to the Symposium-Fair Program (Appendix A) for a complete list of presentations. Program participants can be contacted directly for additional information (Appendix B). Every presentation is also available tape recorded from the Broadcasting Foundation of America, 52 Vanderbilt Avenue, New York, N. Y. 10017. The papers presented here are arranged in an order that seems logical to us, but is quite unrelated to the presentations at the event.

A decent respect for the opinions of mankind does seem to require a bit of explanation of the genesis of the event.

Elwood Shafer, then coordinator of the USDA Forest Service's Pinchot Institute of Environmental Forestry Research, first called attention to this important area. He provided us with the opportunity to meet with other likeminded individuals from the groves of academe. In the summer of 1973, Calvin Stillman, of Rutgers University, wrote A. Laverne Dickerson of the U.S. Forest Service in Washington, D.C., to suggest that it was time to bring together a small group to compare notes on what is known, and what needs to be known, of what really happens when children are exposed to nature. Dr. Dickerson responded with the news that the Forest Service had authorized a meeting on the subject at Syracuse, N. Y. The 2-day meeting was held in November, 1973. A program committee was appointed to prepare a full-scale public meeting.

Our topic was emotionally appealing for two reasons: it involved children, and it involved nature. It also dealt with "The City", a topic that nags consciences. To wrap the city into an appealing package along with children and nature projected an aura of responsibility and of fun, too.

Early in the planning process, the program committee agreed not to hold a conference that was within the bailiwick of any single discipline. We were frankly exploring an area of interest, one that we deemed important, yet one without sideboards established by the conventional wisdom of an established profession. We hoped this would insure that the conference would not be taken over by persons with axes to grind. On the other hand, it provided no clear plan or procedure.

As the event approached, vast amounts of time, personal energy, and money were expended in planning and preparations. Requirements of deadlines, written plans, agendas, and commitments for arrangements have a way of bringing to the fore differences of opinion which up until that time had been hidden in polite reticence, or complacent incomprehension of others' points of view. Committee discussions were frequently heated. But the final form of the Symposium, its agenda, and the ancillary activities are elements for which the entire program committee must be held responsible.

In our intention to explore the esthetic dimensions of "nature", we received instant and steady support from Mayer Spivack of the Harvard Medical School. His strategic contribution to the planning of the event was fundamental. On Spivack's recommendation, Karl Linn was added to the planning committee. Linn took charge of staging the conference, and was responsible for its ultimate designation as a "Symposium-Fair". Except for the introductory poem on the first page of this Proceedings, Linn's efforts toward making the event a personal experience for every participant cannot be reproduced here.

The strategy of using George Washington University buildings was contributed by Donald Hawkins, and became fundamental to the structure of the Symposium-Fair.

Intellectual formulation was shared by all members of the program committee. Differences in opinion appeared when we moved from the level of talk to the level of implementation. We wanted to hear from people doing research as well as from people doing things. We wanted to learn of the dreams of designers. And above all, we wanted interested people--adults and children--to meet together in a pleasant environment, to exchange ideas, share accomplishments, and ask questions.

Many people came to our aid. Ruth Allen, of the Institute of Ecology, contributed names and ideas from the harder shores of social science research. Mary Kohler, Director of the National Commission on Resources for Youth, arranged to bring to Washington young persons from a variety of exciting programs. A. LaVerne Dickerson drew upon her Forest Service colleagues, and upon her intimate contact with urban Washington, to bring us both vigorous workers in the social sciences and the warm breath of reality.

The star of the program committee emerged after nine months of vague talk, tentative plans, and heated debates over priorities. He was Roger Hart of the Department of Geography at Clark University. His personal competence in every substantive field in which we were interested was overshadowed only by his vast acquaintance and his limitless powers of persuasion.

With all these ideas bound into the Symposium-Fair, the program came off without a hitch. Nearly 500 people from nine nations attended. After the affair, the program committee was reconvened by George Moeller, who had replaced Elwood Shafer as coordinator of the Forest Service's Pinchot Institute of Environmental Forestry Research. The committee worked for over a year to develop this proceedings. Selected papers are organized into the following sections:

Section I deals with the role of the natural environment in human development.

Section II deals in a fairly hard-nosed manner with theory and research on urban children and the natural environment.

Section III is devoted to doing things with children in natural en-

vironments; its title is "Community and Institutional Response".

It is the earnest hope of those who planned and participated in the Symposium-Fair that its completion will be a beginning rather than an end, and that it will be a forerunner of many such meetings.

Financial support for the Symposium-Fair was provided by the Northeastern Forest Experiment Station, Forest Service, U. S. Department of Agriculture, through its Pinchot Institute of Environmental Forestry Research.

Although the program was planned and executed through the collective efforts of many, Calvin Stillman, of the Department of Environmental Resources, Cook College of Rutgers, the State University of New Jersey, deserves special credit for his efforts as program chairman. The facilities and local coordination provided by the Department of Human Kinetics and Leisure Studies, School of Education, the George Washington University also merit a special credit.

Many, many others contributed to the success of the Symposium-Fair; from the supplementary program funds provided by Special Aid Funds, Incorporated, and by the National Commission on Resources for Youth, to the beautiful plant arrangements provided by the U. S. Botanic Gardens. Finally, appreciation is extended to Walter Blair for organizing the creation of the photographs that appear in this Volume.

**—The Symposium-Fair Program Committee**

## CONTENTS

# The Natural Environment and Human Development

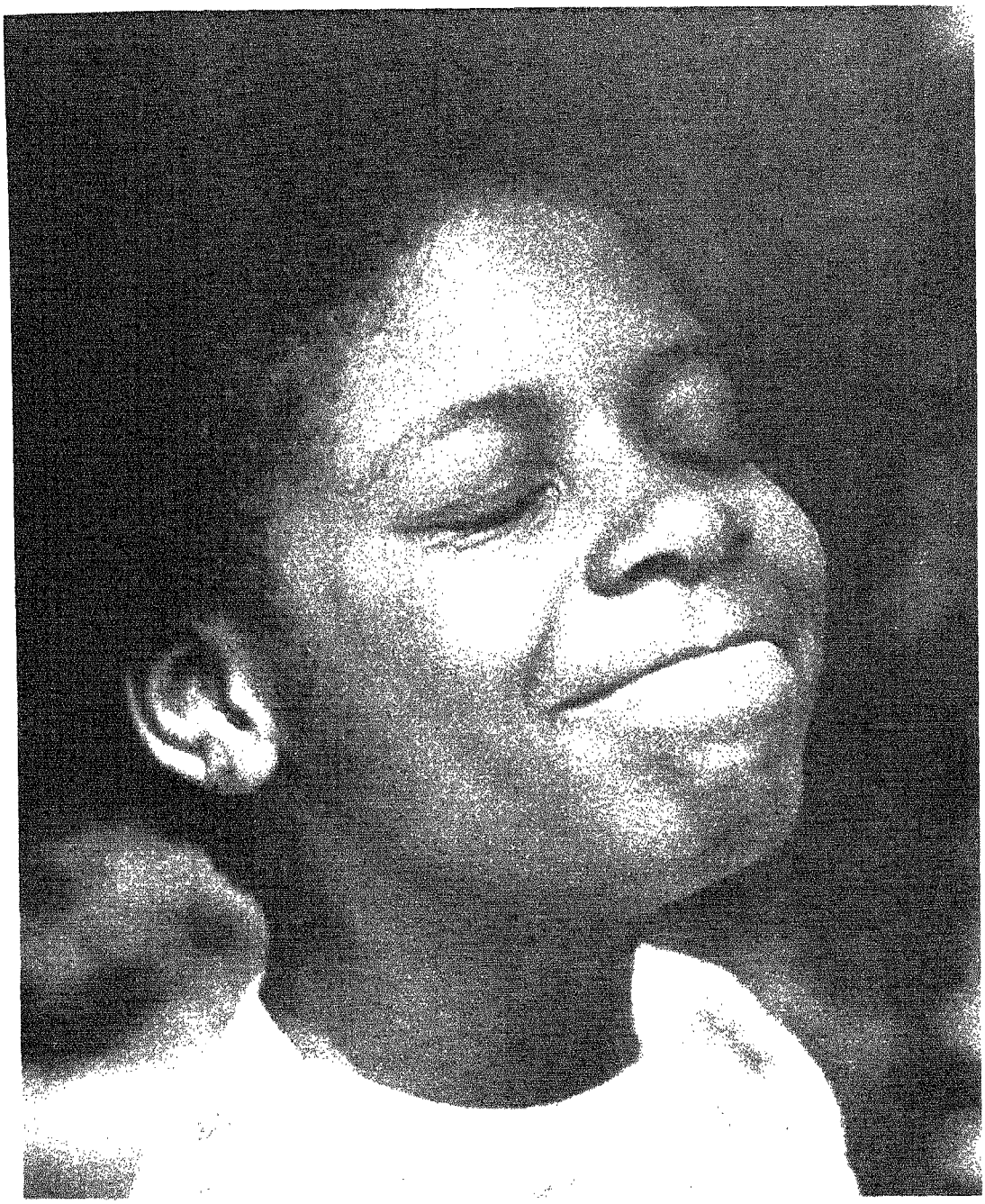


PHOTO BY WALT BLAIR

"Experience depends on sensory equipment. A child is finely equipped: his senses are sharp, undulled by age"
Yi-Fu Tuan

# Experience and Appreciation

*by* YI-FU TUAN, *Professor of Geography, University of Minnesota.*

*ABSTRACT.* A young child has keen senses, but his world is not thereby more filled with sensory values than that of an adult. To enjoy the physical environment fully the mere capacity to experience stimuli is not enough; it must be complemented by appreciation, which is an intellectual activity. A young child's experiences of nature are often more intense than those of an adult. Among the reasons for this are synesthesia and the child's ability to isolate experience from its distracting social, theoretical, and practical contexts. However, the isolation also causes impoverishment. Remembrance, which broadens the context, is an important component of appreciation. In remembered pleasure the adult is far richer than the child.

IN "TINTERN ABBEY", Wordsworth wistfully expressed his lost childhood in these famous lines::

> For nature then
> (The coarser pleasures of my boyish days,
> And their glad animal movements all gone by)
> To me was all in all.—I cannot paint
> What then I was. The sounding cataract
> Haunted me like a passion: the tall rock,
> The mountain, and the deep and gloomy wood,
> Their colours and their forms, were then to me
> An appetite; a feeling and a love,
> That had no need of a remoter charm,
> By thought supplied, nor any interest
> Unborrowed from the eye.

The idea is that to the child nature is a feeling and an appetite. Once we reach the age of discernment thought places a veil, as it were, between nature and ourselves. Direct experience is edged aside by quiet appreciation. There is obvious truth in this belief. I should like to explore it further.

What is experience? We don't normally say of plants that they have experience. We do sometimes say of animals—particularly the higher animals—that they have experience. It is a term, however, used primarily of human beings. This suggests that experience is more than the passive registering of environmental stimuli. It is also an activity; an exploration of the environment; an attempt to order impressions. Seeing, we know, is a discriminating and creative act. But, to perhaps a lesser degree, this is also true of the more passive senses of touch and smell. We accept the term "visual thinking" *(Arnheim 1969).* Touch and smell are also permeated by thought, in the sense that these are discriminating activities capable of articulating tactile and olfactory worlds. We say of a cloth-feeler that he has an educated touch, and of a perfumer that he has an educated nose. The intelligence of touch may precede visual intelligence and the forming of concepts with the help of words. An infant may be aware of a difference between animate and inanimate objects through his sense of touch, but he will not know the difference by looking, or conceptually, till much later.

Experience depends on sensory equipment. A child is finely equipped: his senses are sharp, undulled by age. But the ability to make use of his senses is limited. Consider smell and the olfactory world: A child lives close to the sources of smell. When he walks along fruit stands or in a hay field he is flooded by odoriferous molecules that do not so readily reach the skyscraping adult. Does this mean that the child is aware of—and can appreciate—a greater range of odors than the adult? Isn't the ability to

smell also a matter of education? We do know that children have odor preferences that differ significantly from those of their elders. According to Moncrieff *(1966)*, children "are much less favourably impressed by flower scents, much more by fruity flavors." They show "a remarkable tolerance for substances with a fecal note in their odour; they do not like these substances but they are more or less indifferent to them, whereas the adults actively dislike them."

Why do adults like flower fragrances? Flower fragrance doesn't play any obvious role in biological survival. The child's preference for fruit odor is easier to understand. The ability to appreciate flower fragrances and make fine discriminations among them exhibits the strong human desire to extend the known world, whether the additional knowledge is useful or not. Children have a rather high tolerance for odors of decay; animals are even more tolerant. Even with their highly sensitive noses, animals seem undisturbed by the stench of putrefaction: trappers often smear traps for carnivores with a concoction of rotten fish in water left long in the sun. Herbivores show no particular reaction to foul but nonsignificant smell. Susanne Langer *(1972)* suggests that animals may tolerate charnel odors because for them such odors apparently do not have the *memento mori* associations that they often do for adult human beings. Classifying certain odors as bad is thus in part an intellectual judgment, beyond the ability of the young child despite his sensitive nose.

Superficially, experience and appreciation have quite different meanings. Examined more closely, they show large areas of overlap. Appreciation depends on experience, but experience itself is seldom naive: even the so-called passive senses of touch, taste, and smell have in them elements of appreciation. How does the child's world differ from that of the adult from the standpoint of experience and appreciation?

A sophisticated adult distinguishes a wide range of fragrances in his foods, wines, and cigars. These subtleties pass over the child because he has not yet learned to discriminate; he has yet to learn the enlarged world of finely graded sensations. On the other hand, this very lack of discrimination contributes to an inchoate richness in the child's world. The child benefits more from synesthesia than the adult. An adult frequently confuses taste with smell, but he easily distinguishes among the senses of hearing, seeing, and touch. This power to discriminate entails both a loss and a gain. The gain is subtlety. The loss is a certain inchoate richness. An adult speaks solemnly and a child punctures the solemnity with the remark, "What a crumbly, yellow voice you have." What the grown-up takes to be the child's nonsensical prattle may in fact be the child's report of his experience. Actually, I have a confession to make. The example just given of synesthesia does not come from a child but from the famous mnemonist, Shereshevskii, whom A.R. Luria *(1968)* described. Shereshevskii, however, is like a child is that he has retained the child's vividness of images and the child's tendency to confound one sensation with another.

It is difficult for an adult to envision the child's world. To Ernest Schachtel *(1959)* the difficulty lies in the fact that grown-ups structure their impressions far more elaborately than, and in different ways from, children. We have forgotten how our sensory responses to the world are biased by a culture's concepts that we have acquired in the process of maturation. In an advanced society, for example, the distinction between "natural" and "artificial" is often made. Is the distinction universally recognized? We are not sure. Children, at least, show little awareness of it. Piaget *(1969)* believes that to the small child Lake Geneva is as much an artifact as the city of Geneva. A small child can perhaps use the words "scenery" and "landscape," but they cannot mean the same thing to the child as to the adult. "Scenery" and "landscape" are rich and value-laden concepts which the child has yet to acquire. On an emotional level, for example, adults are easily able to see moods in a scene. A scene is gloomy, sad, or happy. The child is often puzzled by this kind of response. How can a scene without people be either happy or sad? Everyone knows how highly imaginative the child can be when he plays: a stick is a horse and an overturned chair is a fortress. Yet he can be very matter-of-fact, like a scientist, when he is asked to evaluate the aesthetics of nature *(Honkavaara 1961)*.

In childhood anything can happen. The world is full of miracles because there is no physical relationship between what a child does and what he receives in the way of toys, food, and

care. Wash one's hands and food automatically follows; say please and toys pop out of an inaccessible drawer. Because the child's world is so full of miracles, the word "miracle" can have no precise sense for him. Just as nature is not distinguished from artifice, so the natural is not distinguished from the supernatural *(Chartier 1974)*.

To the small child events and objects seem vivid and dramatic because their utilitarian, social, or scientific contexts are not perceived. Adults respond to objects in the context of use; they are simply "at hand." When an everyday use object is removed from its normal setting and put on a pedestal as in a museum it becomes vivid and almost qualifies for art. The child sees many things—commonplace to adults—as though they are framed or on a pedestal. Garbage collecting is not glamorous when perceived in its social context; but the child doesn't recognize the social context, only the excitement of the activity itself. This conceptual limitation is his innocence and it pays in many delights. Robert Coles *(1972)* reports a garbage collector as saying:

> You know, when kids are 6 or 7, they'll tell you they want to be garbage collectors. They're all excited because of the big truck and the big pails we have. They come and watch you and ask you questions and tell you that it won't be long before they're on with you, working up there on that truck. They think it's great, standing there on top of that garbage, pushing it and shoveling it. I've heard the same thing from white kids and colored kids, so long as they're only 5 or 6 or 7. But then the white kids get smart.

The child's time frame is narrow. When an adult contemplates a sweeping view he perceives time as well as space. The converging line of trees and the distant horizon suggest the future—or, on the contrary, remote objects, such as a church spire or a ruin, may suggest the distant past. This temporal dimension of landscape is not a part of the child's experience. The city, Lewis Mumford once said, is time made visible. A child, however, cannot perceive time in the city: ancient buildings are essentially dark, rather dirty, and perhaps haunted. Only when the child reaches the age of 8 to 10 does the idea of antiquity in buildings appear, and along with this awareness a sentiment for old things, the notion that old things should be preserved for what they tell of the past *(Jahoda 1961)*.

What are the happy experiences of childhood that adults look back upon with such yearning? The happy experiences of a child are, of course, enormously varied. Let me give three examples, which differ from each other in kind and in intensity, and then comment on them. The first is the most intense, and it is recalled by the distinguished physician Percival Bailey *(1967)*.

> I remember going fishing. I cannot have been more than 4 years old at the time. The whole setting is still a vivid picture in my mind—the creek which ran across my grandfather's farm, the big willow tree, my mother and my grandfather, who had prepared the hook and line and given the pole to me to hold. When the cork bobbed, I pulled as I had been told, and out came a little sliver of silver which danced in the sunshine at the end of the line. I ran around like one possessed, shrieking in a delirium of joy, and, for a long time, would allow no one to touch my treasure.
>
> I have no recollection of the rest of the day, but never since have I ever experienced such an undiluted ecstasy. Soon afterward we moved away, and I have never developed a liking for fishing. My favorite treatise on the art is not *The Compleat Angler* but a more modern one entitled *To Hell with Fishing!* Can it be possible that there is a subconscious wish to protect this ancient memory? At any rate, on that day I was completely happy, for I was too young to realize the tragic destiny of mankind, and no one to whom that realization has come can ever be completely happy again.

The second example is the recall of the Greek writer Nikos Kazantzakis *(1966)*. He was 4 years old and played with a girl a year younger. Kazantzakis reported:

> She rose then, took me by the hand, and brought me inside. Her mother was away the entire morning; she hired out as a charwoman. Without losing a moment, we took off our socks, lay down on our backs, and glued our bare soles together. We did not breathe a word. Closing my eyes, I felt Emine's warmth pass from her soles to mine, then ascend little by little to my knees, belly, breast, and fill me entirely. The delight I experienced was so profound that I thought I would faint... Even now, 70 years later, I close my eyes and feel Emine's warmth rise from my soles and branch out through my entire body, my entire soul.

The third example is not autobiographical. It is A.A. Milne's *(1925)* idea of the happy child:

> John had
> Great big
> Waterproof
> Boots on;
> John had a
> Great big
> Waterproof
> Hat;
> John had a
> Great big
> Waterproof
> Mackintosh—
> and that
> (said John)
> is
> that.

As we look at these examples it seems to me clear that such experiences of joy and happiness are far from being unique to the small child. The occasions that cause them may indeed change. A small child eating cake will not comprehend that as an adult he will find sex a greater pleasure. Habit dulls one's appetite and greater stimulus must be sought for the same kind of sensory reward. A small boy goes into ecstasy over a little sliver of a fish; the adult angler requires a bigger catch. A great big waterproof hat soon loses its magic, but adults seem to get no less satisfaction out of new toys and possessions than a child. The child does enjoy great advantages over the adult: he comes to his experience fresh. This does not only mean that every experience for him is likely to be new; it also means that the child comes to his experience out of context—out of the context of work, for instance. To the adult, pleasure requires work—that is preparation. A fishing trip is something that has to be planned, perhaps weeks ahead. The fisherman has to make sure that there is enough gas in the car and that the beer bottles in the trunk will not break as the car runs over the washboard road. The child has no such worries. He comes to the river miraculously. Grandfather prepares the hook for young Percival Bailey and the fishing rod is miraculously in his hands: there remains for him only the pure experience of fishing.

Another advantage that the child enjoys over the adult is his lack of social awareness. He is not aware that places have social meaning and can serve as status symbols. The local water hole and stream offer all kinds of opportunities for fun and the fun is not tainted by an awareness of social prestige or its lack *(Smith 1973)*. By contrast, the adult's motivation for visiting one place rather than another is seldom pure. Places are not only to be seen, but they are also to be seen in. It is curious how the child does not take to the camera. He doesn't care to stand still and pose for it, nor does he care to use a camera. The camera is very much a toy for adults, and perhaps one may go so far as to say that it is essentially a toy of middle-class and middle-aged adults. As Susan Sontag *(1973)* has reminded us, an early use of the camera was to make portraits of rather stuffy-looking people and, of course, to take wedding pictures. The cameraman is almost as necessary as the minister at a wedding. The wedding picture is a social document; it legitimizes an occasion. Can anyone imagine visiting the Grand Canyon without a camera? To the adult, it is as though an environmental experience is not real unless it is documented. The documents—the pictures taken—can then be presented to friends for their admiration. A child does not live exclusively in the visual world of the camera. He rarely pauses to admire a panoramic view. He prefers the accessible and the immediate, which he explores in action and through the sense of touch. The older child, like an adult, seeks for a social confirmation of his experience. But since his world is not so much visual and aesthetic as packed with action, the child *tells* his experience and boasts of his adventures. He has little use for static pictures.

What advantages does the adult enjoy over the child? A key word is appreciation. Experience, we have seen, is informed by thought. Appreciation is even more an intellectual activity. Growing older often means substituting appreciation for direct sensory pleasure. Wordsworth seems to have viewed the change with regret. Many adults mourn for their lost childhood. A hungry child wolfs down a hamburger; it is a passion, whereas the adult has to make do with whiffing the perfume of a rare wine. A child may be fascinated by small objects—a daisy, for instance. The adult? When Wordsworth was 64 years old and felt a dimming of his poetic vision, he wrote the following lines in a child's album in praise of service:

> Small service is true service while it lasts:
> Of humblest Friends, bright Creature! scorn not one:
> The Daisy, by the shadow that it casts,
> Protects the lingering dew-drop from the sun.

The child, who knows the daisy and the sun, will not appreciate the poem. To appreciate the poem and the experience it so deftly captures, one needs to have sensed the charm of the daisy and the warmth of the sun, but one needs far more: the poem's force rests on the further knowledge of the utmost contrast between the omnipotent and eternal sun on the one hand, and the ephemeral flower on the other. We do indeed recognize the wonder of the daisy as a child, but to know the flower in all its richness and poignancy we may have to wait until we are 64 years old.

Remembrance is an important component of appreciation. We tend to think of remembrance as warmed-over experience, forgetting that it

can itself be an exquisite pleasure. In remembered pleasure the adult is far richer than the child. Let a wise *hross* of the planet Mars or Malacandra explain the role of memory in happiness. In C. S. Lewis's *(1965)* novel, the human hero Ransom wants to know why a *hross,* native of Malacandra, finds no compulsion to repeat a delightful experience. On earth man wants to have his pleasure again and again like a greedy child; he is not content with mere remembrance. The *hross* says:

> A pleasure is full grown only when it is remembered. You are speaking, *Hman,* as if the pleasure were one thing and the memory another. It is all one thing... What you can remember is the last part of the pleasure, as the *crah* is the last part of a poem. When you and I met, the meeting was over very shortly, it was nothing. Now it is growing into something as we remember it. But still we know very little about it. What it will be when I remember it as I lie down to die, what it makes in me all my days till then—that is the real meeting. The other is only the beginning of it. You say you have poets in your world. Do they not teach you this?

## LITERATURE CITED


Arnheim, Rudolf.
1969. **Visual thinking.** Univ. Calif. Press, Berkely.

Bailey, Percival.
1967. **Harun al-Rashid.** Perspect. Biol. Med. 10(4):540-558.

Chartier, Emile-Auguste. (Alain)
1974. **The gods.** New Directions, New York. p. 32-34.

Coles, Robert.
1972. **The South goes north.** Little Brown, Boston. p. 264.

Honkavaara, S.
1961. **The psychology of expression.** Br. J. Psychol. Monogr. Suppl. 32, p. 41-42.

Jahoda, Gustav.
1961. **Children's concepts of time and history.** Educ. Rev. 14:87-104.

Kazantzakis, Nikos.
1966. **Report to Greco.** Bantam Books, New York. P. 47.

Langer, Susanne K.
1972. **Mind: An essay on human feeling.** Johns Hopkins Univ. Press, Baltimore. p. 193.

Lewis, C. A.
1965. **Out of the silent planet.** Macmillan, New York. p. 73.

Luria, A. R.
1968. **The mind of a mnemonist.** Basic books, New York.

Milne, A. A.
1925. **When we were very young.** Dutton, New York.

Moncrieff, R. W.
1966. **Odour preferences.** Leonard Hill, London. p. 80, 194.

Piaget, Jean.
1969. **The child's conception of the world.** Littlefield, Adams & Co., Totowa, N. J. p. 352-353.

Schachtel, E. G.
1959, **Metamorphosis: on the development of affect, perception, attention, and memory.** Basic Books, New York. p. 298.

Smith, Page.
1973. **As a city upon a hill: The town in American history.** MIT Press, Cambridge, Mass. P. 219.

Sontag, Susan.
1973. **Photography.** N.Y. Rev. Books. Oct. 18, p. 59-64.

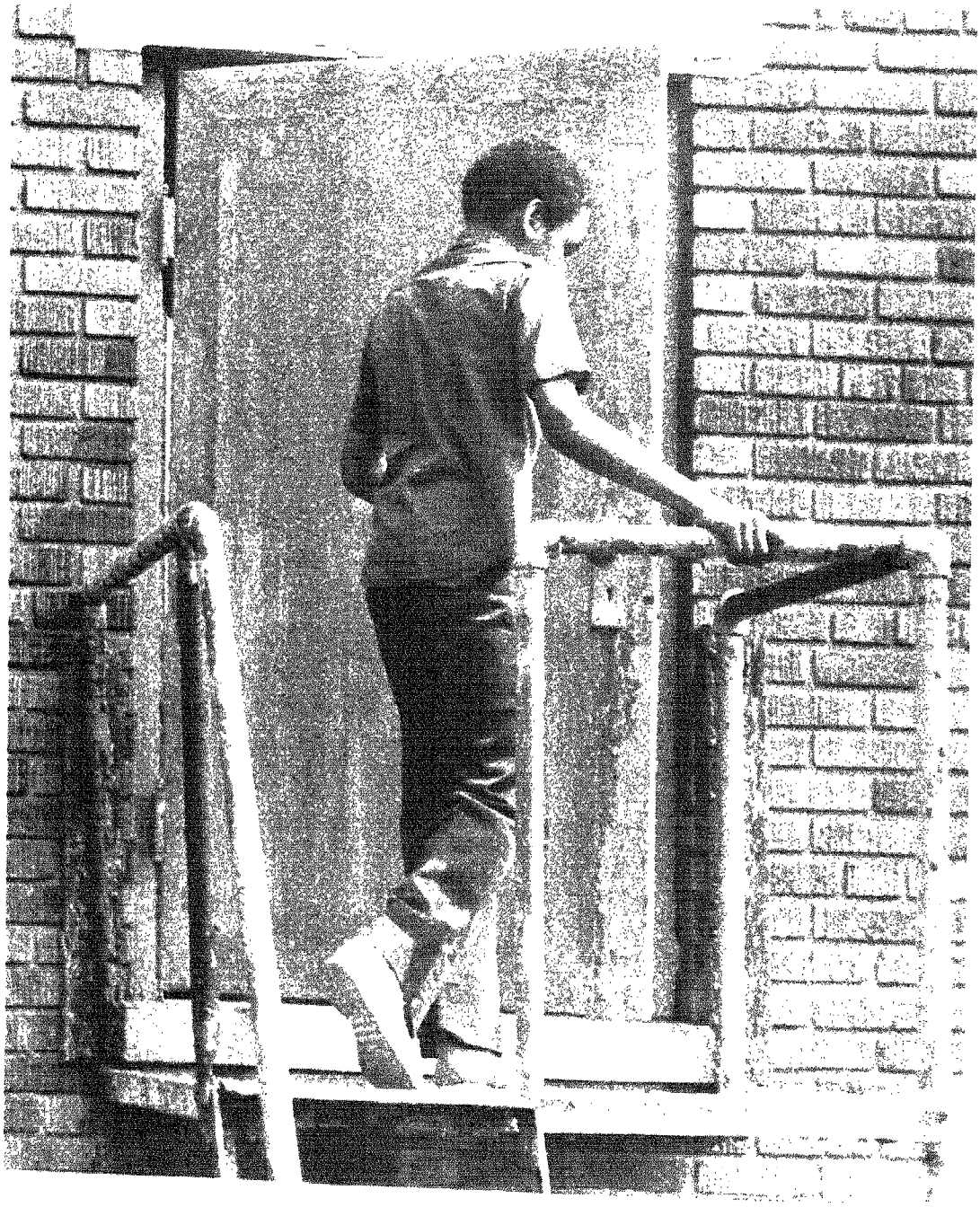


PHOTO BY WALT BLAIR

"It is a general and probably valid intuition that the destruction of the natural world somehow impairs our humanity" -Paul Shepard

# Place and Human Development

*by* PAUL SHEPARD, *Avery Professor of Human Ecology, Pitzer College and The Claremont Graduate School.*

*ABSTRACT.* An attempt to identify stages or episodes in the first 20 years of life. Stages are briefly explained and discussed, arranged in age class sequence, and, where possible, are associated with environments related to urban life.

## THE ARGUMENT

THE HUMAN REQUISITE of the natural environment has nothing to do with recreation in the sense of release from work, exercise, challenge as a conquest, esthetics, or scenery. It has little to do with "the outdoors" as a hobby or inspirational spectacle. It does have to do with ontogenesis, and is the respondent in events perhaps as essential to human health as good mothering. The exact nature of these feedback connections is still unclear, but some of the lineaments are visible. These are distinct in kind and timing and plug into the life cycle in specific ways. They are the outcome of phylogeny in the terminal phases of species evolution in the middle and upper Pleistocene.

What follows is an attempt to identify several of these episodes from the first 20 years of life. They are briefly explained and discussed, are arranged in age-class sequence, and, where possible, are associated with certain environments. In general they are examined in terms of urban life.

## ONTOGENESIS AND NATURE

1. The importance of the natural environment is not an all-embracing surround, but varies in its meaning at different times in the life cycle. For example, the "natural environment" for crawling infants is experienced as the pathogen/antibiotic enterprise. The infant is programmed at this age to taste repeatedly the surroundings within reach, particularly the soil. Over sufficient time sufficient handfuls of dirt and objects are stuffed into the mouth to build an antibiotic repertoire appropriate to the precise pathogen taxonomy of that area. Place for the crawler is that special collection of indigenous germs that he needs while on mother's milk, as he begins to measure the environment for its demands on his antibody-producing system *(Neel 1970).*

The taste of the environment is a normal and ongoing experience for people who harvest their own food. The ionic circulation relates them to the earth in chains of connections which may be called the atomic foundations of all ecological relationships. The epiphanies of these relationships are minimal in our culture—but that may be a mark of deficiency which has detrimental psychological and philosophical consequences. What Mircea Eliade *(1959)* has called "the homogenization of space" is not only visual and mythological, but chemical in a society heavily committed to specialized regional agribusiness, massive transport, and eclectic consumption patterns.

2. A second ontogenetic enterprise in which the genome functions in an "average expected environment" is cognitive and taxonomic. A diversity of natural species is essential, as they become both an object and code of thought. The elementary operations of cognition are demonstrably related to the activities of taxonomic strategy: discrimination, comparison, sorting, grouping, categorization and hypercategorization in a linguistic nomenclature *(Lenneberg 1967).* Nor is there much doubt that

these are widespread and noneconomic. The language-acquisition schedule of young children is consistent with the theory that it is genetically programmed in such a way that the naive (not yet having metaphorical significance) taxonomies of species, anatomies, and kin are fully achieved by the halcyon acme of juvenile fulfillment—the idyllic and practical age of ten. That the strategy of mental operation coincides both with a linguistic and categorical enterprise in a world rich in fascinating different species is probably no coincidence *(Levi-Strauss 1966)*. (To deliberately disregard this functional role of species systems in the higher activities of the central nervous system requires an elaborate conscious and unconscious philosophy of Faustian man formulating a life of instant reality—the mythology of Fossilfuelman).

3. A third ontogenetic enterprise centers on a certain type of fantasy play which James Fernandez *(1974)* has called "animal predication." This is the mimicry of animals by children and juveniles—group histrionics placing extemporaneous drama in a game framework. These transient and successive imitations involve the subjective internalizing of commonly recognized traits, through turn-taking at performances and interactions by which certain qualities are assimilated into the inchoate self and others ejected. Running across as much as 5 years of such play, this resolution of self and Other, a direct and prosaic acknowledgement of qualities of which the self is a synthesis, paves the way for later abstraction and analytical operations by which we understand caricaturization and personality.

At first glance, animal predication seems to be largely independent of place, an impression that seems to be verified by the play of boys at being simultaneously man and horse or in games of "fox and goose" or "run, sheepie, run" on bare playgrounds. But the questions that an ecologist might raise about the context of this play do involve the environment. To what extent does the animal reference evoke appropriate habitat or the actual behaviors of the prototype? Granting the ethological destitution of domesticated forms, does it make any difference whether they are wild or barnyard forms? What range of choices does a modern urban child need from which to predicate an individual planetary human consciousness as opposed to children in folk societies? What happens to this internalizing process when machines are substituted for animals? Is this behavior itself a part of the broad dysfunctional syndrome that arose with the altered horizons of sedentary agriculture and is undertaken in cynegetic (hunting/gathering) societies in wholly different ways?

4. A fourth biological enterprise, contacting the ontogeny at several points, might be called the terrestrial anlage. Evidence for it is highly diverse. Children of hunters in the Aleutians learn anatomy at the same time they learn place names—and there is a lexicological connection *(Laughlin 1968)*. Psychologists separate children into "field dependent" and "field independent" groups, the latter "articulating" both internal anatomical and terrestrial detail more completely, which implies to me a reciprocal and interdependent resolution *(Witkin 1965)*. Edith Cobb *(1959)*, surveying the biographies of geniuses, finds repeated return in memory and actuality to places of childhood to renew order-giving intuition that was initially given by the textures and pattern of juvenile play space. Space is structured differently in juvenile life than at later ages; it is much more critically defined. It is intensely concerned with paths and boundaries, with hiding places and other special places for particular things. This whole home range (its radius measured by the range of the human voice) is, in effect, imprinted. Such a construct works imperceptibly on the memory and consciousness, and is especially important to creative adults, whose skills lead to introspection about the generation of their own ideas and who tend to be fascinated by the terrain of their own autobiography. In just that age when the sequences of movement follow a patterned environment, some ineffable claim on the future is made. The searching mind of the man of genius recontacts a world where there is both refuge and stalking in their brightest forms. The philosopher's quest is a metaphor on the hunt, but at the same time he understands the needs of the prey—retreat, solitude, and disengagment.

Nostalgic returns to places always contain the surprise of how small they are. The garden, the symbolic source and first home of all life, is translated by architecture in a language and style of its time, but is universally an unspoiled cosmos made small. In Newton's time it was mathematically precise and geometrically

pruned; in Wordsworth's it was grassy and pastoral. Gardens are but one example of the place as a kind of diminutive externalization of a mental set. The mental apparatus may be perceived, in turn, as a place and the landscape as a metaphor of it *(Shengold 1966)*.

Margaret Mead *(1970)* once proposed that all children spend some time on an island. Perhaps she meant only that the social forms convey a sense of finiteness, but I took her to mean that the physical and sensory experience as a whole did not simply convey or frame but constituted the limited nature of human habitat in a way that is imprinted on the juvenile as a prototype of reality. Within the confines of the island a universe operates; it is a natural miniature. The implications of this anlage are many; one of them is its contained livingness: the organic unfolding, growing, and dying. Even the desert oasis has this biotic insistence. What intellectual schemata does the no-longer-walled city with its paved and paneled surfaces offer? What are the consequences of its gestalt-making power? The nostalgic return of the adult to juvenile home ranges may have crucial bearing on transitional phases of later ontogeny. What do these demands require of the nature of such places? The peripatetic round of Pleistocene life involved for the juvenile a succession of hearth-centered ranges with constitutional similarity—receiving spatial order and taxonomic diversity and familiarity. The moves of nomadic peoples build across the years of latency a series of tightly constricted spaces, each related to the others in spatial and temporal order that eventually forms a mosaic of band or tribal range. In slightly different compositions of the same species, the juvenile rehearsed the creation of textured space again and again. All these places were in ecological climax (mature community development) or close to it. Thus there was habitat stability in spite of the movement and in spite of the passage of years, a stability that formed a perennial continuity of surround for individuals whose social relations were constantly changing. The returning adult in such societies does not come back to a single juvenile yard and fixed abode but to a world created by successive mastery of small spaces which he now sees as a whole.

Amos Rapoport *(1972)* has touchingly described the visits of middle-aged Australian aborigines from their church or government camps to tribal lands, where every yard is known from childhood and the terrain "is an archive of the ancestral past." For the middle-aged everywhere, past experience is a journey. How much is lost to the quality of life among those who have no such landscapes cannot easily be assessed, but one suspects that its possession is related to the maturity and strength that marks the endurance of those American Indian cultures that have retained a home land base *(Collier 1962)*.

5. Another ontogenetic moment with specific environmental dimensions is a kind of prepubertal exodus. In our society it appears as Boy and Girl Scouts following nonparental masters into "wild" terrain. It began in America as a woodcraft movement, which Ernest Thompson Seton designed after an English model; but Seton's real theme was the preinitiatory experience of preadolescent American Indians. The camping phenomenon for 11-year-olds sets the tone of the departure from childhood and the preamble to an adolescent ordeal in solitude. Skills and mastery are central to this experience just as they are to a young Eskimo learning to use a kayak. Group membership, symbolized by hypnotic orientation to a campfire and by group singing, is no arbitrary device of middle class life; it is an autogenic attempt to read out the genes by people in those societies affluent enough to escape the mire of agriculture or who have not yet felt its quaggy touch.

The camp exodus may seem to belong to a penumbral phase in the lee of latency and the windward of adolescence. But we need to have much more care than in the past in writing off age classes as "transitional." The 11 to 12-year group may be special in certain ontogenetic respects, rather than merely in-between. These are heroic years in which the hero has not yet been exalted beyond mortality, cliques are bound by unexamined spontaneity rather than ideology, the joys of escape from parental surveillance are unsullied by doubt, and the reality of nature is exquisitely explicit and tangible. In terms of place, it is indeed developmental, with its excursions out of juvenile home range, if only for a while. But the admiration of older adolescent or young adult leaders and attunement to limited exploration are not necessarily mere foreshadowings, but instead a unique whole with its own essential purposes.

Finally, we come to the karma of adolescence

and its ecological requirements. "Adolescence" is misleading, for the period of life is not unitary; the 13th is very different from the 18th year; a diverse series of events is involved. Three of those having a special relationship to the nonhuman are:

6. The adolescent is widely recognized as regressive; infantile behaviors are symptomatic of deep renewal, the excavation of what Joseph Campbell *(1959)* calls "infantile imprints of experience" which form the homological basis of mythical structures. The regression carries strong implications for the figure of the mother. The grand shower of poetic perception is biological adaptation which allows the maternal affiliation to be reexperienced in cosmic terms. This metaphor is the insight by which all later reproduction and generation will carry some of the love of one's own mother in infancy. "Back to nature" and "the love of nature" are the hackneyed expressions of this movement of adolescent feeling toward the "mother of the hunt," the "mother of herds" or the "mother of us all." For the initiated the earth is a body. An organic metaphor as the basis of geohuman relationships is the functional one. The nonliving is thereby silently understood never to be without life. Presumably this grows from a homologized movement of the infant with respect to its mother's body. For the most part our culture fails in the rituals and myths this powerful insight compels. The autogenous substitutes are a virtual catalogue of adolescent delinquency and neurosis. Another aspect of this renewal of the mother motif as a catalyst toward the nonhuman is that the individual has the opportunity to surmount (in part, at least) bad mothering as an infant, to straighten a crooked path by taking it again. It need hardly be said that the implications of this rebirth and its potential for shaping the attitudes of modern society toward nature are scarcely explored.

7. The second event or episode is extended from the taxonomic knowledge mastered by the juvenile and may be the ultimate purpose or function of that achievement. The species system and its ecological interconnections (especially food-chains)are perceived under the guidance of mythical drama, related and acted, as a model of human social relations. In its degenerate form, domestic animals are involved in social hierarchies with man. In urban thought there is some recovery insofar as the animal is perceived in poetic metaphor. In all cases the taxonomic system is exploited for intermediate or transformational forms which manifest or symbolize taboo relations *(Levi-Strauss 1963)*.

8. A third is connected more directly to the schedules of initiation. Among the series the ordeal by solitude is particularly environment-fixed. The testing of the prepared spirit, surrounded by the majestic and terrifying world of the nonhuman, though diverse in its precise settings, is very widespread. There are no equivalents in the city or sensory deprivation tank, despite their isolating effect. Indeed, sensory deprivation is more likely to be alienating than connecting to the concrete world. The autogenous and mythdepleted contemporary expression involves thousands of young people hiking in the wilderness and such programs as Outward Bound making bold but secular and therefore emasculated simulations. What many individuals feel about the wilderness is that they have personally *approached* a religious experience. Without a liturgy it is largely wasted, though there may be psychological benefits.

We all know that one effect of national and multinational corporations and bureaucracies is to distribute identical structures and forms and to modify the terrain into duplicable units. It is widely observed that the effect is disorienting and therefore injurious to processes of self-identity. Because of its repeatability, the abstract world of duplicated spaces is a nonplace, a landscape without historical depth or definable named places. It is my contention that the initiatory process empowers the adolescent to make place by cosmocizing (or homologizing) the world known to him *(Douglas 1966)*. To make in the modern world means in fact to transform. The physical making follows the ideational. Fully mature humans—the product of adolescent religious initiation—will not make a world of repeatable segments. The antique test of the end of childhood is the ability to confront and to wear the Other; to enter it like a garment. The perceptual otherness of the visible cosmos, its explicit nonhuman concreteness, lies in true wilderness. If the individual's religious cosmology is adequate to his test of isolation it can be adequate to the whole arc of his life. Having faced the Other in its diversity, he may then face it in himself, one expression of which is the otherness of the city. Like the infant who must see love in action before he can discover it in

himself, the adolescent cannot discover his maturity in the city. We are surrounded by his ludicrous and pathetic efforts to create a universe in which to measure his own achievement.

As Erik Erikson and Harold Searles have demonstrated, these adolescent critical periods are in the service of identity resolutions through the establishment of a vast network of relations with the nonhuman as well as the human environment. Their language is overwhelmingly metaphoric. Their environment is the wilderness. If the landscape is fixated by juvenile perception as an extension of mental operations (as suggested earlier), then the wilderness may be the epigraph of the unconscious *(Drew 1973)*. It is continuous with the stellar universe. If the earth's wildernesses are finally domesticated as part of the mythology of Fossilfuelman's "control of nature" the immediate loss to wild species and ecosystems may be calculable. But the earth wilderness is like some cosmic embassy, where the adolescent pilgrimage ends in the birth of maturity—the final test and shaping of sanity in confrontation with the Other. In this its loss to us may be incalculable, though I think we already see the signs of this deprivation.

Above I have suggested eight ontogenetic, critical-period episodes in which human development in the first 20 years of life may be related to the natural world in the context of place. I have suggested that this ontogeny and its environmental complement are the outcome of human phylogeny in the Pleistocene in Paleolithic cynegetic life *(Shepard 1973)*. Our present distance from that setting seems enormous, and the cynegetic past is easily seen as a ludicrous model for ourselves. That distance, however, may only by projected by the myth of historical mankind, augmented by recent commitments to progress and humanism. On the contrary, one of the surprising consequences of cynegetic studies is the convergence of urban and hunting/gathering life. Throughout this paper I have alluded to the opportunity of urban peoples to recover elements of human ecology warped by millennia of immersion in domesticated landscapes. Paramount among these is the opportunity to be free of the domestic animal both as social partner and model of the nonhuman. The enormous human desire for animal figures is seen by their ubiquity in popular culture. "Pet therapy" notwithstanding, the psychology of this is poorly known. There is evidence for us in the impoverishment of peasant thought: a perception of nature as an extension or enemy of the animals (degraded monsters) of the barnyard *(Potter 1967.)*

That city life suffers from the lack of green in daily experience may be exaggeration—an irrelevant, sentimental fragment from an esthetic that aligns its vision on an urban-rural axis. Far more important are components of nature that have deep psychological import but not necessarily any scenic dimension. Chief among these is the system of food chains. Wherever our attention falls on the schemata of alimentation it becomes the very model of relatedness. The nearly universal reciprocity of food and marriage regulations signifies the two preoccupations of kinship—one connecting social ties, the other ecological. Reflection on the minimal family and absence of witness and participation in predation among urban children reveals an interrelated pathology. It is widely lamented that the child thinks that groceries come from the store and milk from a carton, but the problem is usually seen in terms of mere information and disregards the motor and participatory bases of learning in children and the way that kind of learning becomes scaffolding for seemingly unrelated data later in life. Picture-book explanations are no help, and help produce grownups who repudiate the very thesis of trophic centrality, whose denial of the life-giving nature of death is a prison for their own children. That we do not and cannot find it in ourselves to affirm as good and beautiful a world where creature eats creature, where butchering is a ritual act, and where decay is an affirmation of wholeness, is a measure of the improverishment of the urban mind. To treat this emptiness with better classroom materials or more open spaces is not only insufficient but misses the issue. Parks and pets are not the crucial points of contact with 'nature' but only therapeutic exercises and the treatment of symptoms.

The ontogenetic, critical-period approach to this subject is extremely hopeful and positive. It asks that prescriptive counsel from the social and psychological sciences for making childhood environments measure its plans against Pleistocene models, against cynegetic life, against the demands of ontogeny and its

critical-period phenomena. It implies that cities are as livable as the people in them are sane and mature—and that the journey into ecological maturity does not require continuous immersion in a garden. It is centered on focal experiences and episodes which do need special spaces, resources, and—most urgently—mentors who mediate fantasy in childhood as apprehension of the biotic world instead of a trick for avoiding it. It is a general and probably valid intuition that the destruction of the natural world somehow impairs our humanity. The amount of nature necessary may be surprisingly modest if we can recover the sense of timing and purpose in which it makes us human.

## LITERATURE CITED


Campbell, Joseph.
1959. **The masks of god: primitive mythology.** Viking, New, York.
Cobb, Edith.
1959. **The ecology of imagination in childhood.** Daedalus 88: 537-548.
Collier, John.
1962. **On the gleaming way.** Alan Swallow, Denver.
Douglas, Mary.
1966. **Purity and danger.** Praeger, New York.
Drew, Wayland.
1973. **Wilderness and limitation.** Can. Forum 52 (625).
Eliade, Mircea.
1959. **The sacred and the profane.** Harcourt Brace, New York.
Fernandez, James.
1974. **The mission of metaphor in expression culture.** Curr. Anthropol. 15: 119.
Laughlin, William.
1968. **Hunting, an integrating biobehavioral system and its evolutionary importance.** *In* Richard Lee and Irven DeVore, Man the hunter, Aldine, Chicago.
Lenneberg, Eric H.
1967. **The biological foundations of language.** Wiley, New York.
Levi-Strauss, Claude.
1963. **Totemism.** Beacon, Boston.
Levi-Strauss, Claude.
1966. **The savage mind.** Univ. Chicago Press, Chicago.
Meade, Margaret.
1970. **The island earth.** Nat. Hist. 79(4):
Neel, James V.
1970. **Lessons from a "primitive people."** Science 170: 815.
Potter, Jack M.
1967. **Peasant society.** Little Brown, Boston.
Rapoport, Amos.
1972. **Austrailian aborigines and the definition of place.** *IN* William Mitchell (ed.), Environmental design: research practice. UCLA, Los Angeles.
Shengold, Leonard.
1966. **The metaphor of the journey in "The interpretation of dreams."** Am. Imago 23: 316.
Shepard, Paul.
1973. **The tender carnivore and the sacred game.** Scribner's, New York.
Witkin, Herman.
1965. **Development of the body concept and psychological differentation.** *IN* Seymour Wapner, The body percept. Random House, New York.

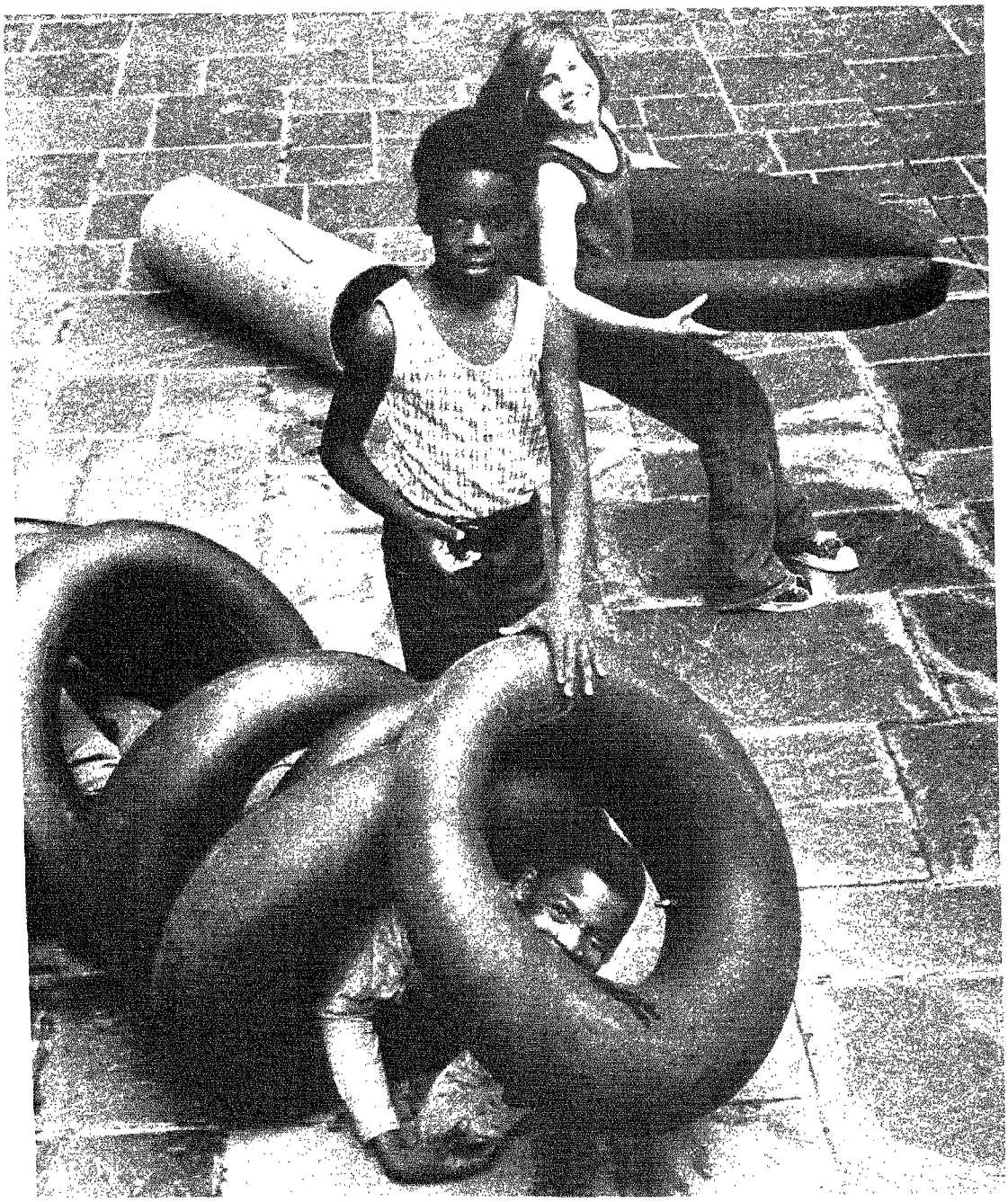


PHOTO BY ALAN KNIGHT

"Is it likely that children in the United States know more about nature in distant lands than they do about the natural features in their own cities, neighborhoods, and backyards" - Florence C. Ladd

# Comments on "Place and Human Development" by Paul Shepard and Yi-Fu Tuan's "Experience and Appreciation"

*by* FLORENCE C. LADD, *Harvard University Graduate School of Design.*

PAUL SHEPARD presents a dazzling array of profound ideas about the nature of the relationship between early developmental stages and places experienced in a variety of cultures. Shepard's analysis is related to the schema presented in Spivack's *(1973)* paper, in which he identifies some basic requirements of the human species and the environmental conditions necessary to meet those requirements. Spivack lists human requirements such as eating, mating, and sleeping, along with the essential environmental forms for the activities. These analyses by Shepard and Spivack serve to remind us that Erikson's *(1968)* stages in the life cycle and the conflicts and crises associated with each stage have not been considered in an environmental context. A merger of these three compatible schemes might include the following:

1. The stages and associated age ranges of the human life cycle.
2. Relevant social and emotional developmental tasks.
3. The natural environments and the built environments needed at each stage to support the performance of those tasks.

Such a scheme for the individual life cycle and for the family life cycle might aid policy makers, planners, and designers in creating physical settings that would serve families and individuals well throughout the life cycle. Shepard attempts to make some essential connections between stages, ages, and environmental requirements in childhood and adolescence.

Tuan, in his beautiful prose and well-chosen poetry, tells his adult readers that we cannot return to childhood, alas. He characterizes the difference between the child's and the adult's expectations, experience, and appreciation; the difference between a child's point of view and an adult point of view. He implies that we ought not to reach into our childhood experiences in nature and expect to come forth with solutions that fit precisely the requirements of today's children or the children of the future. Our growing up has changed our perspectives on those places and experiences and our interpretation of them. Time and technology have changed our childhood landscapes, too. This is not to say that personal recollections of the meaning of nature in childhood are invalid. Rather, it is to point out that we must learn from children in many cultures and environmental contexts through careful observation and artful questions about where they experience nature and what natural places and experiences mean to them.

Both Shepard and Tuan have reaffirmed the following assumptions, which most of us undoubtedly share:

1. Early environmental experiences in both natural and built environments are of profound significance in determining future environmental requirements and environmental satisfactions.
2. Significant developmental tasks require experience in natural and built environments, and *the quality of environments influences the level at which the tasks can be carried out.*
3. Environmental requirements are relative. They depend on an individual's culture, personal history, and perceptions of the range of environments available.

Shepard and Tuan have implied some very interesting questions for debate and research. For example, is there an optimal balance of natural and built environmental elements? If there is, what is the optimal ratio in early childhood, late childhood, and adolescence? What types of natural settings, are most suitable at each age

level? Which natural settings should be recreated to meet the requirements of a more environmentally aware and more numerous young urban generation? Where are the existing "urban wilds" and pockets of nature that can be developed further? Might they give kids opportunities for exploration and places to play?

Shepard and Tuan raise the question of the meaning of play. What is play? What is play to the city and the city to play? We are led to consider new forms for playgrounds, indeed to think of the city as a playground—the city with its parks, rivers and streams, playing fields, and streets. We are reminded that anonymity, high density, antisocial incidents, and fear have caused parents to withdraw their children from city streets. What can be done to expand the opportunities for experiences in nature for children on their own streets and in their own neighborhoods?

It is likely that children in the United States know more about nature in distant lands than they do about the natural features in their own cities, neighborhoods, and backyards. Television has made vivid and familiar the forests, gazing land, and wildlife of faraway places. "Wild Kingdom" warns us that nature is threatened in East Africa. We should be reminded that in East Harlem, East Orange, and East St. Louis, the few remnants of nature are in grave danger, too. Conservation should begin at home.

Conferees came to Washington with nature, children, and U.S. cities in mind. They came with different agendas, different objectives. Some were interested primarily in environmental education, which should be defined more broadly. It is clear that environmental education must be extended to politicians, planners, developers, and mortgage bankers—education about the natural environmental requirements of children, especially, and of adults as well, to engage them in the process of protecting and developing natural life in cities. Those who presently control the future of urban environments and urban life should become advocates for urban children and their environmental interests.

Some conferees came with an interest in understanding environmental issues related to urban life and with research questions or proposals in mind. Some came with policy questions that pertain to nature in urban environments. Those conferees would like to know about opportunities for collaboration generated by the U.S. Forest Service, the Department of Agriculture, EPA, and HUD. What policy statements might be expected from these agencies about improving the quality and availability of natural environments in cities?

Some conferees came with action programs in mind. There must be more opportunities for city kids to participate in successful encounters with nature, such as those provided by the Youth Conservation Corps, Outward Bound, Scouting, the AMC, the Sierra Club, and many summer camps. It is not enough to bring more of nature into the city; we must also lead more city kids into nature and what remains of our North American wilderness.

## REFERENCES


Erikson, E.
1968. **Identity: youth and crisis.** Norton, New York.

Spivack, M.
1973. **Archetypal Place.** EDRA 4, Proc. 4th Annu. Environ. Des. Res. Assoc. Conf. 1:33-46.

PHOTO BY WALT BLAIR

"When we engage in restoring childhood to some place in our thinking and recognize that childhood has significance in the development of the adult, it's all right to talk generally about 'childhood' and 'the child'. But as a theoretical concept, 'the child' is a fiction" - Margaret Mead

# Children, Culture, and Edith Cobb

*by* MARGARET MEAD, *American Museum of Natural History, New York.*

*ABSTRACT.* When we engage in restoring childhood to some place in our thinking and recognize that childhood has significance in the development of the adult, its all right to talk generally about "childhood" and the "child." But as a theoretical concept, "the Child" is a fiction. We do not know enough about what children, as biologically given creatures, will do at different stages in development or under different cultural circumstances. Much of what is "known" is based on inadequate evidence from widely scattered sources. We can't take what we find out about children in one culture and combine it uncritically with what children do in another culture; the result is unadulterated nonsense. We will not develop a useful theory of child development until we recognize that "the Child" doesn't exist. Only children exist; children in a particular context; children who are different from each other; children with different senses.

## Editor's Note

Margaret Mead was a member of a panel chaired by Roger Hart. The first panel member called upon to speak was Florence Ladd. She asked each person present to search his or her memory for the earliest possible recollection of an experiene with nature, and then to draw a picture of it. Dr. Mead had this to say:

> I'm very used to dealing with early memories; always had them; I've always worked with them; there's nothing new about them. In this context, I quite consciously picked the one place in the world that is able to evoke homesickness in me. This is a place called Lavallette, on the Atlantic Coast, where I spent the first summer of my life. I was born in December.
> I went back to Lavallette as a 17-year-old with an old teacher of mine. I had the most horrible attack of homesickness. I've never been so homesick before or since. I am not a homesick person, in general. My grandmother said I would go off with the ragman. So, this attack of homesickness was very odd. I decided that it was associated with the sound of the surf. I had never been anywhere, since that first summer, that had that same sound. I thought, well, I'll draw that surf, and I'll draw myself in a baby carriage on the boardwalk, totally safe as the surf came in.
> Then I remembered that we had been told by Florence to think about mixed sensory modalities. It suddenly occurred to me that a figure of speech I like very much is "to learn to nest in a gale". I thought that the roar of the surf, and the roar of the wind, was the same thing. Nesting in the gale was the same thing as being in a baby carriage on the boardwalk as the roar of the surf came in.

In calling upon Dr. Mead for her comments—just after Professor Tuan's presentation of the paper included in this volume—Roger Hart asked for news of Edith Cobb, and mentioned her article *(1959)*.

In this seminal article, highly relevant to the subject matter of this symposium—fair, Edith Cobb wrote: "...I became acutely aware that what a child wanted to do most of all was to make a world in which to find a place to discover a self".

Dr. Mead's comments were extemporaneous; they have been rearranged slightly for clarity.

—Calvin W. Stillman

I ENJOYED Professor Tuan's paper.

I was very struck by the similarities between his paper and many of the things that Edith Cobb worked on. She, of course, took off also from Wordsworth. Wordsworth has been a taking-off point for people who wanted to work on the effect of imagination in childhood.

Edith Cobb is still alive. She is almost blind. I hope she will live until her book, "The Ecology of Imagination in Childhood" is published by the Columbia University Press. If she hadn't become ill, perhaps the book would still be growing. It's only the accident that she can't work on it any longer, that makes her really want it to be published. It was something that she worked on, and worked on, and worked on. She would give us a manuscript to read, and before we had got it out of the post box we would get another letter, with another little piece that had to go in somewhere. This because she had read something that was even more exciting and important than anything she had read before. Her paper, "The Ecology of Imagination in Childhood" (1959)—it is reprinted in Paul Shepard's book (1969)—was an article for *Daedalus* that got rewritten three times in proof.

Edith Cobb suggests that we must think about a human capacity that is just as basic, and just as necessary to human well-being (though not to mere survival), as food and drink. She called this the "necessary relationship to the natural world—the satisfaction of a cosmic sense". When I first read this in her work, I found it an extraordinary useful figure of speech, and a very useful statement of the relationship of human beings—not just children—to the world around them. This relationship can be highly elaborated by culture, or it can be very much truncated, shrunken, and simplified.

Edith Cobb's work dealt with the discovery of the relationship between childhood experience and adult philosophy, scientific perceptions, and artistic perceptions. This was one of the subjects of Professor Tuan's paper today. But Edith Cobb went further: she identified the "cosmic sense" with breathing, which I think is an effective figure of speech. She suggested that it is necessary for human beings to take in the natural world, to do something with it, and then to "breathe" it out. She said that a relationship with the cosmos is a need of human beings that could be more or less developed in individuals, and in particular cultures. Interference with this relationship could have as dangerous a result as interference with breathing, or drinking water, or taking food, or getting rest. It involves a recognition that human beings share a great many of their basic needs with animals, but also have needs that animals don't have. These human needs may develop through life, as Professor Tuan's paper has suggested to us.

We have the task of identifying the records made by sensitive, highly introspective people of their own childhoods—Wordsworth, of course, was an outstanding example—and the role of those experiences in their later lives.

When we are engaged in restoring childhood to some place in our thinking; when we recognize that childhood has significance in the development of the scientist, or the poet, or the philosopher, it's all right to talk about "childhood" and "the child". But "The Child" is no good as a concept beyond just getting it in, any more than is "The Primitive" or "Paleolithic Man". We don't know anything about Paleolithic Man at all. There may have been a hundred kinds of men living at that time, and we look at a few things on a cave and make him up. "The Savage" is a fiction, and "The Child" is a fiction.

A great many of the things that we have identified as being associated with children are either associated with children in our society or they are associated with some other children, in some other place; both are cultural.

Children usually don't know anything about historical contexts, and there are lots of human beings who never learn them. There are whole societies who think that a fountain pen, a monkey wrench, a chisel, and an airplane were all invented at once. They saw them all at once, and they have no reason to impute different histories to them. So there's a continual need to discriminate between what we find characteristic of children in our society, of children in other societies, and of adults.

I have studied primitive people on an island in New Guinea (the Manus), who didn't know where the things they used came from, because they were all traded. They were just like urban children among ourselves who think that milk comes out of a can. Although they were still in the Stone Age, they became magnificent

mechanics the minute they were introduced to mechanical things; they understood them at once. When the Manus were faced with electronic equipment, they used numerals that are applied to living things, and so distinguished it from equipment that was activated by springs.

They got along with Americans like a house afire. Both Americans and Manus liked mechanical objects and handled them well. Both thought that doing something was more important than feeling or thinking. They got along magnificently. The only difference was they came from 10,000 years ago, and we came from now.

We do not know what children, as biologically given creatures, will do at different stages.

That we do know is a myth based on very, very, inadequate evidence; based in most cases, on a few Swiss children. It is true that Swiss children have to learn reversibility, because they live in an irreversible world. They had jolly well better find out that a lump of clay can be moved in two directions if they are to survive. But look at the work of Vygotsky, with children who all lived in a totally reversible world. Russian children were swaddled and unswaddled, and night and day were alike. What Russian children need to learn is something about irreversibility. So, Piaget finds children who have rigid notions, and can't tell that a lump of clay, and a piece of clay that looks like a snake, contain the same amount of clay. But Vygotsky identified opposite kinds of thinking in Russia. Taking Piaget's notions about a bunch of Swiss children and saying that this is Human Psychology gets us nowhere in terms of a general developmental theory. Taking what American children do and saying that is Human Psychology also gets us nowhere.

The things that many children do, neurologists tell us they cannot do. Neurologists are absolutely certain that they know about myelinization, so they know that a child of 6 weeks cannot appreciate that its mother didn't come. They cannot explain the fact that the child sheds real tears the first time its mother doesn't come.

Our physiology doesn't match our experience. Building up any developmental sequence that we happen to have noticed in a few children somewhere and putting that down as gospel truth doesn't get us anywhere. Neither does it get us anywhere to take children from here, there, and anywhere, and put them together into "Childhood".

We do that with animals, you know; all these people like Ardrey have been writing stuff on the "territorial instinct". They take a robin from here, a goose from there, a pigeon from somewhere else, a few fish, and a gorilla or so, and mix them; and get unadulterated nonsense. We do the same thing if we take what children do in one culture and combine it uncritically with what children do in another culture.

If we consider the childhoods of everybody here, and the enormous differences between periods in our own childhoods, and think what they meant to us, we see the enormous differences between what cities mean to city children and what country means to country children. The country is exciting to city children and the city is exciting to country children, for exactly opposite reasons. But they both enjoy excitement.

I particularly liked your point, Professor Tuan, that you can take a child's work of art (a child's drawing, that is) and put it on a pedestal in a museum and it looks almost like a work of art. *Almost* is the absolute point, because it is not a work of art at all. It is a work of freshness and freshness is one characteristic of art.

We take a child's drawing, and put it up on the kitchen wall, and tell the child it is magnificent. If the child takes that as a model, he is very unlikely to become an artist. That is one of the things that has been forgotten when parents are encouraged to put up anything a child draws on the wall, and admire it.

Our appreciation is enormously mutilated.

You know those Balinese heads that you buy in airports—those carvings of men and women? The girls have headdresses and the men have headcloths, and they are all varnished. Everybody says, "Aren't they terrible!" I had one made by one of the best headmakers. I had him leave it unfinished; he left the marks of the chisel on and no varnish. I put it on a pedestal and everyone says, "How beautiful!"

This is just because they haven't seen others like it, and because we know that if we see copies of something, it can't be very good. This is the opposite of your point about the rainbow, Professor Tuan, but in a sense it is related. We think that any time we see two of anything, any time anything recurs, it has lost its charm. Americans than can't do anything twice, or ap

preciate anything twice, or go to the same opera a second time, or read the same poem over again. Mass production has been part of it; we've disqualified ourselves from appreciating anything twice. This is serious.

As I was listening to Professor Tuan's delicious paper (can I use an adjective that includes taste?), I suddenly realized the extent to which one of the things that is said about heroin addiction may be true. Nothing that is said about drugs at the present has much truth, but still there's a possibility that it's true. This is that the first experience of taking heroin is so overwhelming that no other experience of taking heroin ever equals it. One of the elements of addiction, therefore, is trying to get back to the original experience. A child who is overwhelmed by an enormous experience is not only empowered to do things he would never have done before, but also is condemned, if you like, to get back to the undifferentiated ecstasy which we call mysticism.

One of the roots of mysticism is that the individual wants always to get to a point of no discrimination. This is distinct from the roots of esthetic appreciation, where one is moving toward greater and greater discrimination.

We have a lot of difficulty, of course, with people who want to identify the basic thrill in sex, religion, and art as the same. These evidently are people who, as in Professor Tuan's marvelous story, put their toes together with a little girl when they were five, or something, and never got over it. Other people feel that sex, art, and religion are extraordinarily different; that it is totally impossible to equate the experience of one with another.

It's quite possible that the people who feel that sex, religion, and art are all the same had some extraordinarily overwhelming experience as children. Pierre de Chardin has a beautiful passage about the way he fell in love with iron. He had this magnificent ecstasy over iron! Well, he had a lot of ecstasies in his life, over the lithosphere. Falling in love with iron, and with metal, and with what was the original substance of this earth, probably never left him; it entered into his whole later religious position about evolution and man.

I think we should realize that these ecstasies may not be unmitigated delights; in a sense they disqualify people for the kind of discriminating appreciation that we have just heard about in Professor Tuan's paper. This may be a useful thing to think about.

I was up near Peterborough, which is a beautiful place in New Hampshire where a lot of sensitive, appreciative, highly educated people had gone outdoors to appreciate nature, on the first day of Spring. We had a lovely, expensive, simple meal of cheese and homemade bread of hand-ground grain. My hosts said, "Isn't it dreadful? All the natives are sitting indoors, looking at television, wishing they were in New York".

We have to think about this rather hard: the differences between the sensitivities of the people who are bored to death in the city and the people who are bored to death in the country. The country is not perceived by all people who live in it as something marvelous. You can choke off an appreciation of the cosmos, perhaps, more effectively in the country than you can in the city.

The next step we are going to have to talk about a good deal, I think, is how to discriminate between our own children. There are the children who grew up in the city with one set of rhythms and one set of understandings, and the children who grew up in the country. There are differences among our own children in their response to toys and their response to the living world.

The country child, who has only seen the garden as a place to weed, loses all its sense of wonder far more rapidly than a city child who only sees goldenrod through a window, once a year. We're not allowing for that, you know.

I think the reason that boredom is the principle affliction of school children in the United States—and it is the most serious thing that happens to them, really—is that they are bored with the artificial world. The artificial world *is* boring.

Think of the most imaginative toy in the world. You know what it can do. You can say that you are building a castle for a princess, but still you know what you can do with those infernal blocks. They aren't ever going to do anything different. They fall down if you overbalance them, and they will clutter the floor, and there are that many of them.

You take that same child out in the country, and just let it sit in the grass and watch an ant. Nobody knows what that ant is going to do. The child isn't bored.

I think we have to look very seriously at the enormous number of runaway girls in this country. The number is in the hundreds of thousands. Cincinnati alone has something like five thousand runaway girls going through the city. Boys are not running away in the same numbers. People who are thinking about the urban environment, about what happens in school, and what are the consequences of restrictions, should take a very good look at this.

What is happening to these girls, now? What is it that is so intolerable about their parents? Why is it so much better to run away across the country, and to take every conceivable risk, than it is to stay at home?

Something is happening. We think of farm children, and still lyrically and sentimentally talk about children living on the farm as if they were still harnessing horses. Actually, they are kept indoors till they are 9 or 10 because of those dangerous machines out there. Instead of being children that have some sense of freedom, they may be even *more* restricted today than urban children.

One of our real problems is to get those things back into perspective; to look at the things back into perspective; to look at the things that are happening all at once, rather than talk about what little girls did when they climbed trees, or didn't climb trees, 25 years ago. Let us not project the present sense of restriction of women who are scout leaders, on children who are actually experiencing something different. How are we going to make these differences part of our own experience, and deal with them?

It's a good thing to think about "the child", if you remember that "The Child" doesn't exist. Only *children* exist; children in a particular context; children who are different from each other; children with different senses.

The sense of smell is distributed very, very capriciously across the spectrum, and the sense of hearing, and sense of sight. We are beginning to recognize that these modalities change all through life.

It isn't only children who suffer from psychiatric disorder because they are left-handed. Dominance in the brain changes, all through life. Some people cease to be visual and become auditory. Some cease to be as auditory and become visual. Some cease to be right-handed and become left-handed. All these things happen in the course of their lives.

Partly because we haven't recognized that children differ, we haven't been able to see that these things happen in adulthood. The first step is to recognize the importance of childhood: to recognize what we can do with the freshness of the imagination; to recognize how valuable it is to keep these experiences accessible. The next step is to differentiate among children; differentiate among different parts of our society.

Take black Americans. Their whole stance in relation to life is different. First we discover that something is a little different; we discover that maybe black children see things a little differently from white children. Then we lump them all together again as black children. We lump all rural children. We lump all suburban children. And every time we lump them, we lose something.

An overdependence on the notion of "The Child" does something. It is true that children cannot talk before a certain age. But children at the Manchu court are said to have learned two complete sets of etiquette by the time they were four. We have no idea how complex are the things children can learn. Nor the things adults can learn later. We need to fit the two together.

I think that things must be relatively homemade in a given locality.

One of the great dangers of a symposium like this is that somebody has a bright idea in San Francisco, and before we know it we have it in the middle of New York, dumped down with no reference to what happens to be happening there; with no reference to the ethnic groups involved; with no reference to the difference between a Puerto Rican juvenile delinquent, a German juvenile delinquent, and an Italian juvenile delinquent—all of which are quite different.

One of the things we are going to have to do is to relate the things we set up for children to who they are and where they came from. We have found in New York City, for instance, that Puerto Rican parents are divided into two groups: the ones who keep their children upstairs and won't let them out, and the ones who let them out and give them up. There's nothing in between. These parents don't know any way of letting their children out just a little. They either lock them up or let them go completely. That has very different consequences from giving children a limited, but defined, range for exploration.

If we start making blanket solutions that are related to a theory that all the children of a given age want to pretend they are animals, or that all the children of a given age want to do something else, and then add to that someone's very imaginative solution that worked in one spot, we keep on imposing styles that don't fit.

May I make one final point.

I think it's terribly dangerous to talk about planned danger. What you are talking about is planned activities where children can test their bravery and their skill. You are planning for opportunities to be brave, and to be skillful. If you say you are talking about planned danger, that's like talking about divorce insurance. We don't say death insurance; we say life insurance.

## LITERATURE CITED

Cobb, Edith
1959. **The Ecology of imagination in childhood.** Daedalus 88:537 - 548. Reprinted 1969, in Paul Shepard and Daniel McKinley, eds. THE SUBVERSIVE SCIENCE. Houghton Mifflin, Boston.

---

"Just as the anthropologists discovered Freud thirty years ago, now physicists, lawyers, and others with rigorously trained minds are discovering the beauties of nature as seen through romantic poetry, and finding transcendental uses of the notion of ecology"
-Calvin W. Stillman

# On the Meanings of "Nature"

*by* CALVIN W. STILLMAN, *Professor of Environmental Resources Cook College, Rutgers - The State University, New Brunswick, N.J.*

*ABSTRACT.* All peoples known to science have a concept of "nature" which forms part of the world-view of the culture. The relative importance of "nature" differs among cultures. In our own Western culture, ideas of "nature" are mentioned from the earliest written records, and are related to concepts of the autonomous individual and of hierarachy and order. At certain times these concepts have had particular usefulness in achievement of personal emotional balance. These values should be explored and defined, that they may be made more widely available.

CONCERN WITH ALL that is around us is as old as man's humanity. Whether we call it "nature", or "City Hall", or "environment", or the system", or just "the way it is", each of us must make up our own mind first on the structure of all that is "out there", and second, on what each of us can do about it.

Robert Redfield *(1962)* pointed out that each culture has a world-view that deals with the proper relations of Man, Nature, and God. The world-view of his culture helps each individual comprehend the reality he sees, his potentials for action, and his liabilities to injury. Cultures differ widely in their emphasis upon Man, God, or Nature, as Redfield told us. This difference is between peoples, over time, and within social groupings such as that of the United States.

Many books have been published in the last decade that profess to explain Man-Environment relations. Fewer books have appeared that are as clearly devoted to Man-God relations, though a century or so ago this situation was reversed. Fewest books of all relate Nature to God, though this may be the strongest single affinity in the minds of men. Hidden here are the themes of hierarchy, propriety, and status.

Margaret Mead told our group that differences between peoples of the world are never qualitative; they are only quantitative. This is very true of ideas of nature. All peoples of the world have them, and have had them as far back as we can find records. For certain peoples at certain times, nature has been a major esthetic and emotional resource, under one name or another. For even longer periods this esthetic value has been hard to find. Right now the value is in the ascendant, and this paper is an attempt to take a good look at it.

Enthusiasm for the values to be found in nature underlies the existence of this symposium. The fact of contemporaneity will be discussed later; the enthusiasm among intellectuals I attribute to the discovery by disciplined minds of new areas for release and exploration. Just as the anthropoligists discovered Freud 30 years ago, now physicists, lawyers, and others with rigorously trained minds are discovering the beauties of nature as seen through romantic poetry, and finding transcendental uses of the notion of ecology. The anthropologists used their broadened perspectives to deepen their understandings of people; they incorporated their new tools into their major undertaking. All too few of the recent converts to the beauties of nature have internalized their new asset into a strengthened ability to get on with their jobs. These enthusiasts have called to us all to jump in and enjoy the water; they have not yet emerged from the experience, refreshed and ready to

proceed. Wordsworth did not stop in midstream. Neither did Emerson, nor Thoreau.

We can look for ideas of nature back through time, and around the world. Brian Sutton-Smith has told us that children's play in the contemporary world differs in character with latitude; that play in the tropics is consistently different from play in the temperate zones. I have found similarly a profound difference in attitude toward nature (as we usually define the term) between the tropics and the homelands of peoples who originated in northern temperate zones (this includes, of course, all lands in the southern temperate zone; all are controlled by Europeans).

I find attitudes toward nature in Buddhist, Taoist, and Hindu cultures associated with those of the tropics. I find North-South a far more useful dichotomy to explain such cultural differences than East-West. With the exception of a few residual arboreta and preserves left over from the days of colonialism, there are no evidences of concern with nature in South Asia, North or Central Africa, Indonesia, or Oceania.

## NATURE IN THE WESTERN TRADITION

Nature is a matter of concern throughout our Western tradition. Nature appears also in the parallel tradition of Eastern Asia, but its lesser importance there I relate to the parallel lesser tradition of the individual.

Among the oldest uses of natural symbols are the notions of the tree, and of open space. Both of these are important in the Gilgamesh Epic of the Seventh Century B.C. *(Heidel 1949)*, a tale of intensely human problems. Events and situations from this epic turn up in the Hebrews' Pentateuch of some centuries later.

In the Old Testament generally the world-view presents a triad of Man, God, and Nature distorted severely in favor of God. The triangle is long and thin; God is by far the most important vector. Natural environment enters as harsh wilderness, punctuated by oases and by the agricultural virtues of the Promised Land. The early Hebrews led a harsh life; their survival depended upon their ability to wring sustenance from a comparitively barren land, and to defend themselves from hostile neighbors. From the Hebrews we inherit their concept of the individual, derived in part from their contact with the Egyptians of the XVIIIth Dynasty, and their concept of life under law, derived in part from their contacts with the Babylonians. From those days to this day, Western concepts of nature have been indissoluble from Western concepts of individual autonomy.

The Hebrews gave little thought to their environment as such, but they were very concerned about pollution. Here we see how an idea may seem to relate to one thing, for instance nature, but that on examination it relates far more powerfully to something else. Mary Douglas *(1966)* tells us that the dietary laws had nothing to do with sanitation or with public health, but everything to do with the Hebrew concern with order; with keeping everything in its proper place, according to the laws of God.

The Greeks saw things more cheerfully. They were relaxed enough to enjoy beauty, to talk about it, and to find it in natural situations. They enjoyed high places. As Mediterranean traders, the Greeks were very affected by the world's urbanization crisis of the fifth century B.C. *(McNeill 1963)*. Local folk societies were thrown together into larger comities. Peoples came into contact with peoples. Urban centers grew. New ways of life, new ethical systems, and new religions were called for. Greek writers of the day mentioned problems of exhaustible resources, of soil erosion, of the virtues of country life and the evils of city life. Greeks wrote of the general decline of affairs from a wonderful Golden Age of the recent past. *(Glacken 1967)*. In fact, the Greeks, 25 centuries ago touched every basic theme of the environmental movement of our time.

The Greeks did more: they celebrated beauty in nature. They wrote pastoral poetry. They struggled with pragmatic explanations of reality as they saw it; they laid the basis for empirical science. Their travelers' reports enabled their geographers to come up with environmental explanations of cultural differences, a notion that bobs up again in Montesquieu *(1966)* and in certain odd corners of American social science *(Klausner 1971)*.

Mainland wars have destroyed most of the East Asian record for these early years. There are traditions, many substantiated by recent archeological digs, but the major vector is the durable bronzes that bring us evidence of Asian

interest in animals in art *(Reischauer and Fairbank 1960; Bunker, Chatwin, and Farkas, 1970).*

The Romans are remembered for having constructed a political organization so powerful that its effects last to this day. Only the contemporary Han Empire of China has so affected subsequent history. Neither of these power groups showed much official interest in esthetic values, in nature or in anything else. In the East Asian tradition, culture flowered only in periods of dynastic decline. This is evident in China and in Japan. The great landscape traditions of Chinese paintings were related to the periods between effective tyrannies, when Taoist and Buddhist elements of the culture were allowed to surface.

Central Asian disturbances and the associated population movements led to the dissolution of the Roman Empire in the first centuries of the Christian era, but the imperial Church did its best to hold things together. It did very well indeed, for a millenium. The jealous God of the Hebrews was represented by the jealous hierarchy of the Church devoted to His son, in the parlous times of the Middle Ages. Worship in none but the approved manner was permissible. St. Anselem in the 12th century "rated it dangerous to sit in a garden where there are roses to satisfy the senses of sight and smell, and songs that stories to please the ears." *(Clark 1956)*

There were leaks in the capsule within which the Roman church attempted to confine all thought.

One leak was the folk tradition of peoples long since conquered by Roman legions, living on under the intellectual domination of the Roman church. People had a feeling for living things; they sought ways of expressing this in their lives. Artists sought to express these feelings within the strict constraints of the iconography of Church art. An analogy was the persistence of folksong, and its insertion into the entr'actes of medieval morality plays, the major text always sung in the classical meterless *organum* of sacerdotal music. This pressure is seen in the stories of Saint Francis of Assisi *(Armstrong 1973)*, and the insertion of landscape into the backgrounds of paintings of the Madonna. Little leaves and even domestic animals appear in the carved stones of the later cathedrals, particularly too far up for easy inspection by episcopal authorities.

Another leak was the influence of Persian art-emphasizing the garden as nature made safe and beautiful for man. This came to Europe through the commercial contacts with the Islamic world facilitated by the Crusades, and through Jews who accompanied the Moors to Iberia, and who independently established trading posts up the Danube and down the Rhine.

Finally, and perhaps least explored by scholars, was the contribution of the fearsome Norsemen who ravaged Northern Europe till blocked in the ninth century. These invaders promptly turned from raiding to trading. Their area of impact is today's Protestant Europe. Rosalie and Murray Wax *(1965)* tell us that the Vikings were ever curious about things of the natural world. These they never confused with mysticism. The Vikings never knew feudalism, and accepted Christianity only very late, and then on their own terms.

The Roman Church provided its communicants with many essentials of a happy life. Among these were an understanding of one's personal place in the order of things. Living and non-living things of the perceived environment were seen to be in an order essentially supportive. God may have been terrible and distant as He was for the Hebrews, but He had many delegates on earth to provide solace and guidance.

The Reformation in Northern Europe ripped away many emotional supports; some of the effects became apparent only years later. In England, dissatisfaction with Christianity led to the worship of nature, *(Clark 1969)*. Nature alone can never be functional as a religion, however, since it contains no ethical system. In Germany Goethe wrote in 1815, "The Protestants feel a void; they want to create a new mysticism." *(Schenk 1969)*

In the England of this time we have Wordsworth writing poetry; Constable painting. Goethe studied botany, made excellent drawings of his specimens, wrote his great essay "Nature", and poetry besides. The Age of Romanticism was largely one of a search for new meanings. The Industrial Revolution was upsetting many settled relationships, and nature became a rediscovered recourse. All this had happened before, and would happen again.

## NATURE IN AMERICA

Early settlers in Massachusetts Bay Colony practiced an Old Testament christianity in which God was retributive, Manvile, and Nature a howling wilderness. Perry Miller *(1967)* has described the scene. Preservation of nature, so familiar in New England now, then implied preserving in his proper social place each member of the community.

The liberating forces of a cash economy, escape to the frontier, and the Enlightenment-however one wishes to rank them-made possible a Hellenic approach to nature in the 18th century. This is first visible among the aristocracies of Philadelphia and of northern Virginia.

The Bartrams established their arboretum on the Schuylkill *(Cruikshank 1961)*. Benjamin Franklin established the American Philosophical Society. Thomas Jefferson conducted experiments on his farm. All such leaders were in constant touch with their fellows in England and on the Continent. When Audubon had some prints ready for sale of his paintings of American birds and animals, he tried first in England, as the better market.

America shared with the Hebrews one natural feature that was important in the myths that help shape character: the frontier. The American transmontane West—largely considered desert—seemed just as forbidding as the wilderness of Paran or Zin. For Americans as for followers of the patriarchs, this wilderness was a challenge to brave men.

Henry Nash Smith *(1970)* has told us of the tremendous importance in American literature of the Leatherstocking theme: the proud, lonely, self-reliant hunter who strides through the forest and out upon the plains. Smith tells us also of the psychological context: of Cooper's oedipal conflicts, and of his search for a role that would be at once manly and nonconflicting with his father. The ghost of Leatherstocking marches through Western stories, cowboy tales, cops-and-robbers picaresque adventures, down to dime novels and TV serials. This natural setting is less important than the character development that takes place within it. Leo Marx *(1964)* brings the story down to recent times.

The effect of unfenced pace on American character was not lost on Thomas Jefferson, who wrote *(1955)* "Those who labor in the earth are the chosen people of God, if ever he had a chosen people, whose breasts he had made his peculiar deposit for substantial and genuine virtue." A Hebraic analogy again, but an estimate of their worth gladly accepted by American farmers ever since, and used to justify astonishing Federal solicitude for agrarian welfare.

The economic status of farmers in American society peaked with the Civil War. It was thereafter eroded by economic changes that followed industrialization and, less evidently, by the mechanization of the world's merchant marine. As steam replaced sail, Australian wheat could reach Europe, and Egyptian cotton could reach Liverpool, all more readily than before. American farmers found unexpected allies in their discontent in the silver miners of the Mountain States; their prices were dropping too. Prices must move freely in terms of laissez-faire economic doctrine, but when incomes are affected to the degree that status is shaken, then political repercussions occur. Such was the background of the Populist party late in the 19th century *(Hofstadter 1955)*.

The same rapid industrilization of America upset the stability of social order in the older East. First, the basically merchant and professional-oriented aristocracy was thrust aside by the new wealth and power of the manufacturers. These in turn were pressed by the financiers and operators of the end of the 19th century. Each elite clung to the symbols of its status, and each rising class sought to claim these symbols for its own. A bellwether of status was an association with the land: an estate, a farm. Here an aristocrat challenged could repair to sulk—as Jefferson did when out of power—and to complain about the bad manners and the worse ethics of those who had taken his place. Late in the century, some ruffled aristocrats even flirted with the idea of an alliance with the radical farmers—since they, also were attached to "the land" *(Hofstadter 1955, 1965)*. Mugwumps, they came to be called. In the process of asserting their interests, these persons first articulated the esthetic values in natural environment for their fellow Americans.

Hays *(1959)* has told us of the early history of the conservation movement. The term was invented by hydrologic engineers between the Rockies and the Sierras, concerned over the in-

applicability to these dry areas of the settlement limits of the Homestead Act of 1862. These technicians formed an early alliance with Eastern citizens concerned over preservation of natural beauty. Such a topic has always been dangerous in our achievement-oriented society. From the start, American nature-lovers have sought technical cover for their goals. This they found first from the water engineers.

Within a range of a decade or so were founded the Sierra Club, the American Forestry Association, and the Federation of Garden Clubs. Arbor day was instituted. Women's clubs, and the Daughters of the American Revolution, joined in the cause. A young scion of an eastern merchant family traveled to Europe to study scientific forestry. His name was Gifford Pinchot.

The alliance of technicians and esthetes could not long hold together. The split usually is dated back to the Hetch-Hetchy controversy in California, which rent the friendship of John Muir and Gifford Pinchot. For Muir the preservation of natural beauty was paramount; for Pinchot, more mundane uses of natural resources were to be included in any calculation of total public interest.

The proclivity to hide esthetic sensitivity in practical, if not scientistic, arguments has appeared recently in the arguments set forth by the Sierra Club against Forest Service policies on clearcutting.

Recourse to nature has been with us as an established value since the late 19th century. Its spokesmen have been the traditional groups-the Audubon Society, the American Forestry Association, the Sierra Club, the Wilderness Society. At least twice, in the years since, there have been upsurges of interest in this area of feeling. Each was associated with a period of social stress. each spawned its organizations, a few of which continue.

During the New Deal the United States faced unprecedented human problems, among them widespread rural distress. By a shift of emphasis perhaps facililtated by his own country-gentleman status, Franklin Roosevelt was able to transfer much of the attention from rural people to the land they struggled to live on. The Soil Conservation Service, the revitalized programs in the national forests and parks-underscored by the mission of the Civilian Conservation Corps—caught public imagination far less for what they did for people, than for what they did for "the land". This could have been one of Franklin Roosevelt's greatest strokes of political skill—but I suspect that it was never intentional. Roy Stryker, Dorothea Lange, Pare Lorentz, and Russell Lord have left beautiful documents of those years. They spread upon the national press many photographs of reclaimed strip-cropped land. The pictures and their asociations have lasted much longer than did strip-cropping itself.

The 10 years through which this country has just lived have been remarkable for evidences of concern over "environment". The period has been remarkable for two reasons: first, for the marked revival of interest in the esthetic values of nature, and second, for the absence of hard data to justify the claims of environmental degradation which have overlain the esthetic consciousness. The major thrust of policy urged upon us by the environmentalists has been, it seems to me, to halt change. We have been asked to preserve—in the name of "ecology", or history, or pollution—almost anything outside a city's limits and some things within.

These 10 years have been marked by unusually rapid social change. The Voting Rights Act of 1965 set off a major reconsideraton of the status of American Negroes; they became "Blacks", and proud of it. Change in the status of blacks threatened members of many other ethnic minorities. Across the land economic prosperity claims that had never before been actuated: entry to resort areas, expensive restaurants, suburbs, jobs, foreign vacation spots. The environmental movement, I submit, was in large part a reaction of the upper middle class to these social changes. As it subsides, I expect that its leading supporters will shift their allegiance to conservative political organizations.

The Greeks found words for it 25 centuries ago. The pattern seems to be the same throughout the world of Northern cultures: personalities under stress find solace in natural phenomena.

If this hypothesis is valid, I suggest that we refine the tonic and make it available through our schools and other public institutions to all of our citizens. If nature is good, it must offer something to all.

## LITERATURE CITED

Armstrong, Edward A.
1973. **Saint Francis: nature mystic.** Univ. Calif. Press, Berkeley

Bunker, Emma C., C. Bruce Chatwin, and Ann R. Farkas.
1970. **Animal style art from East to West.** Asia Soc. New York

Clark, Kenneth
1956. **Landscape into art.** Penguin Books, London.

Clark, Kenneth
1969. **Civilization.** Harper and Row, New York.

Cruikshank, Helen Gere, (ed.).
1961. **John and William Bartran's America.** Doubleday & Co., Garden City, N.Y.

Douglas, Mary
1966. **Purity and danger.** Penguin Books, London.

Glacken, Clarence.
1967. **Traces on the Rhodian shore.** Univ. Calif. Press, Berkeley.

Hays, Samuel P.
1959. **Conservation and the gospel of efficiency.** Harvard Univ. Press, Cambridge, Mass.

Heidel, Alexander.
1949. **The Gilgamesh epic and old testament parallels.** Univ. Chicago Press, Chicago.

Hofstadter, Richard.
1955. **The age of reform.** Alfred A. Knopf, New York.

Hofstadter, Richard.
1965. **The paranoid style in American politics and other essays.** Alfred A. Knopf, New York.

Jefferson, Thomas.
1955. **Notes on the State of Virginia.** Univ. N.C. Press, Chapel Hill.

Klausner, Samuel Z.
1971. **On man in his environment.** Jossey-Bass, San Francisco.

Marx, Leo.
1964. **The machine in the garden.** Oxford Univ. Press., New York.

McNeill, William H.
1963. **The rise of the West.** Univ. Chicago Press, Chicago.

Miller, Perry.
1967. **Nature's nation.** Harvard Univ. Press, Cambridge, Mass.

Montesquieu, Baron de.
1966. **The spirit of the laws.** Trans. Thomas Nugent. Hafner Publ. Co., New York.

Redfield, Robert.
1962. **The primitive world view.** *In* Margaret Park Redfield, (ed.) *Human nature and the study of society: The papers of Robert Redfield.* vol. 1. Univ. Chicago Press, Chicago.

Reischauer, Edwin O. and John K. Fairbank.
1960. **East Asia: the great tradition.** Houghton Mifflin, Boston.

Schenk, H.G.
1969. **The mind of the European romantics.** Doubleday & Co., Gordon City, N.Y.

Smith, Henry Nash.
1970. **Virgin land: the American West as symbol and myth.** Harvard Univ. Press, Cambridge, Mass.

Wax, Rosalie, and Murray Wax.
1955. **The Vikings and the rise of capitalism.** Am. J. Socio. 61 (1): 1-10.

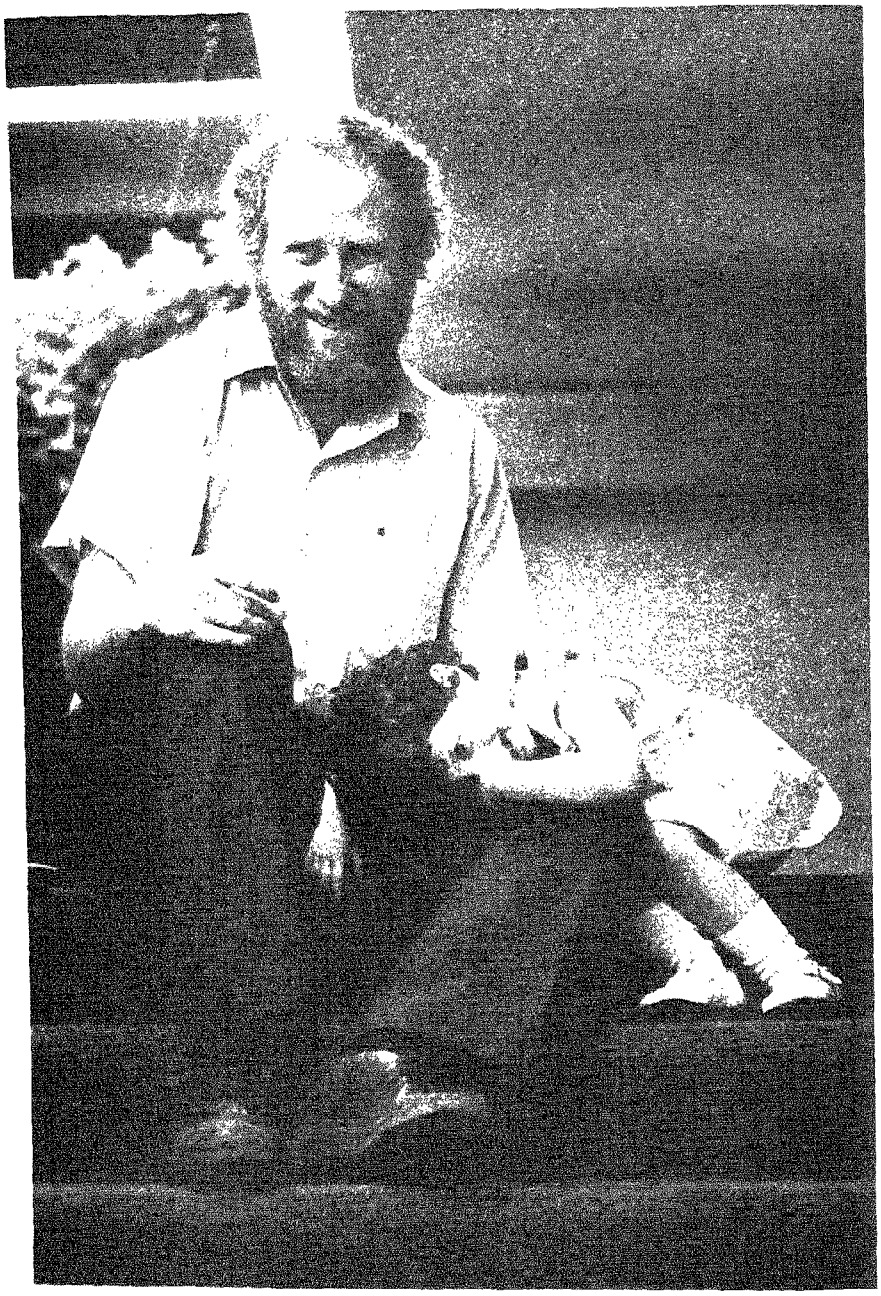


PHOTO BY WALT BLAIR

"Could it be that we adults are imposing our tastes and preferences on children, claiming that they need nature, trees, grass, flowers and other living things when in fact it is we who want them?" - Briavel Holcomb

# The Perception of Natural vs. Built Environments By Young Children

*by* BRIAVEL HOLCOMB, *Assistant Professor of Community Development and Geography, Rutgers, The State University of New Jersey.*

*ABSTRACT.* This paper questions the assumption that young children need exposure to natural environments for healthy psychological development. Preliminary investigation of the environmental perceptions of 4-year-olds suggests that the distinction between natural and man-made milieux is insignificant to preschoolers, and that they find both kinds of environments similarly fascinating. Both offer rich potential for collecting treasures—an important preschool criterion of environmental satisfaction. The behavioral environments of parent and child are markedly different in the same physical setting.

IT IS COMMONLY assumed that children need nature in their environments for healthy growth and development. In cities, where nonhuman nature is diminishing, it is presumed crucial to preserve those pieces of nature which have survived the ravages of urbanization, and to reinject nature where feasible. This is not a new idea. That natural environments are important to healthy psyches has long been asserted, and it has been advanced with new vigor since "ecology" became popular. Detwyler states that "only two kinds of landscape are fully satisfying. One is primeval nature undisturbed by man. . ." *(Detwyler 1970:696).* Hart suggests that natural settings (earth banks, streams, woodland) best provide the manipulable environment which Piaget demonstrated was essential for the development of human intelligence *(Hart 1973a, 1973b).* Cobb goes further in asserting that the genesis of human genius requires exposure to natural milieux:

> The exploration includes tracing the relationship of this early psychophysical force in human development to those uncommon forms of genius which constitute the high point of achievement in human growth potential, with roots, as I believe, in the child's perceptual relations with the natural world. *(Cobb 1959:537).*

The purpose of this paper is to question whether natural settings are in fact so necessary to young children, and to further explore the environmental perceptions, preferences and needs of preschool children. Could it be that we adults are imposing our tastes and preferences on children, claiming that they need nature, trees, grass, flowers and other living things when in fact it is we who want them? While there is certainly nothing harmful, and probably some benefit, in exposing urban preschoolers to "doses" of nature, they may need them less than adults do. Among my beliefs is that it is quite possible for the urban child of lower Manhattan, of Chicago's East Side, Boston's West End, or even the South Bronx, to grow into a fully functioning, happy human without exposure to primeval, or even to tamed nature.

A subsidiary thesis of this paper is that the distinction between natural and man-made environments is unimportant to young children. Categorizing landscape elements by the degree of human involvement in their formation is a skill perhaps most finely developed by North Americans. I suggest that the ability to dichotomize environments on this basis is learn-

ed, rather than innate. Other cultures, especially those less technologically sophisticated, conceive of humans as part of, rather than apart from, nature. It can be argued that this outlook produces a higher degree of environmental responsibility and that to teach children to make fine distinctions on the basis of human involvement in creation is not particularly functional or even logical. No longer is there any part of the surface of spaceship earth that remains unaltered by human agency. Even the deep oceans and ice caps have higher concentrations of DDT than they did at the beginning of the century. Every environment we inhabit is, to a greater or lesser degree, "man-made." Yet contemporary American culture (and this symposium is no exception) imbues its young with the ethic of nature as virtue. Whether nature is seen as the manifestation of God's order, or nurturing the virtuous yeoman of Jeffersonian tradition, occasional lapses into mountain and wilderness paranoia are abberant in the longer tradition. Continued acceptance of nature as a (or *the*) source of good entails contradictions and ambivalence for the member of an urbanized society. What chance does one have of being virtuous while inhabiting the immoral urb?

The evidence presented here is far from conclusive. This paper is polemical and anecdotal, rather than objective, and the methods are exploratory. Though trained as a geographer, I chose to investigate these questions mainly as the mother of a 4-year-old daughter. The research was carried out at a nursery school in New Brunswick, New Jersey, an old, crumbling city ringed by more affluent suburbs. The children at the school come from both settings, but cannot be said to be representative of either since a high proportion of them are from geographically mobile families associated with Rutgers University.

The specific questions under investigation were:

1. To what extent do 4-year-olds distinguish between natural and man-made phenomena?
2. What qualities of natural environments (specifically woodlands) appear to young urban children? Are they found, or can they be replicated, in urban settings?
3. How does the behavioral environment of the 4-year-old differ from that of her mother in identical urban places?

To investigate whether 4-year-olds can and do make distinctions between natural and human landscapes, 15 children were presented individually with collections of photographs culled from periodicals, and asked to "put different pictures in different piles." Children at this age already know the concept of classification. They have learned to put blocks into categories based on size, shape, color, and other variables. This learning is reinforced by numerous games that require the child to select the odd item in a series.

The picture set consisted of four scenes that were predominantly "natural", with woods and mountains (care was taken to exclude bodies of water, which have been shown to be consistently appealing), and four that were urban. The pictures were not, however, of uniform size, and on the first test 12 out of 15 children categorized the pictures by size! The following week a new set, in which all the pictures were the same size, was presented. All the pictures showed distant scenes with no people in the foreground. Now the children had difficulty deciding on a criterion for classification. When asked to make two piles, some children asked which should go in each, others simply dealt the pictures into two equal piles like cards. When asked why the pictures in one pile were different from those in the other, the children replied "they just are," or "they are in different piles." Four children divided the pictures by general preference, so that the scenes they like best went into one pile, and those they liked least into the other. Their preferences, however, were not related to the degree of nature represented. Weather seemed a possible variable. For none of the 15 children did natural vs. manmade seem a significant criterion for categorization.

To further explore the children's understanding, I asked them whether they thought people had made some of the items shown in the pictures. "Did people make this building, that mountain, this tree. . .?" Although the teleological questions thus aroused proved difficult to respond to (if people didn't make that mountain, who did?), the children were quite sure they knew what people made. People make buildings, vehicles, roads, and Vesuvius. They do not make plants, animals, or asymetrical mountains. Neither do they make lawns or city trees, both of which just grow. It seems that

young children are able to distinguish between inorganic and organic more easily than between natural and man-made, and that the first distinction is more significant to them. The 4-year-old can easily distinguish a plastic from a real daffodil, but not a wild from a cultivated one. The croci which the children planted in the school yard are just as natural to them as the alpine gentian.

As a preliminary exploration of 4-year-olds environmental preferences, I "interviewed" 13 children, recording their answers on separate sheets and providing each with a Xerox copy. (The desire for a literary record of oneself for posterity seems to start at an early age). Each child was asked to name and describe his or her favorite places. Home and school ranked high on all lists. Almost all places mentioned were specific (Johnson Park, my Granny's house) rather than generic (parks, train stations), and were small in scale (the swings and slides) rather than large (New York City). Almost all were designed, or man-made places. Even the beach, which was mentioned twice, appealed because of its proximity to carnivals and ice cream. The topophilic tendencies of young childen seem strongly influenced by associations with pleasurable activities and friendly people. Aesthetic considerations are distinctly secondary.

The 4-year-old's environmental preferences are obviously constrained by his limited experience. The urban child's activity space is restricted, and limited mainly to designed environments. His brief experience of less tamed nature is carefully monitored by cautious parents ("don't go too near the edge; don't fall in; watch for ticks..."). The young child has more freedom of choice in activity and behavior in a setting designed for safety than in "natural" places. For the urban child, the designed environment is also more familiar, more secure, and less threatening. While Clay is undoubtedly correct that the places we, as adults, remember from our childhoods with the greatest affection are those natural places of grass, rocks, water and trees, we are perhaps remembering from our middle childhoods when our needs for adventure, privacy, and environmental manipulability are less well met in designed milieux *(Clay 1957-8)*.

What are, in fact, the environmental needs of the 4-year-old? Which of these provided in natural settings? Are any found exclusively in nature, or can all the qualities of natural environments be replicated in built environments? Previous research in this field has suggested that the quintessential qualities of, for example, natural woodlands, that are appreciated by humans are changeability, seasonality, spaciousness, unpredictability, secrecy and mystery, manipulability, irregularity, and variety. To these I would add one particularly vital to 4-year-olds—collectability. The woods are a storehouse of treasure. A half-hour walk through the woods near home with two 4-year-olds yielded a rich trove of flowers, goose grass for sticking to each other, leaf umbrellas, dandelion clocks, a feather, a caterpillar, moss for Japanese gardens, and various other items. But a similar walk along city streets produced a fascinating collection of lollipop sticks, silver paper, a plastic bubble wand, several tickets, a piece of tile mosaic, metal scraps, and so forth. Once parental instincts against collecting "dirty" items from streets, gutters and vacant lots are repressed, urban and sylvan treasure troves are fully equal in quantity, variety, and value at 4-year-old exchange rates.

Similarly, most of the desirable qualities of the woods can be found also in urban settings. The city has its seasons. Its coloration, decoration, and temperature, its sonic and activity levels, change with the months, just as the woods do. One can argue that there is as much or more variety in color, shape, texture, light, and sound in a square mile of urban land as there is in an equal area of woodland. The manipulability of natural areas, of earthworks, water, open lots and mud, is replicated in urban settings by young children who dig in sand boxes, tinker with gum-ball machines, trace letters in the dust, make wet footprints, jump in puddles and avoid assassinating fairies by negotiating cracks in the sidewalk. Does the city offer the young child a milieu that is any less mysterious, secretive, unpredictable, or awe-inspiring than nature?

Fiske and Maddi concluded from their investigations of experiential variety that "the more variable of two early environments produces an adult organism that is perceptually and behaviorally more alert, flexible, and able to cope with change." *(1961)*. Parr used this interpretation to deplore what he regards as the increasing monotony of modern architecture. "As

we make our cities more and more uniform by design and regulation, we rob exploration of its rewards, till we force the young to seek the stimulus of the unexpected in their own unpredictable behavior, rather than in a too-predictable milieu." *(Parr 1965).* Thus he suggests a causal relationship between modern architecture and juvenile delinquency.

Although it is debatable whether the city is so visually monotonous, for the young child the city streets offer many stimulations. There are variations in surface materials (paving stones, grates, dirt, cobbles), there is street furniture (hydrants, mail boxes, benches, litter baskets) to explore, store windows to be enticed by, people and dogs to evaluate, nooks and crannies to hide in, air vents to feel, steps and railings to climb, signs to read, and so forth. The 4-year-old, with fewer social constraints on her behavior, can explore, stare, pry, and satisfy curiosity more easily than an older child or an adult. The vantage point of the child, whose eyes are 2 feet closer to the ground than the adults', offers quite different perspectives. The foreground captures more attention than the middle distance. Not only does the child perceive the street differently, but her evaluation of its potentials differs from that of her mother. Age is a significant variable in urban resource evaluation!

This paper proposes that exposure to natural environments may be less necessary, at least to young children, than has previously been believed. To the preschool child the distinction between natural and man-made environments is unimportant. Although an infusion of nature into cities is pleasant and provides further stimulation, the human-designed and built habitat probably provides sufficient stimulation, variation, and excitement for the young child. As a data bank of culture, the built environment communicates to the young inhabitant the values, customs, and heritage of society. In the United States the contradiction between an ethos which values untamed nature and the visible concrete evidence of human manipulation of nature sends ambivalent messages to child and adult alike.

## LITERATURE CITED


Clay, Grady.
1957-8. **Remembered landscapes.** Landscape. Winter.

Cobb, Edith.
1959. **The ecology of imagination in childhood.** Daedalus 88(3):537-548.

Detwyler, Thomas.
1971. **Man's impact on environment.** McGraw-Hill, New York.

Fiske, F. W. and Maddi, S. R.
1961. **Functions of varied experience.** Dorsey, Homewood, Ill.

Hart, Roger.
1973. **Adventures in a wood wonderland.** Nat. Hist. 82:67-69

Hart, Roger.
1974. **The genesis of landscaping: two years of discovery in a Vermont town.** Landscape Archit. 65(5): 356-363.

Parr, A. E.
1965. **City and psyche.** Yale Rev. 55(1):71-85.

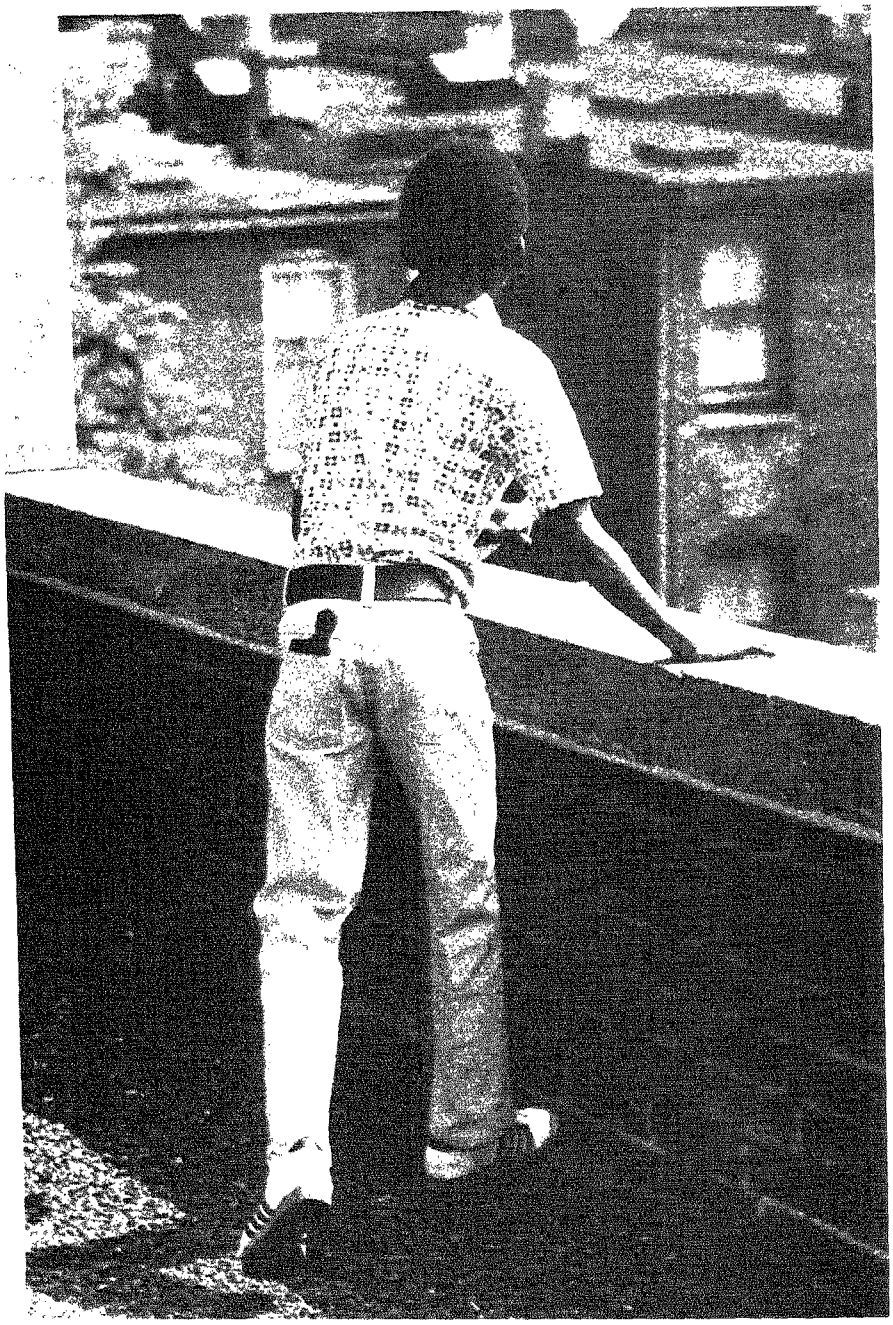


PHOTO BY WALT BLAIR

"To me, the typical urban child has little to look forward to. The parks, the museums, the libraries are not, he knows, for him" - Lois Mark Stalvey

# The Urban Child: Getting Ready for Failure

*by* LOIS MARK STALVEY, *Writer, Philadelphia, Pennsylvania.*

*ABSTRACT.* This paper is the result of my personal experiences in Philadelphia's predominantly black public schools, both as a white parent of three children and as a volunteer teacher. It mentions the benefits to our white middle-class children from their 12 years in these schools, but also describes the far-different treatment of their black classmates—much of which is unsuspected by educators who could make necessary changes. This paper suggests a solution that could be implemeted in a matter of months with little effort and no financial cost.

MY GREATEST CONCERN about the environment of the urban child is that adults who could improve this environment are kept from knowing the urban child who needs change most. It was only through a series of accidents that I learned that the majority of urban children are not like my white middle-class WASP kids, but are children who see and *are seen* in an unconsciously different way.

My expertise is simply that of a mother who for the last 13 years has raised three children in the urban environment of Philadelphia's predominantly black public schools. My husband and I moved from an all-WASP Omaha suburb in 1962 because we felt our children would be handicapped in the suburban environment. We believed they should be getting ready to live in a multiethnic, multiclass world. When we chose an integrated neighborhood in Philadelphia, we had no idea that the schools would gradually turn black around our children—that indeed our oldest son would eventually be the only white boy in his classes in a 4,000-student senior high school. Had we known of the crises we would have to face, and of our own fears and unconscious racism that we would be forced to confront, I wonder if we would have proceeded. In the end, our children (and their parents) benefited greatly, but I will not attempt to describe the step-by-step process. Anyone interested in these details can find them in my books, *The Education of a WASP (Stalvey 1971)* and *Getting Ready - The Education of aWhite Family in Inner-City Schools (Stalvey 1975).*

More pertinent to the subject of this symposium is what I learned about my children's classmates and friends and of the environment in which they must live. In the interest of brevity, I will try to give you an accurate composite picture. If the picture seems too shocking to be true, again, I must refer you for documentation to the details in *Getting Ready.*

Our composite child (whom I will call George) is far different from my own children. To my children, the urban environment does indeed mean parks, museums, and histrical sites; it means also the respect of their public school teachers and administrators. It is for a small number of children like mine that urban institutions seem to be created and operated. It is black children like George, however, who constitute 62 percent of Philadelphia's public school population. He lives approximately 6 blocks away and attends the same school in the same classes with the same teachers as my children, yet George lives in a world it took me 6 years to understand.

George is about 14 years old. His parents probably graduated from a high school, but, as

we shall see, a high school diploma in many urban schools is about as useful and genuine as counterfeit money. George's mother must work, either to supplement her husband's income or because her husband is dead, has deserted, or is ill. She may also be working to help pay for a house in a "better" neighborhood with a "better" school than the last three schools that quickly decayed when white families fled. To George, "nature" consists of the rats and cockroaches his family fights constantly. George does not go to city parks; his older brother was killed in one by a rival gang.

And so George does not go out often, certainly not to hear music groups at Philadelphia's Spectrum. There are many other places George cannot go if they are on the "turf" of a gang not of his own neighborhood. George is not a gang member himself. He would like to join one for his own protection, but his mother has pleaded with him not to become involved. He is trying to keep his promise in spite of the constant recruiting threats and blandishments of his local gang. George has little choice but to stay in the house and watch television. George cannot read.

I got to know over a dozen children like George when I was a volunteer teacher for a so-called Disciplinary Problem Class of 8th-graders in the school my own children attended. We held discussions on everything from sex to black history. By the end of the year, I found that these children who had been labeled "bad" were, with me, friendly, cooperative, and quick-witted. One child had taught himself several foreign languages by practising with neighborhood merchants; another could do complex math problems in his head. Two weeks before "my" class was to graduate along with our son, I discovered a secret they had skillfully kept hidden from me. Most of these children were being graduated from our elementary school unable to read. They were going into our enormous (4000-student) high school with no possibility at all for further education.

It was my 13-year old son who answered my rhetorical question, "How *can* these kids go through the same classes with most of the same teachers as you and not be taught to read?" Spike, who had been in those classes when no supervisor, researcher, or other adult except the teacher was present, explained in detail why children like George could not read. Spike spoke as an insider; he had looked and listened for 8 years. He had watched the teachers ignore certain children or make fun of them if they tried to participate in class discussions; he had noticed which children were sent to help the janitor—not the white, light, bright children, but the kids who were slow. "Some of those kids", Spike said, "were never *in* class long enough to learn anything!" Spike reported that if *he* talked in class, he was gently reprimanded, but if a lower-income black child talked, he was sent to spend the day on the detention bench. My son noted also that *no one* ever repeated a grade. "Even the really dumb kids were just passed along to the next grade", he told me.

I learned to become an outraged cynic about special programs for so-called "deprived" children. When teachers were asked to select children for a well-funded, well-designed program to encourage reading, my children and the children of the black professionals were chosen. When a state teachers' college invited "deprived" children for a weekend on campus so that the students could get to know their future pupils, again only the middle-class children were sent. Our children quickly learned to say no to special projects, hoping their places would be given to children who needed the benefits more.

Our school did offer one advantage that black children in the completely black ghettos did not have: Because of a handful of vocal white and not-easily-threatened black parents, we got fewer teachers fresh out of teachers' college. These inexperienced teachers are usually assigned to the lowest income areas where, in all logic, the *most* experienced teachers are needed. These young, idealistic new teachers often become disillusioned quickly when they are unable to cope. They leave in a few months. Many children I know have had five or more teachers in one school year.

After these experiences, I read the costly studies by experts with sadness and rage. My 13-year-old son had explained only too clearly why children fail.

George's future affects the future of all children. Children like George will make the world a lot more dangerous and unpleasant than it needs to be. Crime does not start in the streets; it starts in the classrooms, where teacher neglect precludes an honest way to earn

a living and where teacher brutality breeds rage.

"Teacher brutality" and "teacher neglect" are harsh, shocking phrases. Again, I must refer you to *Getting Ready* for documentation. Along with the brutal, there are certainly many diligent, caring teachers, but their jobs are made harder, if not impossible, by colleagues who provide, at best, custodial care for helpless urban children. Then, between the caring and the brutal teacher, there is another: the teacher whose unconscious racism convinces her she is doing a good job with basically worthless children. Her or his brutality produces only emotional bruises; his or her neglect is skillfully rationalized. Still, the outspoken racist and the unconscious racist are the teachers whose views of urban children threaten us all.

I say I have no sure-cure solutions, but I did stumble across a small news item that could help us begin. It reported a court case in Mississippi where teachers challenged (and lost their case against) a ruling that *all those holding jobs in public schools must send their own children to the public schools.* U.S. District Court Judge Alan C. Keady ruled that this policy was not only constitutional, but "based on logic". To those who protest that this policy in Mississippi restricts freedom of choice, may I suggest that this condition of employment is indeed as logical as preferring Catholic teachers in Catholic schools or expecting the president of General Motors *not* to drive a Ford. If the public schools are not good enough for the children of the teachers, then they are not good enough for anyone's children and must be changed.

Perhaps we have all been naive with our busing programs, which often only send children's bodies to teachers with segregating eyes. If a Mississippi Plan existed and was enforced in our northern cities, dedicated teachers could still go home to the suburbs each night, but they would at least have an investment in the city public schools. Their children would tell them what mine have told me; they would know *why* their colleagues are not teaching kids like George to read. Their adults' view of the urban child's environment would be real at last. And if *one* teacher's child is in a classroom, I can assure you that the quality of teaching would improve immediately for *all* the children in the class - out of professional pride if not out of professional protection.

Unfortunately for children like George, it seems unlikely that school systems will adopt a Mississippi Plan. Teachers' unions are too strong; Board of Education members are unlikely to demand of others what they shrink from doing themselves. More and more "liberal" whites who demonstrated for integration in the South are fleeing from integration in the North. People who express outrage over school riots send their own children to private schools. And so, people with knowledge of their own hypocrisy quietly protect each other.

To me, the typical urban child has little to look forward to. The parks, the museums, the libraries are not, he knows, for him. The success models in George's environment are the pimp, the pusher, and the professional mugger. We have given George no other way to succeed. Some dark night, any of us may meet George. Because we have never gotten to know what his life is really like, George is getting ready to show us what's true.

## LITERATURE CITED


Stalvey, Lois M.
1971. **The education of a WASP.** Bantam Books, New York.

Stalvey, Lois M.
1975. **Getting ready—The education of a white family in inner-city schools.** Bantam Books, New York.

PHOTO BY MICKEY SPENCER

"If we are to make use of the diversity of human resources which we possess as a nation, we must allow all voices to be heard in determining our eventual outcomes. This holds for recreational resources as much as for any others" - Martin M. Chemers and Irwin Altman

# Use and Perception of the Environment: Cultural and Developmental Processes

*by* MARTIN M. CHEMERS, *Associate Professor of Psychology, and* IRWIN ALTMAN, *Professor and Chairman of Psychology, University of Utah, Salt Lake City, Utah.*

*ABSTRACT:* This paper presents a "social systems" orientation for integrating the diverse aspects of environment, culture, and individual behavior. It suggests that a wide range of variables, including the physical environment, cultural and social processes, environmental perceptions and cognitions, behavior, and products of behavior, are connected in a complex, interacting system.

Attention is paid to cultural factors that affect the way in which the environment is perceived, used, and modified. A broad variety of topics are touched upon, including ecological factors that affect the functional adaptation of a culture to its environment, how cultural world views shape and are shaped by that adaptation, and how environmentally oriented behavior processes like privacy regulation, territoriality, and personal space operate in this milieu.

The authors stress the need for scientists to provide useful information for environmental practitioners, be they architects, urban planners, or the Forest Service. Finally, discussion is given to the role that cultural diversity in the United States must play in our environmental planning for the future.

ONE OF THE defining features of the study of environmental behavior is its electicism of approach and the diversity of its sources of contribution. Geographers, architects, planners, psychologists, sociologists, anthropologists, and others have made and will continue to make contributions to our understanding of this subject. While such diversity may, at times, engender confusion, it is a vibrant and healthy aspect of this multifaceted discipline. Any student of the environment will quickly be struck by the complexity of the phenomenon he seeks to investigate. The very complexity of the subject demands a similarly complex system of study. In this paper, we will point to the diversity of elements in environmental behavior and the intricacy of their actions with and upon one another. Out of this complexity we hope to discern some consistent patterns that point to directions for future research and contemporary application.

## A MODEL FOR THE STUDY OF CULTURE AND ENVIRONMENT

Recently we were invited to prepare a chapter on cultural aspects of man-environment relationships for a new *Handbook of Cross-Cultural Psychology.* That chapter was intended to be 35 to 50 pages long, but eventually ran to well over 100 pages, even though we made no attempt to provide an exhaustive review of the area. While we cannot share all of that information in the present paper, some of the insights we gained are especially relevant to the concerns of this symposium.

The study of cultural variables in environment and behavior relationships affords the investigator a special vantage point. While cultural differences and similarities are interesting and useful in their own right, they also serve as cues which help us to focus on especial-

ly relevant phenomena and to probe our assumptions. Many anthropologists agree that the relationship of a society to its environment is the first and most important challenge to a culture. The way in which a culture answers that challenge often determines the overall style of the culture, with ramifications in every aspect of psychological and social adaption. The last statement is not meant to imply that these effects travel in only one direction, i.e., environmental determinism. A culture's reaction to its physical environment will in turn affect that environment. To conceptualize this complex, interactive set of relationships, we propose an initial model to handle environment,and behavior relationships. It is not a formal theory, but only a framework of relevant variables and their approximate relatonships, but it serves to organize our thinking about this problem.

In general, we adopt a "social systems" orientation, which implies several things. First, it suggests that several classes of variables relate to the issue of culture and environment, such as those in the inner ring of Figure 1: physical environment, culture, environmental orientations and representations, environmental behaviors and processes, and outcomes—products of behavior. The *physical environment* refers to features of the natural and climate, terrain and geographic features, flora and fauna. The *cultural/social environment* refers to all aspects of culture such as socialization processes, norms, customs, values. *Environmental orientations and representation* refer to how people classify the environment—the perceptual and cognitive beliefs and differentiations they make about environments. *Environmental behavior and processes* include how people use the environment in the course of social relationships. *Outcomes/products* of behavior include the results of people's actions, such as the built environment of homes, communities, and cities, and modifications of the natural environment such as farms, dams, and climate changes.

The outer ring of Figure 1 contains extensions of the inner ring; the outer-ring variables are

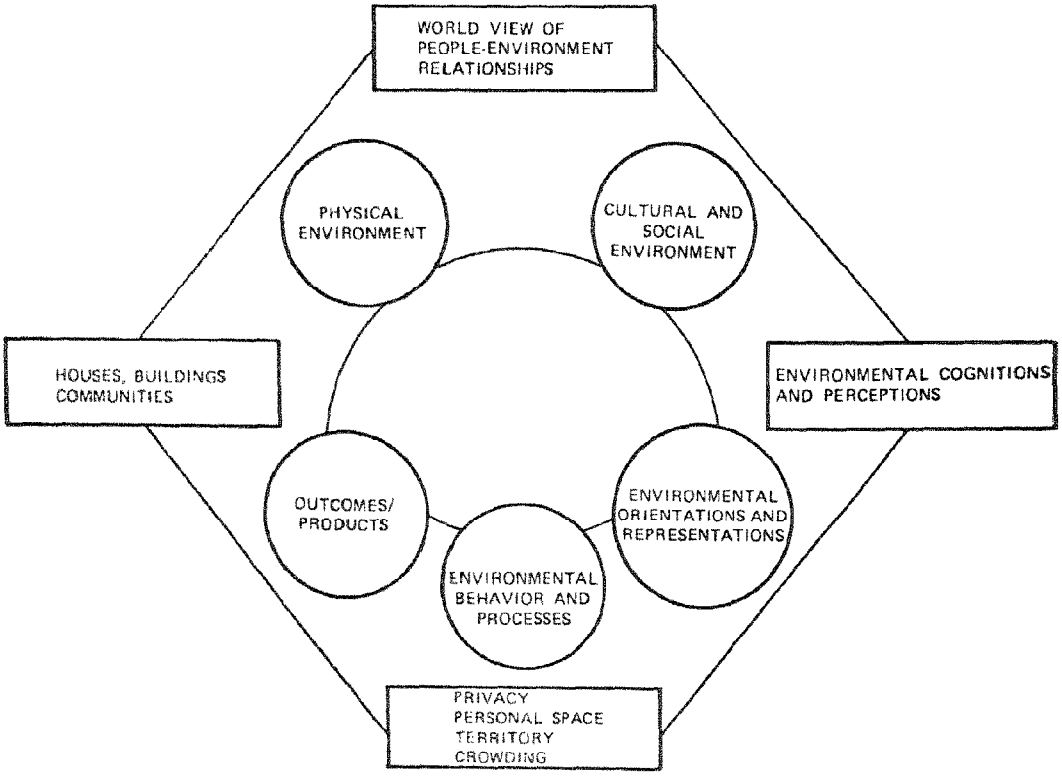



**Figure 1.—A framework of culture-environment relationships.**

assumed to result from the action of various combinations of inner-ring variables. Thus, physical environment, culture etc., can cumulate to affect differences in *world views* or general approaches to the physical environment. For example, several writers have contrasted philosophical and value orientations to the environment by different cultures, whcih derive from a complex set of variables. Another result of the operation of various combinations of inner-ring variables concerns *cognitions and perceptions about environments* in different cultures. Still another topic concerns ways in which privacy, territory, personal space, and *crowding* occur across cultures. In addition, cultures differ in *environmental products* — homes, cities, and communities — which result from complex combinations of inner- and outer-ring variables.

Another feature of a social systems approach is that simple linear cause-effect relatonships are not always clearly discernible, since every variable can theoretically serve in an independent or dependent role. For example, it is often implied that the physical environment is primarily an independent variable and affects culture or other variables in a one-way, linear fashion. While it is true that environmental factors such as terrain, climate, and temperature may play an important role, it is also the case that the reverse can occur, e.g., cultural practices, establishment of cities, etc., can alter the environment drastically. So it is with almost any part of the figure, resulting in multiple directions of causation. By presenting variables in a circular format, and without arrows of directionality, we wish to suggest that antecedents and consequents can occur almost anywhere. This does not rule out tracking specific relationships between variables; that is quite necessary. But, in formulating general principles it is easy to forget that a specific directional relationship is not the universe of all

A related feature of a systems orientation is that interventions in any part can reverberate throughout the system. Thus, cultural factors can affect any other set of variables, and vice versa. Also, any factor on the circle may be an accumulation of effects from other variables. Thus, environmental behaviors and processes may be a cumulative result of perceptions and cognitions, cultural factors, environmental factors, and outcomes of earlier behaviors.

While we cannot thoroughly discuss all research for the whole model, we can provide a conceptual smorgasbord of ideas which bear directly or indirectly on questions relating to the design of recreational environments. These ideas will, we hope, point toward important areas for consideration.

## WORLD VIEWS

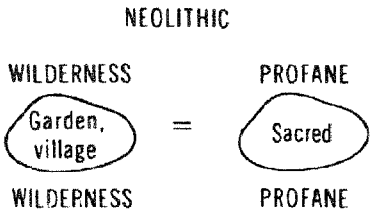
While our conceptual approach implies that one might usefully begin with any of the categories of Figure 1, an especially appropriate point of departure is *world views of the environment.* Throughout recorded history and earlier, people have been concerned with their relationship to the environment, sometimes viewing it as hostile, sometimes as nurturant, sometimes seeing it themselves as part of the environment, and sometimes believing themselves to be separate from and often above nature. These views of nature have been part and parcel of various cultures, woven directly into the fabric of the social structure, determining and being determined by the cultures' perception of and reaction to nature.

The anthropologist Kluckhohn *(1953)* noted that cultures can be characterized in terms of whether they see people as subjugated to nature, part of nature, or over nature, dominating the environment. Quite clearly, this basic orientation will affect the way a culture approaches its physical environment, and the ways in which members of the culture play as well as work in that environment.

Tuan *(1971, 1974),* a geographer and fellow participant in this symposium, has noted that people often have conflicting attitudes toward nature that exist side by side. One aspect of this phenomenon is that people often simultaneously wonder about and fear the powerful environment. A farmer might love the earth that nurtures and supports him, while at the same time fearing the powerful elements that jeopardize his well being. Tuan *(1971)* also pointed to the idea that at different periods in history and in different cultures people have held positive or negative attitudes toward the *wilderness,* or nature, and the city, or totally man-made part of the environment. Figure 2, (adapted from *Tuan, 1971)* illustrates six different sets of attitudes.

**Figure 2.—Historical views of the environment (from *Tuan 1971*).**

1. Edenic ideal




HISTORICAL EXAMPLES

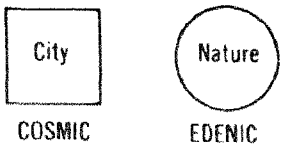
a. Eden and wilderness
b. Monastery and wilderness
c. The New England town and wilderness
d. The American seminary or college and wilderness
e. American utopian communities (First half of 19th century)

2. Urban revolution and cosmic ideal


UTOPIA

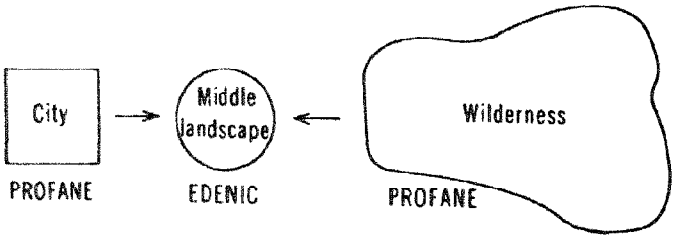
a. Plato's Republic
b. New Jerusalem

3. The two juxtaposed ideals

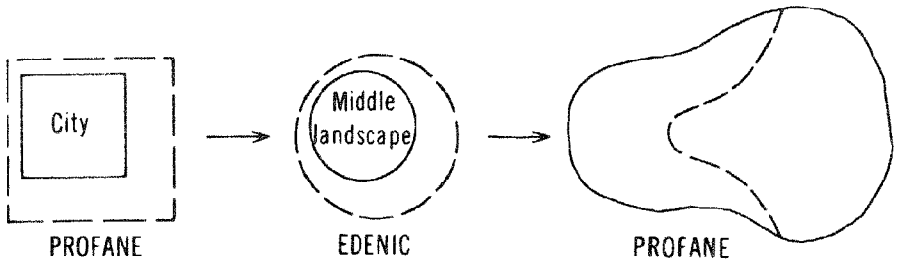



PASTORAL (bucolic) { a. Alexandrian Greece, b. Augustan Rome
GARDEN COUNTRYSIDE { c. T'ang-Sung China, d. Renaissance Europe, e. 18th - 19th century England

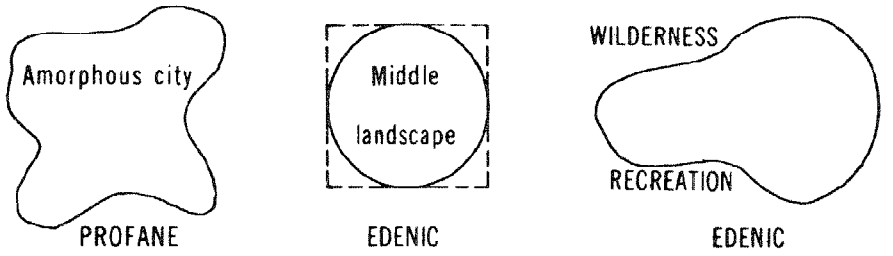
4. The ideal of the "Middle Landscape" (Jeffersonian ideal: late 18th to mid-19th century)



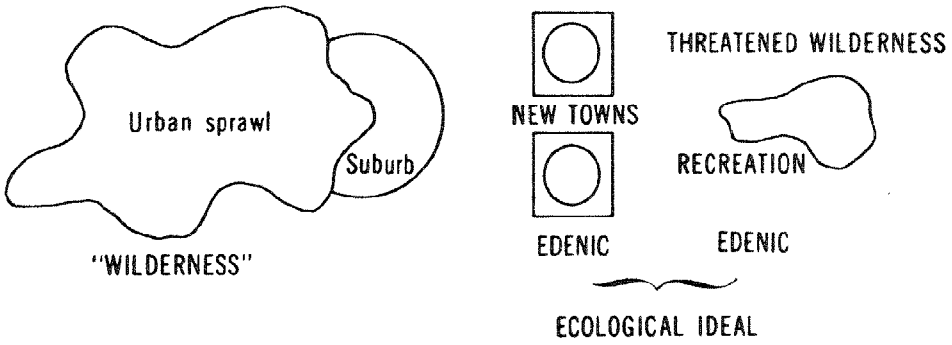
The "Middle landscape" of yeoman farmers is seen as threatened by the city on the one side and by wilderness on the other. In fact this was a time when both the city and the middle landscape were expanding at the expense of wilderness, thus:




5. Late nineteenth-century values




6. Middle and late twentieth-century values



In these different views the city is sometimes seen as sacred, and the dangerous, foreboding wilderness profane. In recent years, with our awakening concern for the preservation of the wilderness, the values are almost completely reversed. It is quite obvious that the world view a culture holds helps to determine which parts of the environment will be seen as attractive for work and play, how children will be socialized in their perception of the environment, and even what information and knowledge about the environment will be extant.

In Peter Gould's *(1974)* voluminous studies of geographical preferences, English secondary-school students held a generally negative impression of large urban areas, while Zambian college students were strongly attracted to urban areas in their country. For those concerned with recreation planning, specifically the placement and distribution of recreation facilities, such cultural preference patterns are of tremendous importance.

## ENVIRONMENTAL PERCEPTION

How people perceive the environment is especially relevant to the discussion of children and their development. How does environmental perception develop? Must we be concerned with cultural differences in perception? Must we be concerned with cultural differences in perception when we design for people? These questions are of central importance both to the researcher who wished to generate knowledge about environmental behavior and to the practitioner who hopes to apply that knowledge.

The perception of the environment is somewhat unlike the perception of other objects. As Ittelson *(1973)* pointed out, the environment surrounds the perceiver. It is multimodal and extremely complex, and even its perception requires action and movement. To these we can add another unique aspect. The accurate perception of the environment has considerable significance to the organism's survival, both immediately and in terms of evolutionary process. Kaplan *(1973)* for example, has argued that our ability to form rapid and highly articulated cognitive representations (also our susceptibility to error) is a result of long-term evolutionary adaptation, when a survival premium was placed on speed and accuracy of reaction.

Other research indicates that children form utilitarian perceptions of the environment at an early age. Several researchers *(Hart and Moore 1973; Stea and Blaut 1973; Blaut, McCleary, and Blaut 1970)* have demonstrated that the ability to understand and use aerial photographs and map-like representations begins as early as 4 or 5 years of age and appears to be fully developed by about 7 or 8 years. Further, early studies indicated no great differences in this ability across cultural or social class groupings. While these findings are still extremely tentative, they point toward a conclusion that certain cognitive tendencies, determined either biologically or by early socialization, predispose the child toward early and effective environmental perception.

Does this mean that all cultures perceive the environment in the same way? The answer is probably no. While the development of the capacity for environmental perception and learning may be roughly uniform, what is attended to and learned clearly varies across cultures. Here again the notion of world views and preferences is relevant. Those portions of the environment that are seen as attractive and useful will be known and used, while less desirable areas are likely to be ignored.

From several studies of the perception of cities and neighborhoods, many of which involved youthful subjects, some patterns emerge. Several researchers (e.g., *Orleans 1971, Ladd 1970, Maurer and Baxter 1972;* and others) reported dramatic differences between groups. Orleans *(1971)*, for example, found that Los Angeles Blacks, Whites, and Mexican-Americans differed in the extent and differentiation of their knowledge about the Los Angeles area. Many of these differences can be attributed to differences between groups in their opportunity and need to travel around the area. In the same study, for example, Orleans found patterns of environmental differentiation for Jewish senior citizens to be quite illluminating. These respondents had articulated and knowledgeable perception of two portions of the Los Angeles environment: the neighborhood where they lived, and the San Fernando Valley, where most of their children and grandchildren lived.

The kinds of errors people make in environmental perception are also often attributable to cultural conditioning. In a study of

a Venezuelan city, Appleyard *(1970)* found that, in drawn maps of the city, people often placed streets or railroad tracks where their experience said these entities should be, not where they actually were.

In a slightly different vein Briggs *(1973)*, using American college students as respondents, found that locations in the direction of an urban center were perceived as more distant than directions away from the city. These effects may be due to actual physical variables such as the relative traffic densities in and away from urban areas, or they may relate to more subjective forces associated with culturally influenced perceptions of urbanized locales, such as those discussed by Tuan *(1971)*.

It is safe to say that, whether cultures use similar perceptual processes or not, the content, categories, and specific features of the environment that are attended to, encoded, and remembered will be strongly influenced by culture, class, and other aspects which are part of social development. Thus, perceptually mediated cultural influences on the attractiveness, accessibility, and knowledge of environmental features should be integrated into our environmental planning. The usefulness of parks, playgrounds, and national forests will certainly be influenced by such factors.

Although perceptual phenomena probably represent the underpinnings of environmental processes, the individual actually interacts with the environment at the level of behavior. It is through behavior that the individual's perception of the physical environment, influenced by cultural world views and learned perceptual tendencies, is manifested and impacts back on the environment. Privacy regulation is one of the most central and pervasive phenomena of environmental behavior. It has important implications for any type of environmental design, and is an ideal place to look for cultural differences.

## PRIVACY REGULATION

Our discussion of privacy-related processes will be keyed around three basic processes: privacy, personal space, and territory. Figure 3, from Altman *(1975)*, presents some relationships between these processes.

*Privacy* is the central organizing concept, and refers to selective control over access to the self *(Altman 1975)*. Thus, privacy is a process by which people and groups regulate social interaction, so that they sometimes open and sometimes close themselves to one another. We also distinguish between *desired* privacy (or what level of stimulation a person or group

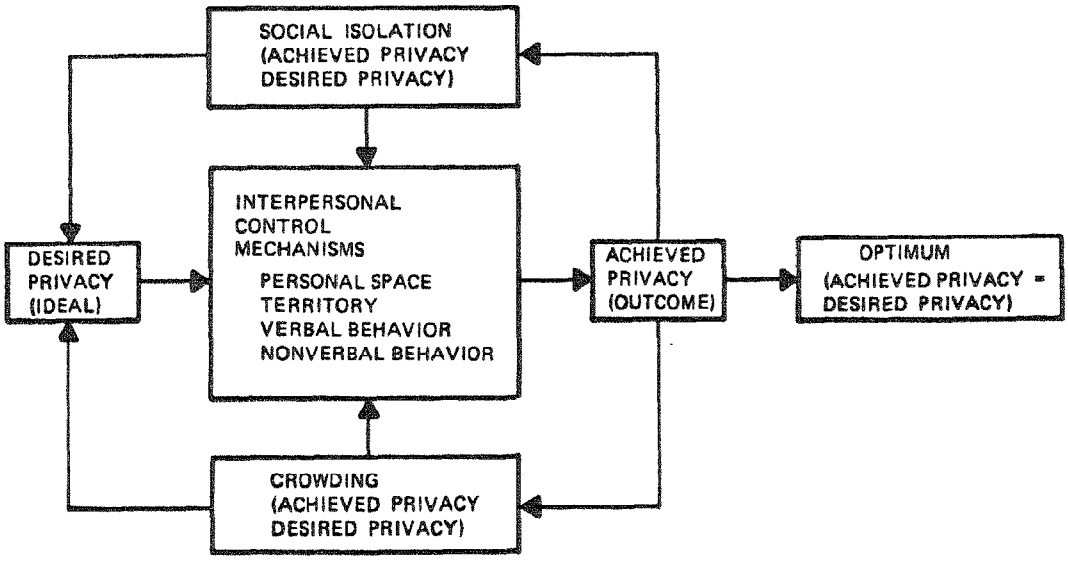



**Figure 3.—Overview of relationships between privacy, personal space, territory, and crowding.**

would like to have) and *achieved privacy* (the actual level of stimulation perceived). To the extent that achieved and desired privacy match one another we can speak of successful control over interaction. A privacy system is operating poorly when achieved and desired privacy do not match.

The framework also suggests that a series of mechanisms are used to help meet a mometarily desired level of privacy. These mechanisms include *verbal behavior* (telling someone to "keep out" or "come in"), *paraverbal behavior* (voice intonation, tone, interruptions and pauses etc.), *non-verbal behavior* (gestures, body postures, head positions and movements etc.) and *personal space, territorial behavior,* and *cultural styles* of responding. Emphasis will be placed on the latter behaviors since they bear most closely on environmental issues.

*Personal Space* refers to the "invisible boundary" surrounding a person or group, intrusion into which produces discomfort *(Hall 1966, Sommer 1969, Altman 1975).* It is commonly studied in terms of distance and/or angle of orientation between people. *Territorial behavior* refers to ownership and control of environmental areas and objects *(Altman 1975). Cultural styles* include norms, customs, and rules of interaction, such as visiting or not visiting neighbors, rules for using others' property and space, styles of probing others or avoiding intrusion. Thus, privacy is a regulatory process and various behavioral mechanisms operate in the service of a desired level of privacy. These mechanisms can function in different combinations within and between cultures, yielding a complex system of responses. That is, in one situation verbal and personal space behaviors may predominate, whereas in another situation people may rely more on territorial and nonverbal behavior. So it may be that one culture uses one set of mechanisms to regulate privacy and another may rely on a different behavioral mix.

The figure also suggests that privacy regulation may be successful and yield a good match between desired and achieved levels of privacy. Or the system may overshoot and produce more privacy than desired; i.e., a person or group may be more socially isolated than desired. Or the system may undershoot and yield less privacy than desired; i.e., a person may be crowded or intruded upon.

Psychological variables such as crowding, privacy, etc., have a heavy perceptual component. Thus, our earlier discussion of the impact of cultural variables on perception and cognition applies here as well. Within the framework we emphasize the concepts of *privacy, personal space,* and *territory,* in the context of cross-cultural processes.

In a sense, the notion of an optimal level of privacy makes the concept of privacy a cultural universal. It is quite probable that all people and groups regulate their accessibility to outsiders. Cultures, of course, vary in the designation of optimal privacy level as well as in the mechanisms used to regulate privacy. For example, Roberts and Gregor *(1971)* report that in the Mehinacu culture, a small tribal group in Central Brazil, homes are shared by several families, noises and conversations are not blocked by housing structure, dwellings and their occupants are clearly visible to outsiders, and people are clearly seen when entering or leaving the village. In short, there appears to be very little privacy among the Mehinacu. If, however, one looks past the physical mechanisms of privacy regulation to more social mechanisms, another pattern emerges. Certain areas, e.g. the men's building, have specific rules against intrusion. Furthermore, the child-rearing process fosters seclusion, specifying periods when children or young adults live in relative isolation and learn to speak softly, conceal strong emotions, and generally restrict access to the self through social-psychological mechanisms.

Another interesting example comes from the comparison of two Indonesian cultures by Geertz (cited in *Westin 1970).* In Java, privacy regulation through the use of territory or physical structures is practically nonexistent. People wander freely into and through other people's homes with no more warning than a greeting to announce one's presence. Geertz points out, however, that other control mechanisms are available.

> The result is that their defenses are mostly psychological. Relationships within the household are very restrained; people speak softly, hide their feelings, and even in the bosom of a Javanese family, you have the feeling that you are in the public square and must behave with appropriate decorum. Javanese shut people out with a wall of etiquette, emotional restraint, and with a general lack of candor in both speech and bahavior.

However, in the neighboring culture of Bali, within extended families, individuals have loose

and open interpersonal relations with high access to one another. These families, however, live in houses surrounded by high stone walls with very limited access, so that only kinsmen or close friends generally enter a person's houseyard.

Thus, while both cultures regulate privacy, they do it with different mechanisms (physical structures vs. interpersonal styles) and in relationship to different people (everyone including members of the immediate family vs. members of the outgroup or non-kinsmen).

Interpersonal and quasiphysical features are combined in the regulatory mechanisms of personal space. The pioneer work by Edward T. Hall *(1959)* alerted us to the fact that individuals have spatial zones around their persons which they regard as appropriate to different activities. For example, the space from 0 to 18 inches is *intimate* distance and is usually invaded only by intimate or close associates, and not generally in public. *Personal* distance, 1.5 to 4 feet, serves as a transitional distance between intimate and nonintimate activities. *Social* distance, from 4 to 12 feet, is the distance of general public contact. Finally, *public* distance, 12 to 25 feet, is used for formal occasions and for high-status figures.

People feel most comfortable when activities and personal distances are congruent. Thus, cultural differences in the use of space point to areas of possible conflict or concern in intercultural encounters. For example, people from Western and Northern European cultures, especially Germany and England, and their cultural descendants, Americans, maintain wider personal distances than do the so-called "contact cultures" e.g., Arabs, Latin Americans, and Mediterranean peoples. Such differences have important implications for the design of facilities that will be used by people of more than one culture. The distances chosen for interaction might be quite comfortable and natural to the designer, but subtly unnatural for the user.

Several studies have compared the spatial behavior of various ethnic groups in the U.S. *(Willis 1966, Baxter 1970).* In early studies, it appeared that Blacks, Mexican-Americans, and Whites differed in distances maintained from others. Recent research, however, indicates that social class may be more important than ethnic background, with middle-class youngsters maintaining greater distances than working-class youngsters *(Scherer 1974).* Whether culture or class is the crucial variable, the use of personal space is an important variable for consideration by designers. Evidence suggests that it is a learned process, and children demonstrate appropriate mechanisms early in life.

On a more collective level, territoriality is a widely used mechanism of privacy regulation. Altman *(1975)* discussed three types of territories: primary territory, which an individual or group holds for exclusive use and ownership; secondary territory, involving less central, pervasive and exclusive use; and public territory which is meant to be used by anyone. Cultures vary in the degree to which they acknowledge primary territories, but most societies have certain areas regarded as primary, either for the individual or for groups as a whole. Cultures may also vary in what areas they regard as appropriate for inclusion into the three categories of territory, which in turn may lead to conflict over their use.

Most recreational facilities, for example, are meant by designers to be public territories. We are all familiar, however, with the phenomenon of a street gang or club taking possession of a park or playground and regarding it as their primary territory. Perceptions of territoriality then, are likely to affect the use of certain areas and facilities.

Territory is an important enough regulatory mechanism that certain cultures have codified aspects of territorial usage. For example, Moslem building codes of North Africa prohibited the construction of any new opening in a wall between residences if it gave visual access to a neighbor *(Prussin 1974).*

Thus, there is a complex pattern by which physical structures, spacing, and psychological factors are combined to derive an optimal level of privacy. If an imbalance occurs between desired and achieved privacy levels, one can expect adjustment to occur throughout the system.

## ENVIRONMENTAL OUTCOMES AND PRODUCTS

The psychological and social processes discussed thus far often contribute to environmental outcomes. Environmental outcomes or products refer to what people create in the form

of cities, communities, homes, and other modifications of the natural environment. A systems orientation reminds us that these products, themselves, can have an impact on perceptions, culture, and the environment.

Tuan *(1971, 1974)* and Rapoport *(1969)* observed how broad cultural views of nature are associated with the design of cities, communities, and individual dwellings. Cultural distinctions in orientation toward such features as earth and sky, and perceived zones of those features, will influence design. Cultures that value the concept of the center, like the Zuni Indians, or high ground, like the ancient Greeks, will design communities that reflect those values. One such interesting dimension relates to a square versus circular conception of nature. The emphasis on the circular or hoop-like qualities of nature shared by most American Indians is illustrated in a quote from *Black Elk Speaks*, a novel about Indian life.

> The sky is round. . .the wind. . .whirls. Birds make their nests in circles, for theirs is the same religion as ours. The sun comes forth and goes down again in a circle. The moon does the same. Even the seasons. . .always come back again to where they were. The life of a man is a circle from childhood to childhood, and so it is in everything where power moves. Our teepees were round like the nests of birds, and these were always set in a circle, the nation's hoop, a nest of many nests, where the great spirit meant for us to hatch our children. (Neihardt, cited in *Tuan 1971:24*).

Rapoport *(1969)* showed the compatibility between culture and home and community design. Some cultures emphasize privacy in the traditional sense of reducing stimulation, perhaps because of population density or for other reasons, and this value is often represented in community design. For example, homes in certain Eastern and Middle Eastern countries (Iran, India, Japan) are often surrounded by walls.

It is true that the physical environment, in terms of topography, climate, and building materials, must also be considered. Although adaptive responses to the physical environment are widespread, they are not universal, and cultural factor can play an overriding role. For example, in India, some homes are oriented to the east for religious reasons, yet entranceways often face uphill, even on steep hillsides.

The fact that cultural influences do play an important part in the design of communities and homes raises an interesting and important issue: What are the implications where a cultural group that is going to live, work, and play in the built environment is not responsible for or consulted in the construction of that built environment? That is, of course, the situation for many subcultural minority groups in the United States. The unsatisfactory nature of many urban low-income housing projects is, in part, attributable to this situation. It has been widely conjectured that such high-rise housing projects did not take into account the lifestyles of their predominantly black residents, especially the importance of a traditionally rich street life. Thus, the residents of these buildings, cut off from the street, unable to observe their children at play, unable to monitor or control the access of outsiders to a primary territory, may rightfully feel frustrated and alienated by an uncomfortable and unsatisfying environment.

Recreational environments, which often have man-made component, must deal with these same complex issues. How large should such facilities be? What level of density should be planned for? How much privacy? Should there be a man-made component at all? It is quite likely, for example, that a Teton Sioux Indian and an urban New Yorker might disagree on the utility and aesthetic impact of the man-made portions of Yellowstone National Park with its roads, lodges, and viewing platforms.

## CONCLUSION AND IMPLICATIONS

This paper has attempted to show how the physical environment, cultural world views and perceptions, environmental behavior, and environmental outcomes are tied together in a web of reciprocal relationships. What, then, are the broad implications of our theorizing for research and application?

Cross-cultural research on environmental behavior is sparse and disconnected. More research is needed in many areas. Especially fruitful avenues seem to be in the study of environmental perception and especially in developmental processes associated with perceptions. The content and organization of environmental perception and cognition will help to highlight the ways in which different cultures approach the environment.

An examination of cultural differences and

similarities in aspects of privacy regulation will teach us not only a great deal about environment but about social behavior in general. Certainly further studies of preferences for different environments will provide us with some readily applicable information for design and placement of man-made features, as well as leading to a broader understanding of our relationships to our surroundings.

The practitioner in environmental design is in a difficult position. The research evidence on which he would base his actions is limited and often contradictory. He is alerted to the complexity of the problem, but given little information with which to solve it. We believe that our focus on cross-cultural factors does offer some tentative suggestions.

It is not new or unique to say that we should preserve what natural resources we have. However, we must add our voices to those already arguing this cause. With each new piece of research, especially in cultural differences, we find new evidence that supports the positive feature of diversity. The fact that the United States is one of the most culturally heterogeneous nations in the world offers a tremendous challenge, with the potential for tremendous rewards. If we are to make use of the diversity of human resources which we possess as a nation, we must allow all voices to be heard in determining our eventual outcomes. This holds for recreational resources as much as for any others. It would be a grave error to build a network of recreational facilities which appeal to only part of the population, while in the process destroying the possibility for future accommodation.

Research should be directed at discovering how the complex set of social, cultural, and individual variables relate to the perception and use of recreational facilities. Only then will we be able to design for all the people, for the present and the future.

## LITERATURE CITED


Altman, I.
1975. **Environment and social behavior: Privacy, personal space, territory, and crowding.** Brooks/Cole, Monterey, Calif.

Appleyard, D.
1970. **Styles and methods of structuring a city.** Environ. Behav. 2: 100-119.

Baxter, J.C.
1970. **Interpersonal spacing in natural settings.** Sociometry 33: 444-456.

Blaut, J.M., G.S. McCleary, Jr., A.S. Blaut.
1970. **Environmental mapping in young children.** Environ. Behav. 2: 335-351

Briggs, R.
1973. **Urban cognitive distance.** pp. 361-388, *in* R.N. Downs and D. Stea (eds.), Image and environment: Cognitive mapping and spatial bahavior. Aldine, Chicago.

Gould, P. R., and R. White.
1974. **Mental maps.** Penguin Books, New York.

Hall, E. T.
1959. **The silent language.** Doubleday, New York.

Hall, E. T.
1966. **The hidden dimension.** Doubleday, Garden City, N.Y.

Hart, R.A., and G. T. Moore.
1973. **The development of spatial cognition: A review.** pp. 246-288. *in* R. M. Downs and D. Stea (eds.), Image and environment: Cognitive mapping and spatial behavior. Aldine, Chicago.

Ittellson, W. H.
1973. **Environment perception and contemporary perceptual theory.** pp. 1-19. *in* W. H. Ittelson (ed.), Environment and cognition. Seminar Press, New York.

Kaplan, S.
1973. **Cognitive maps in perception and thought.** pp. 63-78. *in* R. N. Downs and D. Stea (eds.), Image and environment: Cognitive mapping and spatial behavior. Aldine, Chicago.

Kluckhohn, F. R.
1953. **Dominant and variant value orientations.** *in* C. Kluckhohn, H. A. Murray and D. M. Schneider (eds.), Personality in nature, society and culture. Knopf, New York.

Ladd, F. C.
1970. **Black youths view their environments: Neighborhood maps.** Environ. Behav. 2: 74-100.

Maurer, R., and J. D. Baxter.
1972. **Images of the neighborhood and city among Black, Anglo, and Mexican-American children.** Environ. Behav. 4: 351-389.

Orleans, P.
1971. **Differential cognition of urban residents: Effects of social scale on mapping.** pp. 115-130. *in* R. N. Downs and D. Stea (eds.), Image and environment: Cognitive mapping and spatial behavior. Aldine, Chicago.

Prussin, L.
1974. **Pulani architectural change.** Paper presented at Conference on psychosocial consequences of sedentarism. UCLA.

Rapoport, A.
1969. **House form and culture.** Prentice Hall, Englewood Cliffs, N.J.

Roberts, J. M., and T. Gregor.
1971. **Privacy: A cultural view.** pp. 189-225. *in* J. R. Pennock and J. W. Chapman (eds.), Privacy. Atherton Press, New York.

Scherer, S. E.
1974. **Proxemic behavior of primary school children as a function of their socioeconomic class and subculture.** J. Pers. Soc. Psychol. 29 (6): 800-805.

Sommer, R.
1969. **Personal space.** Prentice Hall, Englewood Cliffs, N.J.

Stea, D., and J.N. Blaut.
1973. **Some preliminary observations on spatial learning in school children.** pp. 226-234. *in* R. N. Downs and D. Stea (eds.), Image and environment: Cognitive mapping and spatial behavior. Aldine, Chicago.

Tuan, Y.-F.
1971. **Man and nature.** Commission on College Geography Resource Paper No. 10. Assoc. Am. Geogr., Washington, D.C.

Tuan, Yi-Fu.
1974. **Topophilia: A study of environmental perception, attitude and values.** Prentice Hall, Englewood Cliffs, N.J.

Westin, A.
1970. **Privacy and freedom.** Atheneum Press, New York.

Willis, F. N.
1966. **Initial speaking distance as a function of the speaker's relationship.** Psychonomic Sci. 5: 221-222.

"Not only is seeing being, to repeat the phrase with which I began, but what we can help others to see must contribute greatly to what they can become." - Philip Merrifield

# Seeing is Being

*by* PHILIP MERRIFIELD, *Professor of Educational Psychology, New York University.*

*ABSTRACT.* Aspects of perceptual development in children are reviewed, and implications drawn for nurturing spatial abilities in urban environments. Emphasis is placed on the visual complexities of man-made urban surroundings, and their utilization in training. Further, attention is drawn to the individual child's imagination as a resource in developing his perceptual capabilities and flexibility of thought.

THE PURPOSE of this paper is to bring together some recent—and some older—thoughts on the role of spatial abilities in the learning and personality development of children in the city. The general emphasis our culture places on language seems intensified in urban environments; there is much more to read; there are many more people to talk to; there are, in many aspects of daily living, more behavioral alternatives that need to be described in language for convenient and rapid communication. Also, even I must admit, there are some things in the urban environment which one would rather not look at, let alone explore visually.

Verbal and spatial abilities tend to be quite independent of each other. This does not mean that if one is verbal, he or she cannot be spatial. Rather, information about whether one is verbal does not help predict whether one is also spatial. By and large, about one-fourth of the general population would be above average on both kinds of abilities, and another fourth would be below average on both. The remaining half of people in general are split between those high in verbal and low in spatial, and the converse. Thus, as I have elaborated elsewhere *(Merrifield 1971),* although our schools operate in such a way as to select primarily children with high verbal ability for further education, the chance is only about 50 percent that a child so selected will also be high in spatial ability. Because it seems that most of our really high-level planning and producing jobs call for both kinds of abilities, we are missing the talents of many children by selecting too high on the verbal scale; it is quite possible that children not selected because of less than superior verbal skills could contribute greatly with verbal skills somewhat above average , combined with high spatial skills. But under our present system, they are seldom challenged to do what they can do best. Changing a system, however, often results in its veering toward the opposite extreme; selecting primarily on spatial abilities might well leave our society as impoverished in language as it is now in space. What is needed is a selection system that is at least two-dimensional or a substantial increase in the emphasis on spatial development within the existing system.

## SPATIAL ABILITIES AND SURVIVAL

"Look out" is probably the most widely used expression of caution; its implication of spatial perception is obvious. But "looking" and "seeing" are different behaviors. To a large extent, it helps a great deal to know what one is looking for. As M. D. Vernon, a noted researcher and theorist in visual perception, puts it:

> It must be remembered also that observers are very prone to make inferences from such fragments which . . . are much influenced by what the observer expects to perceive . . . the focus of attention . . . expectation . . . give rise to the identification of stimuli which in other circumstances would be completely ignored. (*1970,* p. 99).

## In the country

Some city dwellers, it is true, think of the country as a frightening place. They conceptualize a "nature red in tooth and claw" in which the life of natural man tends to be, as one philosopher puts it, "nasty, brutish, and short." For each of those who think thus, there are probably two or three country dwellers who think the same of the city. The point is that the developmental aspects of perception and personality are much more related to what one does with obtained information than to the content of the data themselves.

In a rural setting, one's perceptions can easily be validated. Things tend to be what they appear to be; there are relatively fixed and constant relations between time and space. One is concerned with topography, and maps are representative of distance, elevations, and boundaries. Not all is isomorphic, however: a sudden recollection reminds me that I accepted Kansas as yellow on my map, because I lived there and could associate that color to the wheat fields at harvest time; but because Missouri was maroon, my first trip to Kansas City was something of a disappointment.

Spatial ability, perhaps because of these almost-constancies all around, often seems to be better developed in those whose early life has been spent in a rural, or at least nonurban, setting. It has been noted for many years that an unusually high proportion of engineers and scientists come from the Midwest; currently, perhaps because many aspects of physics and chemistry are less spatial than they were a generation ago, the proportions in "pure science" seem closer to the population proportions, but the predominance persists in engineering. In my own field of psychology, more experimentalists than would be expected come from the Midwest, while more clinicians come from urban areas. This phenomenon, of course, may be related to the possibility that if one wishes to make changes in the Midwest, it's more convenient to manipulate—in a positive sense—the natural environment, while in the city it is often the interpersonal environment that is most in need of adjustment.

## In the city

To me, a major aspect of urban living is time, and time-related events; although we value our landmarks, we tend to verbalize about them and to appreciate their historical and cultural significance as much as, and sometimes more than, their form or exact location. One is more concerned with topology than topography, and a desired street is "third stop on the A train" rather than a specified intersection. It was Gouverneur Morris, a dominant citizen early in our nation's history, who conceived the idea of smoothing off Manhattan Island; he did so, from the naturally flatter southern portion up to near what is now 34th Street. The impact of this ecological change on the development of the City was profound, as one can visualize by considering whether the current activity could take place on terrain like that in Central Park. Even quite recently, a submerged creek was discovered still running in the smooth-over area—unfortunately, it was precariously close to a computer installation in the basement of a new building.

A diagram of the subway and bus routes of a major city, particularly New York, brings home the meaning of "arterial". To speak of the anatomy of a city is not a far cry from reality, and surely the subways make a good analogy for the circulatory system; if I may be permitted a bit of figurative language, the train pulses from stop to stop, some of the bodies it carries leave full of energy for work, others leave tired from previous efforts, and bodies waiting—some tired, some energized—get on to ride elsewhere. Or, as Ezra Pound (1916) described the scene in the Paris Metro, ". . . these faces in the crowd, Petals on a wet, black bough."

It has been of great interest to me to become aware, over the past several years, of how much a city is a collection of neighborhoods, as well as an integrated whole. It may be another example of the limits to attention span which has been characterized as the "magic number 7, plus or minus 2." I have not counted up the significant boundary indicators for neighborhoods, but I would predict that whoever does will find their number between 5 and 9; I would make the same prediction whether the neighborhood were in a rural setting, where it might well cover substantial distance, or in a city, where it might be homogeneous and coherent over only a few blocks. Humans tend to limit the psychological size of the configurations they attend to, and simultaneously to explore in great detail within that configuration. Geertz *(1975)*, an anthropologist, tells us of the differing names

by which a man may be known, depending on where he is at a given time; Levi-Strauss has long emphasized the attention that "primitive" tribes give to vegetation used for food and medicine; most of us have heard of the many kinds of snow differentiated in functional ways by the Eskimo language. It is believable that a Manhattan urchin, when told by a tourist who was seeking directions to distant areas (Westchester, Nassau County, Staten Island) that "You sure don't know much," responded "But I ain't lost, mister!" One can be sure that the child was intimately familiar with most essential aspects of his neighborhood, including perhaps which side of the street to walk on at different times of day. On the other hand, one may wish to say a word for the visitor, as Leverett Saltonstall did in 1939, when he described, "The real New England Yankee" as "A person who takes the midnight train home from New York."

## Summary

In either setting—and of course both have been described with some exaggeration, for emphasis on their differences—the key to maintaining one's self is attention to both configuration and detail, essentially to the innate complexity of living. Vernon *(1970)* puts it nicely:

> Nevertheless we have suggested that from infancy upwards the child builds up complex integrations, or schemata, by means of which what is perceived at any moment is related to memories and knowledge . . . immediate perception is modified and corrected to give rise to more veridical impressions of the environment . . . in all complex stimulus situations cognitive processes of inference, reasoning and judgment may be employed in coding incoming information. (p. 240)

## PATTERN RECOGNITION

Among the more intriguing of the spatial abilities is that (or those) involved in what is usually called "pattern recognition." There may be but one aptitude that is mostly reponsible for this phenomenon, as some earlier theorists alleged; on the other hand, this behavior, like problem-solving and creativity, may be really the resultant of a complex of aptitudes *(Guilford 1967)*, each of which is necessary but none sufficient to the challenge of discovering the pattern in a series of events, a configuration of lines, a confluence of gully washes, a rolling roiling skyful of clouds. Smith *(1964 : 217)* quotes K. Lorenz, the Gestalt theorist, in support of the idea that the exercise of this complex of aptitudes is something awesome to behold and, at the same time, tremendously rewarding to the one who is able to "see the picture."

Most child psychologists and many teachers have heard of the relatively recent and still continuing work of Witkin and his colleagues *(Witkin, Dyk, Faterson, Goodenough and Karp 1962)* on psychological differentiation. In these studies, the phenomenon of interest is whether the child is able to discern figure from ground or, in less esoteric language, the object or meaningful pattern from its background or surrounding context. A major device in assessing children's aptitudes along this line has been the Embedded Figures Test, in which the child is asked to look at a number of different pictures and, in each one, find a familiar shape, e. g. a triangle (figure 1).

This task could serve as a test item for measuring the aptitude factor that Guilford

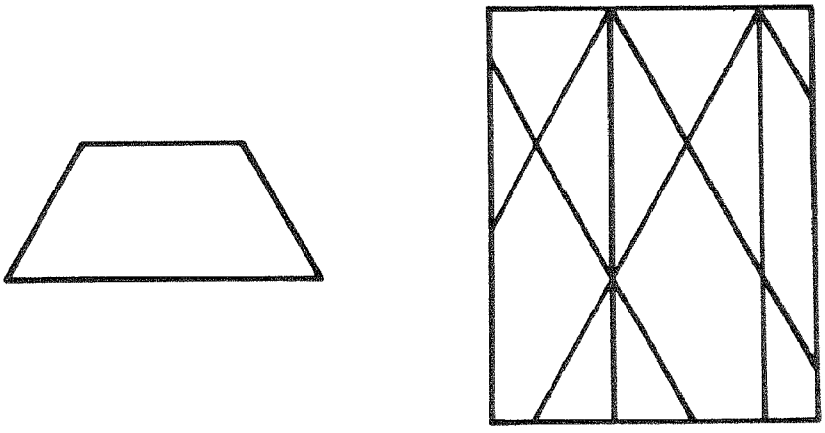


**Figure 1. An example of an embedded figure.**

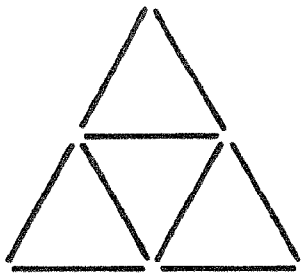


**Figure 2. An exercise in spatial flexibility.**

*(1967)* refers to as "convergent thinking about figural systems." His work on the definition and measurement of intelligence is a landmark in the field, but the categories of thinking processes, varieties of context, and types of format are too complicated to discuss further here. Those interested in techniques for developing spatial abilities in children should certainly consult Guilford's work. To return to figure 1, the trapezoid on the left is hidden in the rectangle on the right. It is the same size and shape in both. Its location in the rectangle is described in a note at the end of this paper, for those who prefer to look rather than see.[1] A similar task (figure 2) also involves figural material and the disembedding of a specific shape. In addition, however, it requires greater consideration of alternatives, and a somewhat looser approach to the definition of the task. In the figure, there are four small triangles. It should be easy for many to see how to remove two of the little sticks and have only three triangles, with no sticks left over dangling and no triangle incomplete. Taking off any corner will do the job. Now consider the possibility of removing two sticks and leaving only two triangles. The key to this problem is in the same note as that for figure 1. The study of illusions, such as the staircase which sometimes leads up and sometimes down, and the Necker cube, and others no doubt well remembered from introductory courses in psychology, is another part of this emphasis on transformations in space, on redefinitions in conceptual areas. Transformations and redefinitions, in turn, are central to problem-solving and creativity in any field.

Many psychologists have attempted to relate performance on spatial tasks such as the embedded figures to personality traits. The general run of the literature suggests that those who are poor at the task, whom Witkin would call field-dependent, are, more often than not, sensitive to their environment and adaptive, but in extreme cases overly conforming to the point of being self-destructive. In contrast, those who do well (field-independent) are believed to be more objective and assertive and to have strong ego boundaries; in the extreme they, too, become maladaptive, exhibiting such behaviors as aggressiveness, heedless insensitivity, and sometimes just plain stubborness *(Smith 1964 : 238)*.

Psychology has traditionally attempted to reduce its explanatory discourse about behavior to the neurological level wherever possible. Although a great deal of the research in spatial abilities is concerned with "softer" measures such as aptitudes and temperament traits, the Gestalt emphasis has always had a substantial concern for neurological analogs at least, if not full-fledged explanations. A recent article suggests that exposure to complex surroundings early in life can produce changes in neurological structures, changes that seem to be related to pattern perception. Greenough *(1975)* states:

> It seems clear that the brain's anatomy can be altered by a variety of experiences. Almost certainly, the new synaptic connections which we and others have found following various environmental manipulations do play some role in the functioning of the brain. (p. 46)

Greenough reports (table 1) that differences in the amount of neurological growth seemed to be related statistically to the environmental complexity to which young rats were exposed during the first weeks of their lives.

One should note, especially for our purposes here, the substantial proportions of variance attributable to differences between litters, and to the interaction effects of litter and environmental condition. These findings strongly suggest that there are major differences between individuals in this kind of neurological develop-

**Table 1.—Estimated proportions of variance accounted for by treatment variables**

| Cell type | Environmental condition | Litter set | Interaction | Total |
|---|---|---|---|---|
| Layer 2 pyramidal | 11.8 | 6.8 | 25.8 | 44.4 |
| Layer 4 stellate | 17.3 | 22.5 | 18.9 | 58.7 |
| Layer 4 pyramidal | 11.4 | 23.8 | 21.8 | 57.0 |
| Layer 5 pyramidal | 18.0 | 14.8 | 11.0 | 43.8 |

From Greenough 1975: 43.

ment. Still, the pattern is striking, and the import of the influence of experience on development at the neurological level turns much of the argument for innate capability around; caution must be taken, however, to differentiate between that argument and the hereditarian argument with which it is sometimes merged; the latter, of course, gains potential support from the large individual differences found. If individual differences persisted in strains from parent to litter, then of course the hereditarian position would be strengthened. At any rate, in humans, trainability (which may have hereditary components) has not yet, in my opinion, been matched with training sufficient to capitalize fully on the potential productivity of each individual in what is called the "normal" population.

At the other end of the continuum, one notes the studies of sensory deprivation, either purposeful in the laboratory or accidental, as in many large institutions. These findings suggest that children who are not frequently and appropriately stimulated through exposure to culturally relevant patterns fall rapidly behind their age peers who have lived in more complex environments. As we noted earlier, it seems to be the complexity rather than the subject matter per se that contributes to the development of such pervasive and necessary clusters of aptitudes as pattern recognition *(Vernon 1970).*

## TRAINING

But, one may well ask, how can we begin to train children without substantial equipment? How can we mount and manage the field trips which would carry city children to complex natural environments? How can we create, in the city, sufficient complexity to be stimulating, such as different ecological complexes, different varieties of plant and animals and birds? As a partial answer, or at least a comment, let me recall that gentle lady, Emily Dickinson, "I thought that nature was enough, Till human nature came," and suggest that in the cities the human problems are sufficiently complex to challenge us all.

More directly to the point, there are two major sources of complexity available to the urban child. One is the urban environment itself, of which I have spoken briefly and to which I shall return. The second has been quite properly emphasized by Richard de Mille. He speaks forcefully of the development of human imagination, and has provided an imaginative guide for teachers, parents, and interested adults to use with children.

> Visualization enters into such disparate activities as painting, sculpture, choreography, architecture, astronautics, engineering, and photography. It is also helpful in playing baseball, moving furniture, and driving a car . . . Despite the wide range of differences, visualization is a common human ability. Furthermore, it is very unusual for anyone, especially a child, to say that he cannot *imagine* anything. A person who can *imagine*, or *pretend*, can play imagination games. In a group of children playing the games, we may be sure that some are experiencing more vivid, exact, and constant images than others. But each is imagining in his own way. That is all that is necessary. *(de Mille, 1973 : 23-24)*

In his book, he provides several intriguing exercises which are not inappropriate for adult participation. Here is a portion of one of them.

> When we walk around, we are walking through air. You can't see it, but if you swing your hand around, you can feel it. Air is easy to walk through . . . Trees or bricks or rocks are too hard to walk through, except in your imagination.
> This game is called HARD.
> Be outdoors, walking. / Walk through some tall grass. / Walk through some bushes. / Walk up to a thick hedge. / Walk right through it. / Walk up to a big tree trunk. / Walk right through it.
> Find a big rock. / Walk into the middle of it and look around inside it. / Have it look rocky in there. / Walk out on the other side of the rock. *(de Mille, 1973: 159-160)*

With regard to the urban environment itself, where would you find a beaver on the Lexington Avenue Subway? Perhaps in Van Cortlandt Park, just beyond the northern terminus, but definitely in a ceramic tile in Astor Place. The imagination drives on, with an assist from history, from Astor Place to Astoria, Oregon, where in 1811 a young man who would have to be called an "eager beaver" (if that slang is not completely old hat) established a trading post that led to a railroad empire. Where are there gargoyles, and lions, and other fancies in fabricated iron and stone? Almost everywhere, or at least within a short walk. The visual complexities abound, outside as well as inside museums. It is for those who wish, to see; it is for those who see, to teach others.

Shakespeare, in *As You Like It*, speaks through his favorite character of "books in running brooks." Our rivers—East, Harlem, and Hudson—are hardly brooks, but their tides have contributed much to the affairs of men. And as for "sermons in stones," see the glimmery

shadows contrasting with spears of brilliance as morning breaks behind St. Patrick's Cathedral, or as light pauses momentarily on the spires of St. John The Divine. Later in the day, the red blush of sunset on midtown Manhattan's western slope rivals the great displays in western canyons. And finally, on a clear night, the moon-silvered skeins supporting Verranzano's bridge seem almost too frail for their task, yet beautiful enough that one considers not caring about strength. These are the results of man's imagination, man's vision, man's application of his spatial aptitudes. Not only is seeing being, to repeat the phrase with which I began, but what we can help others to see must contribute greatly to what they can become.

## LITERATURE CITED


De Mille, R.
1973. **Put your mother on the ceiling.** Viking Press, New York.

Geertz, C.
1975. **On the nature of anthropological understanding.** Am. Sci. 63: 47-53.

Greenough, W. T.
1975. **Experiential modification of the developing brain. Am. Sci. 63: 37-46.**

**Guilford, J. P.**
**1967. The nature of human intelligence.** McGraw-Hill, New York.

Merrifield, P. R.
1971. **Using measured intelligence intelligently.** *In* R. Cancro (ed.): Intelligence. Grune and Stratton, New York.

Smith, I. M.
1964. **Spatial ability.** Knapp, San Diego.

Vernon, M. D.
1970. **Perception through experience.** Barnes and Noble, New York.

Witkin, H. A., Dyk, R. B., Faterson, H. F. Goodenough, D. R., and Karp, S. A.
1962. **Psychological differentiation.** Wiley, New York.


[1]The trapezoid in Figure 1 has its right arm on the top of the rectangle; it is tilted up and to the left about 50 degrees from its initial position. In Figure 2, no one said the triangles had to be the same size. Remove any two of the three inside sticks.

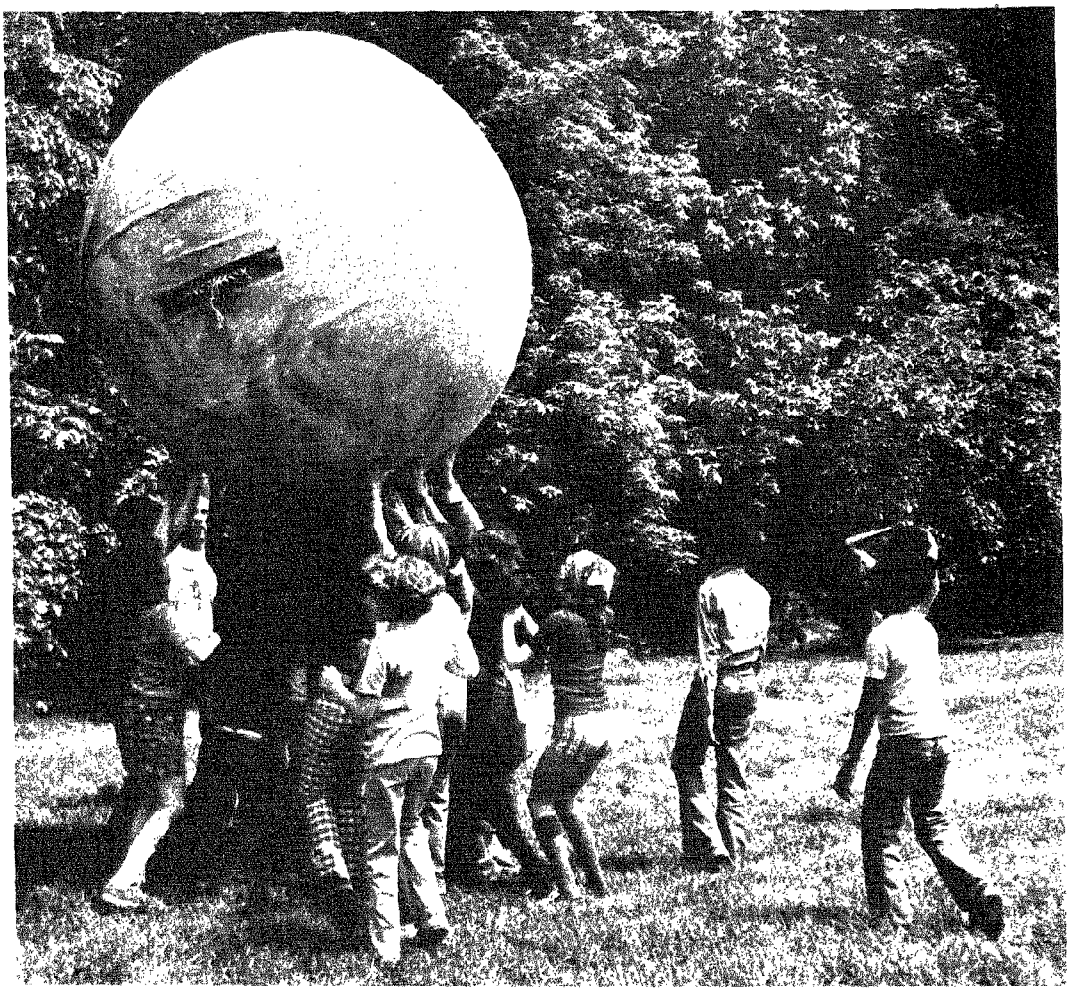


PHOTO BY MICKEY SPENCER

"Primitive man's response to biological cycles, his need to form cognitive maps and to explore the unknown, his need for perceiving patterns and making sense of his surroundings, his psychophysiological preference for elbow room, for natural ionized air, and for freedom from excessive noise—all are characteristic of modern man" -B. L. Driver and Peter Greene

# Man's Nature: Innate Determinants of Response to Natural Environments

*by* B. L. DRIVER *and* PETER GREENE, *Recreation Research Project Leader, Rocky Mountain Forest and Range Experiment Station, USDA Forest Service, and graduate student, recreation resources, Colorado State University, Fort Collins, Colo., respectively.*

*ABSTRACT.* Man's sensory mechanisms evolved by natural selection in natural settings and humans survived as a species not so much by the "club in the hand" but by the "plan in the head." That plan or abililty enabled man to remember, interpret, and predict environmental events. Humans have an innate capacity (but not necessarily a developed ability) to find most natural stimuli compatible with their psychiological makeup. Many urban people do not have the familiarity and experiences necessary for them to be comfortable in natural environments, and therefore cannot enjoy fully one of their "human natures." Opportunities to discover and rediscover innate human natures should be encouraged.

The nighthawk sometimes speaks to me
Of nature's beauty and where I fit
He tells me of our place in time
Of his, and yours, and of course, of mine
And when he's done, just slips away,
To wait the coming of another day.

—from "Our Place in Time"
in People, Places and Spaces
by Arthur W. Magill, 1975.

## BASIC PREMISES AND OVERVIEW

DOES THE ANIMAL *Homo sapiens* have a nature? The answer appears to be yes, he has several. It is his nature to walk erect, to rely primarily on his visual sense, to be influenced considerably by social learning, and so on.

Two basic premises underlie the central argument of this paper. The first is that humans have another nature which has developed during thousands, even millions, of years of evolution. This nature is man's capacity (but not necessarily a developed ability) to find most stimuli from temperate natural environments (such as those in which man evolved) compatible with his physiological makeup. To put it differently, the sensory mechanisms (eyes, ears, noses, taste buds, etc.) of humans developed while they lived in relatively natural surround-

ings. It makes sense, therefore, to propose that the process of natural selection has given human beings a sensory system that is well equipped to handle the normal range of stimuli encountered in natural settings.

The second premise is founded on a distinguishing characteristic of man's evolution—his ability to think, remember, and predict what will happen to him. The premise is that man needs a certain amount of familiarity with, or knowledge about, his surroundings before he can function effectively in them. Therefore, before man can "enjoy" natural environments compatible with his nature, he must have a necessary level of familiarity with, or understanding of, these environments.

Readers will interpret these assumptions about man's evolution as reasonable conjectures, interesting hypotheses, or irreverencies according to their individual beliefs and values. Our view is that there is considerable evidence to support the propositions that (1) much human behavior is still mediated through man's evolutionary inheritance, and (2) modern man has a strong innate predisposition toward nature which is activated by familiarity with, or understanding of, natural settings.[1] It is the purpose of this paper to examine the evidence in support of these two propositions.

This paper is not a plea for a return to nature. We share most other people's desire *not* to live in caves, hunt for most of our food, fight off rodents and insects, engage in tribal wars, and do without many of the comforts, conveniences, and cultural endowments of modern society. We do feel, however, that much more can and should be done to maintain environments that offer the advantages of a technological civilization *and* the equilibrating values of natural areas described in this paper.

## MAN'S BIOLOGICAL REMEMBRANCE

Cro-Magnon man, who lived as a hunter 30,000 years ago, is believed to have been almost identical to modern man mentally as well as physically. He stood upright as we do, had the same size body as ours, an cranium at least as large, and used tools that fit our hands *(Pfeiffer 1969)*. Within this evolutionary context, Iltis *(1966)* has stated that "man is a complex bundle of biological adaptations; his eyes and ears, his brain and heart, even his psyche are the evolutionary adaptations of the human organism to nature." Or, as Dubos *(1968)* put it, there are many examples in everyday life of man's "biological remembrance of things past." Past and current man's response to certain basic biological cycles will be mentioned as the first of several such examples.

Because primitive man lived in intimate contact with nature, his activities were greatly influenced by changes from light to darkness and by changes of the seasons. These diurnal, lunar, and seasonal cycles all had their effect on bodily and mental functions of man. Remarkably, these biological cycles still persist in modern man, even though such things as light and temperature in our homes and offices can be controlled. For example, after a rapid change of longitude from jet travel, we experience physical disturbances because the body can't adapt rapidly enough to the dislocation of its day/night rhythms. This is not a subjective reaction, but is caused by the secretion of hormones controlled by the biological clock *(Dubos 1968)*.

Another example of human behavior which has its roots in the distant past is the so-called "wisdom of the body" *(Cannon 1932)*, reflected in the fight-or-flight response. When prehistoric man was faced with something threatening or unknown, hormonal processes in his body would prepare him for combat or escape. This was a critical survival mechanism then. This mechanism survives in modern man, even though these metabolic changes do not necessarily serve survival purposes during a verbal conflict or while attempting a mental task.

Other human "quirks", difficult to comprehend, can perhaps be best understood within an evolutionary context. Examples include our "herd psychology" or gregariousness, our omnivorous eating habits, our apparent desire to climb to high places for surveillance and protection, and the play instinct. While man is capable of adapting to many conditions not present in

[1] For brevity, we will not attempt to explain our concept of a "natural" setting. To clarify somewhat, however, we view man as natural but also perceive most developed areas that are *highly* man-influenced as not very natural (at least as man generally tends to influence them). Also, we do not hold out wilderness as the only natural area. To us a potted plant is also natural, but it is less so than a similar plant growing in a wild area. So, we are referring to the *relative* degree of man's influence.

his original environment, he cannot stray too far from or disinherit his ancient lineage *(Dubos 1968)*.

The East African savannahs, our ancestors were accustomed to, were no doubt quieter and more pleasant to the human ear than modern-day industrial districts. Primitive man had to rely more on his ears to pick up sounds of possible danger than we do today *(Berland 1970)*. However, he didn't have to deal with the loudness of some of our technological inventions.

A tribe called the Mabaans, now living in the bush country of Sudan, are a case in point *(Rosen et al. 1962)*. This band of peaceful people, who live in a manner resembling that of the late Stone Age, inhabit an environment that is dramatically quieter than those of most other human populations. After administering a battery of physiological tests to these people, Rosen found them to be extremely healthy, with a total lack of hypertension, coronary thrombosis, ulcerative colitis, acute appendicitis, and bronchial asthma. Also, unlike most Westerners, they had the same blood pressure at age 10 or 90, and suffered very little hearing loss in the higher frequencies with advancing age. In fact, the Mabaans had better hearing than any other group of humans ever tested. While variables such as diet, exercise, and heredity are influential in the Mabaans' excellent health and hearing, Rosen found that when the Mabaans moved north to noisier urban areas they became prone to high blood pressure and coronary thrombosis. A variety of environmental influences certainly caused these changes. Nevertheless, it seems that the Mabaans were better adapted to the familiar and natural environments in which they lived before they moved north.[2]

Another example of our biological inheritance is the influence of ions and electromagnetic fields on our behavior. As a result of evolution, our normal biological rhythms are established and controlled by natural electromagnetic and electrostatic fields *(Logan 1974)*. Air ions, both negative and positive, have been shown to produce changes in body tissues that yield compounds necessary for body functions.[3] Negative ions have been used successfully in treating burn patients for pain, restlessness, and infection *(Krueger 1973)*. Claims have also been made that negative ion generators cause rises in blood pH and carbon dioxide, which stimulate the adrenal and thyroid glands. This allows for lower blood pressure and promotes growth and energy *(Dubos 1965)*.

On the other hand, ion imbalance might explain a wide range of human problems, including respiratory infections, enervation, and a loss of mental and physical efficiency, *(Krueger 1973)*. Man often encounters ion imbalances, especially negative ion depletion, in modern city life because he spends so much time indoors; and when he is outdoors, artificial electric fields and air pollution interfere with the ion ratios. Researchers have proposed that air ion concentrations and ratios be maintained at levels approximating those existing in nature *(Krueger 1973)*. Even though man, with his technological progress, has been able to escape somewhat from his original ecological niche (by living artificially), his body still requires many of the features of his nature-ordained background to function properly *(Logan 1974)*. Mountain air, for example, has been said to be so refreshing because of its relative concentration of negative ions *(Dubos 1965)*.

Another basic characteristic of man is his requirement for living space. Common indications of our need for personal space are the erection of garden walls and "no trespassing" signs, the staking out of claims on beaches, and the resentment we show at intrusions *(Hall 1966)*. Each kind of animal has evolved to exist in a certain amount of territory, and when this space is too severely curtailed the consequences can be serious. In commenting on the problems of humans living in densely populated areas, Leyhauser *(1965)* has stated, "the mental health of the individual is in danger and eventually will break down if adaptability is stretched too far beyond the limits set by evolutionary adaptation".

If we are each to have an amount of space equivalent to that each individual had when the human race evolved, our parks would have to

[2] Of course, an argument could be made that had the Mabaans lived in cities in excellent states of health, they might have developed high blood pressure and other disorders if they were moved to unfamilliar, less urbanized areas. But those data do not exist, and the literature on human stress tends to refute its plausibility.

[3] As an oversimplification, negative and positive air ions refer to the electrical charges associated with specific atoms or groups of atoms found in the atmosphere.

cover thousands of square miles *(Morris 1969:39)*. Instead, urban residents often battle bumper-to-bumper traffic on trips into the countryside which are taken, at least in part, to be less cramped up for awhile. In fact, desires to leave the city and its crowded conditions temporarily have been documented as important reasons for engaging in many outdoor recreation activities *(Driver and Knopf 1976)*.

## THE EVOLUTIONARY NEED FOR FAMILIARITY WITH ONE'S SURROUNDINGS

One particularly distinguishing set of characteristics that man acquired from his evolutionary past is his ability to process information effectively. Stephen Kaplan *(1973a and b)* has done considerable work in exploring this topic. He has surmised that prehistoric man's capacity to identify the current situation rapidly, predict what might happen next, and then act appropriately where critical for survival. Without this ability to store information and see relationships, it's unlikely that the relatively physically weak human would have been able to withstand environmental dangers. He had to explore the unknown and mysterious, and constantly formulate cognitive maps or mental representations of his surroundings. Because man was surrounded by various kinds of natural stimuli such as forests, cliffs, flowing water, and wild animals for millions of years, he gradually grew accustomed to many of the features and relationships of that kind of existence. This is not to say that he was able to identify and predict under all circumstances, but after prolonged interacting and learning in a particular environment, those who survived attained a certain degree of competence or mastery *(White 1959)*. In circumstances that man could not comprehend, or where he could not form a cognitive map, he probably felt anxious and uncomfortable.

Kaplan suggests these same principles are quite evident today, and that man is "happiest" under those conditions where he can explore, predict, and generally expand his knowledge and skills as a complex information-processing organism. This claim is supported in a study by Kaplan and Wendt *(1972)*, in which subjects were asked to indicate their preferences for various slides of nature and urban scenes. Interestingly, the subjects were particlularly attracted to those scenes that had an identifiable nature content. In fact, the least preferred nature slide was still favored over the most preferred urban slide. After analyzing the preferred slides, Kaplan and Wendt drew the conclusion that people's preferences were based on three major aspects of the scene, one of which is particularly relevant to the theme of this paper. That dimension, called "legibility," was defined by the authors as the ability of the viewers to "make sense" out of the scenes.[4] The point is not only that there seems to be more ligibility and coherence in natural settings than in urban ones, but that we need to have some familiarity with and comprehension of an environment before we can feel comfortable or competent in it. This need to know what is happening to us is common to everyone. As complex problem-solving and information-processing organisms, we need reasonable understanding of, or familiarity with, our many surroundings (whether they be play, work, or other environments) before we can function effectively in them.

This discussion of our seeming preference for scenes which are coherent and identifiable does not mean that we are most content in a never-changing, sterile environment. Quite to the contrary, Kaplan and Wendt found that the students they studied had a preference for complexity and mystery, or novel elements, as well. One popular slide showed a path disappearing around a bend, leaving the observer unsure of the destination. That slide, in which there was promise of the observer solving the mystery with further exploration, seemed to delight the subjects. One can conjecture that this attraction is related to ancient man's need to investigate for survival purposes.

John Platt *(1961)* expands on this notion by saying that the mind's grasp and enjoyment of the external world rest on the neuropsychological necessity of perceiving novelty and pattern. Novel situations of every variety probably bombarded early man at an unprecedented rate. He constantly had to search for some kind of order in the flux of strangeness, if he were to survive. Our brains and sensory

[4] The findings of this earlier work have been supported and refined by Kaplan's later *(1975)* research.

mechanisms might have thus evolved to deal with a "continuous novelty of pattern." Not only do our minds "enjoy" patterns, they also seek change from conditions of stimulus-deprivation *(Platt 1961)*.

In summary, humans need familiarity and predictability, but there is also a preference for novelty, optimal complexity, regularity, and pattern as well. Gestalts and patterns are particularly important because, with the astronomical number of input channels from all the senses, it would be impossible to perceive every element individually. "There's a fundamental axiom that any many-element receptor system is necessarily a pattern-selecting or pattern-perceiving system" *(Platt 1961)*. In the biological, natural world there are a multitude of examples of symmetry and pattern. Man often finds these shapes and forms beautiful, but it is these patterns within larger patterns and the elements of tolerable surprise and uncertainty that distinguish this kind of pattern from that of a series of geometric homes. The saying that "nature abhors a straight line" is not totally without meaning.[5]

## TRANQUILITY AND COMPETENCE

For many years our literary tradition, from Thoreau, Melville, and Twain, up to and beyond Hemingway and Frost, has been extolling the wilderness as "spiritual tonic" and at least a "momentary stay against confusion" *(Marx 1967)*. The spiritual tonic values of nature, especially the normative concept of "living in harmony with all creation," are described in the religious writings of all cultures, both primitive and modern. Just as historically pervasive in the literature has been the theme that nature provides opportunities for emotional release and integration, and a chance to recover psychic equilibrium. This relates to William James' *(1892)* notion of involuntary attention, which essentially means that a person can perceive his surroundings without expending the sizable amounts of physical or psychic energy required when he is voluntarily absorbed in directed concentration. For example, a hiker might just let his mind and senses wander and involuntarily become enraptured with the rushing waterfall, the snow-capped mountains, the fragrant flowers, or the song of a bird. Nothing is forced, and as Rachel Kaplan *(1973)* suggests, we can thoroughly relax and temporarily forget about the worries or cares of the day under these conditions. Research findings reported by Driver and Knopf *(1976)* support Kaplan's suggestion, in that many outdoor recreation activities seem to help people cope temporarily with the strains of mental activity, role overload, and other stresses experienced in home and work environments.

These ideas about the soothing therapeutic values of natural environments are quite prevalent today. Perhaps many of these feelings are directly related to our genetic preferences. Major cities have been described as too frequently burdening individuals with a stimulus overload, monotony, and a lack of identity *(Lynch 1960, Milgram 1970)*, whereas natural areas, especially wildlands, are generally associated with a low level of noise, few conflicting or ambiguous stimuli, a wide diversity of patterns, and a relatively high rate of predictability. This ability to feel mentally satisfied with one's environment is extremely important, because the failure to do so can be a cause of physical and psychological stress *(Howard and Scott 1965)*. The critical question is: to what extent do we have to escape to distant natural areas to cope and avoid temporarily the stresses experienced in home environments?

In addition to finding natural areas relatively tranquil, humans might also find it relatively easy to learn certain skills in these environments. Along this line of thought, Bernstein *(1972)* has proposed that attaining competence might be easier in selected outdoor settings than in alternative urban ones, because people can be more concerned with mastering skills of their own choosing than with trying to conform to social constraints. With the lesser role expectations and a greater degree of behavioral flexibility, and with fewer confusing and traumatic stimuli, the selected natural area provides strong possibilities for positive reinforcement. In other words, a person might be more likely to be rewarded for his own actions in this kind of setting. Bernstein suggests that this

[5] Man's architecture can design visually attractive patterns and gestalts with optimal levels of complexity, novelty, and so on. The problem is that, frequently because of economic considerations, most of our designed environments tend to lack these attributes.

would lead to an enhanced sense of self-worth and would better prepare a person to cope under more formally structured situations that do not allow the same degree of personal discretion.

It is not surprising that Outward Bound Schools and therapeutic camp settings have claimed to be making headway in rehabilitating antisocial and mildly disturbed individuals. Also, the possible benefits are not limited to those who are viewed socially as unnormal. Marans et al. *(1972) and Scott et al. (1973)* found that participants in the Youth Conservation Corps felt they were better people for having participated, and not only because of enhanced outdoor skills and increased abilities to relate to their peers and to adults. Rachel Kaplans's *(1974)* evaluations of an Outdoor Challenge Program in Michigan's Upper Peninsula have led her to suggest that increased competence with respect to the skills required in the woods has a relationship to aspects of self-esteem, such as "a greater sense of concern for other people, a more realistic outlook on one's own strengths and weaknesses, a greater self-sufficiency in the uses of one's times and talents, and a rather positive view of oneself." Other natural areas less distant from the cities might offer similar advantages.

While there seems to be no clear-cut evidence or consensus in the playground literature as to what environment is best suited for children's play, a growing number of authors at least intuitively sense the value of natural areas *(Aiello et al. 1974, Marcus 1974)*. Since a child's play is an important part of his cognitive development *(Piaget 1962)*, it is possible that the area and objects of play are suitable for promoting growth and a healthy self-image. Natural areas seem to be valuable to children as places where they can explore and learn about themselves and natural systems *(Aiello et al. 1974)*. They have good atmosphere for developing self-confidence *(Bernstein 1972)*, and as mentioned throughout, are accommodating to the human organism.

## NEED FOR FAMILIARIZING EXPERIENCES

Because many people now live in urban areas, techniques must be developed and applied to allow them the necessary familiarization with natural areas. It was Devlin's *(1973)* hypothesis that if children were provided with prior orientation, their uncertainties and fears would be lessened. Her thinking is supported by Zajonc *(1968, 1974)*, who found that repeated exposure could overcome an initially negative stimulus effect and enhance an individual's positive evaluation of that stimulus. Devlin felt that an experimental group of children who were familiar with the area and had help in formulating cognitive maps would be more comfortable and competent in a chosen natural area than a control group. While her study did not demonstrate that point, subsequent studies do lend support to her hypothesis about the value of prior knowledge *(R. Kaplan 1975)*.

It is also important that the familiarization begin at an early age. Growth and development is very rapid during these formative years, in contrast to later years when habits and environmental tastes tend to stabilize *(Bloom 1964)*. Individuals become conditioned and are likely to select surroundings that are not threatening and harmonize with established interactional patterns. In this regard, the attitudes of parents and the environment that children are accustomed to have a great influence.

In a study of young people's outdoor activities in a suburban residential area, Aiello et al. *(1974)* found that neighboring families of similar economic and educational backgrounds had different feelings about the suitability of natural areas for their children's play. While some parents actively encouraged their children to play in the woods or around the pond, others, who expressed an unfamililarity with nearby natural areas, strongly discouraged their youngsters from visiting these places. Similarly, Marcus *(1974)* assumed that a child's preference for man-made play surfaces (asphalt) as opposed to natural ones (grass) may be related to the environment in which the child was raised. Urban children accustomed to playing on concrete school yards and alleys were much more comfortable and imaginative in the use of those areas than rural children, who felt a greater attraction for, and mastery-competence with, soil, grass, and trees. The role of exposure, learning, and conditioning, then, is critical in determining a child's habits and attitudes, and for that matter those of his parents. If the possible benefits of natural areas are to be sought, the child must develop habitual behaviors in those environments. Inner-city children, in particular,

often have little exposure to or opportunity to experience forests or other areas that are predominantly natural. Familiarizing experiences are especially needed by these youths who could be missing a very important dimension of being human.

## CONCLUSIONS

We have discussed selected environmental conditions that have influenced man's evolution and some of the adaptations he has made to these conditions. At the same time, we have identified some of the characteristics of these adaptations that are evident in man today. Primitive man's response to biological cyclen, his need to form cognitive maps and to explore the unknown, his need for perceiving patterns and making sense of his surroundings, his psychophysiological preference for elbow room, for natural ionized air, and for freedom from excessive noise—all are characteristic of modern man. It has been suggested that these needs can be met today in natural surroundings, similar to those of our evolutionary forebears. *Hypotheses* have been offered about the calming effects of natural areas, as well as about the calming effects of natural areas, as well as about a greater opportunity for developing competence and for building self-confidence. But it has been emphasized that, even with these predispositions and these side benefits, adequate familiarizing and learning are necessary.

It is clear that man has adapted to an urban life without many natural stimuli, but we wonder how healthy this is for him. Is there a more optimal environment for human "being?" Iltis et al. *(1970)* has proposed that there should be a compromise between environments where humans have maximum contact with the natural conditions in which their ancestors evolved, and ones offering the comforts and conveniences of modern technological society. If one accepts this proposal, we should strive to redesign urban areas with more of an eye toward interspersing natural and man-made elements,[6] and we should educate adults and children about the potential values of the outdoors.

One reviewer of this paper pointed out appropriately that we have taken a rather "sanitized" view of nature, in that the unattractive things were not mentioned. These could include biting insects, both hot and freezing temperatures, subsistence living with hunger, the fears and stresses caused by natural catastrophies, and the possibility that man might have inherited his violence from the killer ape. He also suggested that good music and other art forms have their place, too.

We agree, and iterate that this paper *is not* a call for a return to nature. Instead, our feeling is that opportunities to discover and re-discover the many human natures should be nurtured. The provision and maintenance of opportunities to realize culturally learned, or conditioned, natures should not constrain learned, or conditioned, natures should not constrain too severely other opportunities to realize innate natures. As with many problems, the solution is one of balance in deciding how far we can go in either direction and still capture the desired benefits of each direction.

[6] Although costly, it can be done. An excellent example is the riverfront development in San Antonio, Texas.


### Acknowledgments

Special thanks go to Stephen and Rachel Kaplan, who helped structure many of the ideas expressed in this paper and to Perry Brown, who provided especially important input when he reviewed an earlier draft.


## REFERENCES


Aiello, James F., Barry Gordon, and Thomas J. Farrell.
1974. **Description of children's outdoor activities in a surburban residential area: Preliminary findings.** p. 187-196 *in* Robin C. Moore, ed., Childhood city, Vol. 12. Environ. Des. Res. Assoc. 5.

Berland, Theodore.
1970. **The fight for quiet.** Prentice Hall, Englewood Cliffs, N.J.

Bernstein, Arthur.
1972. **The mental health values of wilderness: A proposal for the treatment of schizophrenia.** M.F. thesis. Univ. Mich., Ann Arbor.

Bloom, Benjamin S.
1964. **Stability and change in human characteristics.** John Wiley and Sons, New York.

Cannon, W.B.
1932. **The wisdom of the body.** W. W. Norton Co., New York

Devlin, Ann Sloan.
1973. **Some factors in enhancing knowledge of a natural area.** P. 200-207 *in* Wolfgang F. E. Preiser, ed., Environmental design research, Vol. 2. Dowden, Hutchinson, and Ross, Stroudsburg, Pa.

Driver, B. L., and R. C. Knopf.
1976. **Temporary escape: One product of sport fisheries management.** Fish. Bull. 1(2).

Dubos, Rene.
1965. **Man adapting.** Yale Univ. Press, New Haven, Conn.
Dubos, Rene.
1968. **So human an animal.** Charles Scribner's Sons. New York.
Hall, E. T.
1966. **The hidden dimension.** Doubleday, Garden City, N.Y.
Howard, Alan, and Robert A. Scott.
1965. **A proposed framework for the analysis of stress in the human organism.** Behav. Sci. 10(2):141-160
Iltis, Hugh H.
1966. **The meaning of human evolution to conservation.** Wis. Acad. Rev. 13(2):31.
Iltis, Hugh H.
1968. **The optimum human environment and its relation to modern agricultural preoccupations.** Biologist 59(1-2): 114-125
Iltis, Hugh, Orie L. Loucks, and Peter Andrews.
1970. **Criteria for an optimum human environment.** Bull. At. Sci. 26:2-6.
James, William.
1892. **Psychology: Briefer course.** Henry Holt, New York. 221 p.
Kaplan, Rachel.
1973. **Some psychological benefits of gardening.** Environ. Behav. 5(2):145-161.
Kaplan, R.
1974. **Some psychological benefits of an outdoor challenge program.** Environ. Behav. 6(1):101-116.
Kaplan, R.
1976. **Way-finding in the natural environment.** *In* G.T. Moore and R. G. Golledge, eds., Environmental knowing: theories, perspectives, and methods. Dowden, Hutchinson, and Ross, Stroudsburg, Pa. (in press.)
Kaplan, S.
1973a. **Cognitive maps in perception and thought.** P. 63-78 *In* Roger M. Downs and David Stea, eds., Image and environment. Aldine, Chicago.
Kaplan, S.
1973b. **Cognitive maps, human needs and the designed environment.** P. 275-283 *In* Wolfgang F. E. Preiser, ed., Environmental design research. Dowden, Hutchinson, and Ross, Stroudsburg, Pa.
Kaplan, S.
1975. **An informal model for the prediction of preference.** P. 92-101 *In* E. H. Zube, R. O. Brush, and J. G. Fabos, eds., Landscape assessment; values, perceptions and resources. Dowden, Hutchinson, and Ross, Stroudsburg, Pa.
Kaplan, S., and John S. Wendt.
1972. **Preference and the visual environment: Complexity and some alternatives.** P. 681-685 *In* William J. Mitchell, ed., Environmental design: Research and practice. Vol. 1. NCLA, Los Angeles.
Krueger, Albert.
1973. **Are negative ions good for you?** New Sci. 58(850): 668-670.
Leyhauser, P.
1965. **The same community - a density problem.** Discovery 26:27-33.
Logan, Henry L.
1974. **Light and the human environment.** Fields Within Fields. 5(12):58-64.
Lynch, Kevin.
1960. **The image of the city.** Harvard Univ. Press, Cambridge, Mass.
Marans, R. L., B. L. Driver, and J. C. Scott.
1972. **Youth and the environment: An evaluation of the 1971 Youth Conservation Corps.** Inst. Soc. Res., Univ. Mich., Ann Arbor.
Marcus, Clare Cooper.
1974. **Children's play behavior in a low-rise, inner-city housing development.** P. 197-211 *In* Robin C. Moore, ed., Childhood city, Vol. 12. Environ. Des. Res. Assoc. 5.
Marx, Leo.
1967. **Pastoral ideas and city troubles.** P. 99-144. *In* The fitness of man's environment. Smithsonian Inst. Press. Washington, D. C.
Milgram, S.
1970. **The experience of living in cities.** Science 167: 1461-1468.
Morris, Desmond.
1969. **The human zoo.** McGraw-Hill, New York.
Pfieffer, J.E.
1969. **The emergence of man.** Harper and Row, New York.
Piaget, Jean.
1962. **Plays, dreams, and limitation in childhood.** W. W. Norton, New York.
Platt, John R.
1961. **Beauty: Pattern and change.** P. 402-430 *In* Donald W. Fiske and Salvatore R. Maddi, eds., Functions of varied experience. Dorsey Press. Homewood, Ill.
Rosen, Sam, Moe Bergman, Dietrich Plester, and others.
1962. **Presbuscuses study of a relatively noise-free population in Sudan.** Ann. Otol. Rhinol. Lurgolgy 71: 727-742.
Scott, J. C., B. L. Driver, and R. L. Marans.
1973. **Toward environmental understanding: An evaluation of the 1972 Youth Conservation Corps.** Inst. Soc. Res., Univ. Mich., Ann Arbor.
White, R. W.
1959. **Motivation reconsidered; the concept of competence.** Psychol. Rev. 66:297-333.
Zajonc, R. B.
1968. **Attitudinal effects of mere exposure.** J. Pers. Soc. Psychol. Monogr. Suppl. 9(2): part 2.
Zajonc, R.B., Hazel Marcus, and William Raft Wilson.
1974. **Exposure effects and associated learning.** J. Exp. Soc. Psychol 10(3):248-263.

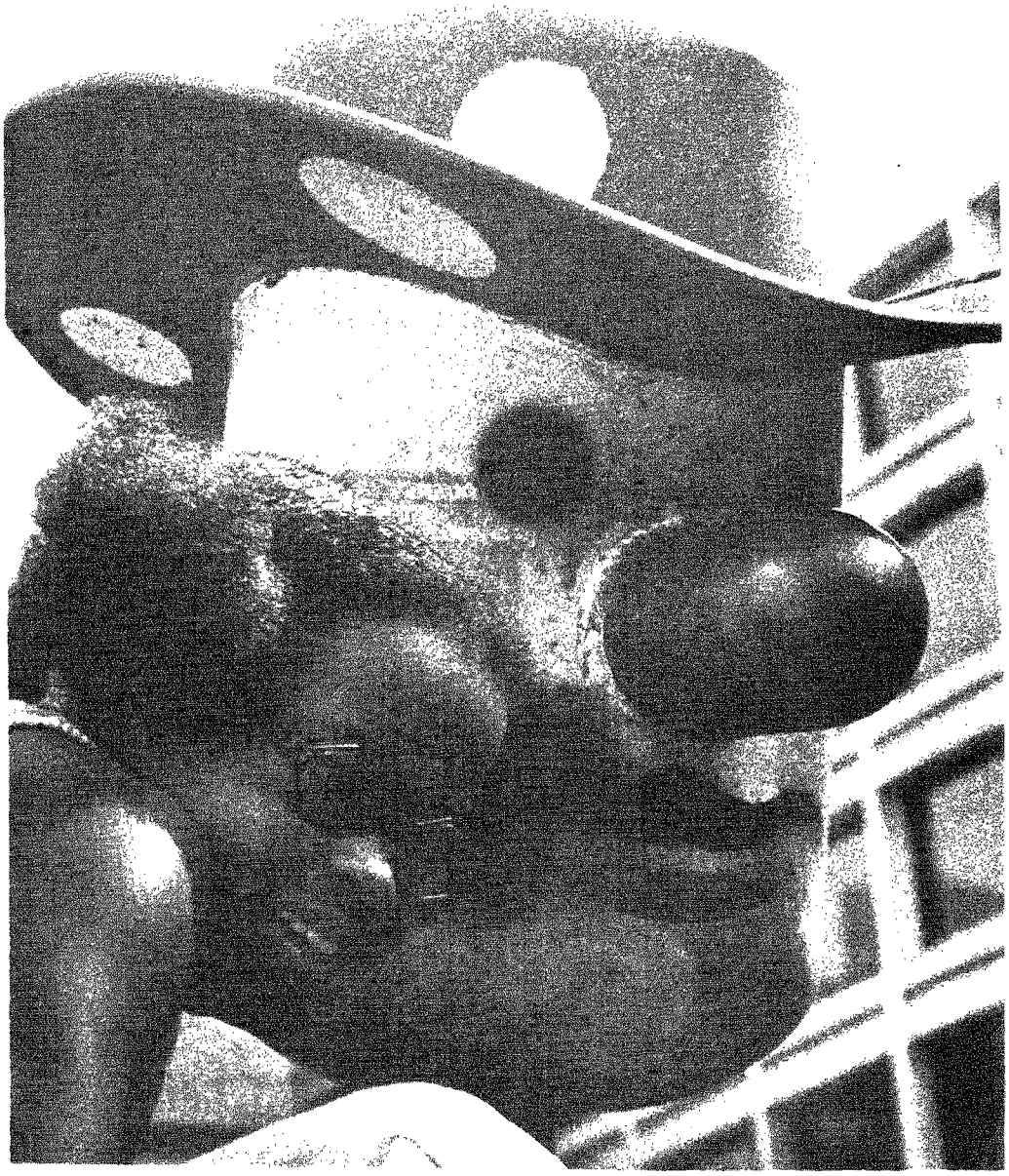


PHOTO BY WALT BLAIR

"So I would argue that by focusing on the behavioral and institutional continuities—the real consistencies displayed by our species—we might be able to find a better way to understand childhood" - William R. Burch, Jr.

# Learning from the Continuities in Humanity and Nature

*by* WILLIAM R. BURCH, JR., *Associate Professor of Forest Sociology, School of Forestry and Environmental Science, Yale University.*

*ABSTRACT.* Though the emphasis in American life is upon dramatic social change, the firmer reality is our great continuity in social behavior and institutions. For example, though many strategies of child rearing have cycled through human society, the basic problems and responsible social unit remain the same. Of necessity, children have an ordered and holistic view of nature and the urban places where they live. We, in the people-thinking trades, can learn much if we are willing to listen before we prescribe.

THE EMPHASIS ON CHANGE—new, now, the best, the latest, the earliest—has always been a characteristic of our society. But as we near the end of the American century that Time magazine used to tell us about, it might be wise to look at a less dramatic but no less important factor: stability. One of the things that we often fail to recognize is the great consistency within our social system—the great conservation—the many things that do not change.

I have experienced three generations of childhood and hope to experience four. I've experienced my own childhood, the childhood of my children, and the childhood of my grandchildren; I hope to experience the childhood of my great-grandchildren. When I was a child, breast feeding was not considered a very good way to raise children. During the Depression, having children was not considered a good idea. Children were things that we sat over in the corner; we hoped that they would stay quiet. My children were raised on Dr. Spock and we were big on natural childbirth. In having their children, my daughters followed something called the Lamaze program, and their attitude toward raising children seems to be somewhere between Summerhill and "hit them occasionally". The interesting thing about these changing approaches to raising children is that the basic rearing unit has remained the same; the needs of both the child and parent have remained the same; and the kinds of things that parents and children end up doing to each other have not changed very much. These relationships have been relatively stable over time and display a degree of universality across cultures.

So I would argue that by focusing on the behavioral and institutional continuities—the real consistencies displayed by our species—we might be able to find a better way to understand childhood.

In the first session of this symposium, we discussed many views about *Homo sapiens*. I think one of the great issues that emerged out of these discussions was that we will no longer dichotomize man and nature, country and city, mind and body, individual and society. We need to adopt a holistic point of view that recognizes, for example, that urban places are as natural as rural places; that views the mind and the body as flowing together; that focuses on the close relationship between individuals and societies. Separating these things for either academic or managerial purposes is being false to ecological reality.

Most of us are in the management business — the people-tinkering trade. We are adults in our middle years, which stretch from around 20 to around 60. Those of us in this age group have a

great concern about youth and about the aged. We feel that because we work and they do not, they are not living very productive lives. Consequently, we make an occupation out of managing the lives of the young and the aged. And we have a certain stake in casting our own theoretical views upon the young and the aged.

For example, some students and I conducted a review of the literature on children's camping and found a remarkable similarity in each decade between the prevailing theories in business and commerce and the prevailing dogmas about how children should be "managed" in camp situations. In the early days, we had a kind of moral imperative to take children out and make them learn how to endure on their own so that they would develop an inner-directed attitude. Then, during the 1920s, the scientific management literature told us that children should make effective and efficient use of their time. This literature told us a lot about scheduling—what and where to do things. Then in the 30s we had the Human Relations Era, most of which was based on the Western Electric studies. This old moo-cow sociology told us how you keep them happy down at the old factory. During the 50s and the early 60s, camp programs involved a lot of group dynamics and T-group sessions that had started in industry and were transported to the camp situation. Children were supposed to have long debates on whether they should go over here or over there. The sessions I heard during this symposium involved a lot of talk about "target populations" and I found a strange resurgence of concepts dealing with self-testing in the wilderness and inner-direction—about how we must take delinquents to the wilds so that they can learn how to make plans and organize and accomplish goals and how this process does all kinds of good things for their heads. So maybe we have come full circle.

Ethics, for those of us in the people-tinkering trades, requires that we recognize that we are all involved in maintaining a particular kind of social system and involved in furthering a particular view of how children, nature, and the urban domain should be ordered. In spite of the wide variety in dress, talk, and lifestyle of participants in this symposium, all remain firmly a part of the established social order.

Those who speak most strongly about liberating the child are often those who really mean they want the child to accept their particular frame of values and to reject the frame of others. Few persons at this gathering want a child so liberated that she or he may freely adopt the racist or sexist stereotypes of an Archie Bunker. We do not liberate ourselves or the child by playing at revolution or cynicism. We only do so through attempting to understand how children actually use the entire natural world, from the city street to the depths of a National Forest. We must start to listen, to look, and to learn systematically from children. Our programs, policies, and management practices must be as fluid and growing as this learning process. And most radical of all; under such a scheme our clients may even begin to think of us as real persons.