



# **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 Dantzie**

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# **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.

Planned and presented by:  
Forest Service, USDA  
Cook College, Rutgers,  
the State University of New Jersey  
School of Education,  
George 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

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## **Community and Institutional Response**



PHOTO BY WALT BLAIR

“Green is beautiful, but so is gray, the color most frequently attributed to the urban scene, a scene in which children explore and learn as actively and inquisitively as their suburban and rural peers” - Ellen Jacobs

## Developing Teachers' Awareness of the Young Urban Child's Environment

by ELLEN JACOBS, *Concordia University, Montreal.*

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**ABSTRACT.** An appreciation of the positive attributes of the inner city environment, where most of the population of the country lives and works, can lead to its use as a learning environment. Through proper training we can help the teacher reach out into the community and to bring the community into the classroom. A positive attitude toward the values of the urban environment can increase the self-esteem of the inner-city child and make his education more relevant. Rural and suburban environments should not be presented as utopian, for the stimuli they provide are different but not necessarily better. The teacher can obtain constructive learning support from the milieu in which the child grows and develops.

---

THERE HAS BEEN increasing emphasis recently on nature as an ideal environment for the child. In accordance with much of America's literary mythology, life in the city has been presented in a negative light. But an urban or suburban child's home range can play a positive role in the learning process for both the child and the teacher.

My premise is that the child's environment, his home range, and the teacher's understanding of it form an essential support system for the learning process. Emphasis is traditionally placed on what the child should learn; but in this paper, stress is placed upon the teacher's understanding of and involvement with the child's home range.

The teacher's awareness and understanding of a child's home range are of utmost importance in developing a meaningful rapport between the child and the teacher. The expectations of the curriculum and the teacher are more realistic when they are based on knowledge that belongs to the world of the child rather than to the world the teacher brings with her.

In an article on teaching in inner-city schools, Waddles and Robinson (1968) wrote about one

school where a particular group of children were consistently late returning to school from the lunch break. These students resented having to remain after school to make up time. When a concerned teacher walked home with the children at noon, she discovered that a 40-car freight train blocked the student's path on their return to school. In this case normal administrative expectations were unrealistic and had to be altered in light of this teacher's findings.

Knowledge of a child's home range provides insight into the types of environmental experience to which the child has been exposed. This insight helps the teacher comprehend the particular child's reaction to the method of instruction and the subject matter being presented. With this knowledge, the teacher can be better prepared to meet the child's needs and help him further his learning in a meaningful way.

Experience within the home range plays a major role in the total development of the child, in ignoring its existence, one is ignoring an integral part of the child. For example, each morning teacher A is greeted by the sight of John arriving at school out of breath and wringing

wet. The teacher knows that he lives two short blocks from school. John's mother says that he leaves for school 20 minutes before starting time. John refuses to reveal the reason for his harried appearance. But a mapping experience has been introduced to the class: the children have been asked to draw the path they take to school and to include the points of interest and danger along the route. John's map shows that he takes a four-block detour to avoid a point of danger—a menacing bully. Now the teacher can try to help John deal with his problem effectively, and she can understand that this problem has taken the joy out of walking to school and has affected his self-esteem and his ability to concentrate in class.

### TEACHERS' ATTITUDES

The teacher's attitude toward the environment in which the child lives has a great effect on the child's self-esteem. For the most part, the teacher's attitude has been molded by the values handed down from previous generations who extolled the virtues of rural and suburban life and presented the urban core as a dirty, unpleasant place in which to live—a place where one lives by necessity but not by choice.

If the teacher were to view the home range of the urban child through the child's eyes, the inner core might undergo a complete facelift. The gravel-covered back alleys and lanes, which may look unpleasant to the passer-by, provide local children with relatively traffic-free practice areas for football, soccer, baseball, and hockey. The gravel surface also provides enough friction for a child to have a relatively easy experience learning to ride a two-wheeler. None of these facts is apparent initially; one must glean this information from discussions and interviews with the children of the inner city.

### CHANGING ATTITUDES

At Concordia University in Montreal, a course was developed to help future teachers understand the importance of viewing the child's world through the child's eyes. Several communities on and off the Island of Montreal were studied quite thoroughly. In each community, the student investigated the presence or absence of recreational facilities and programs, health and

dental clinics, schools, religious centers, summer camps, youth groups, and day care facilities.

The students spent 3 months developing a questionnaire which they thought would help them piece together the home range of each child and find out how the child felt about his or her home range. After interviewing the child, the student observed the child's classroom to assess how closely the curriculum corresponded to the child's environment—whether it drew from his or her environmental experience and enhanced his or her learning, or ignored the child's world and presented unfamiliar things in an unsettling way.

### FINDINGS OF QUESTIONNAIRE

The responses of the children to the interviewer's questions differed with the child's home territory. In response to the question: "What can you see from your balcony?", children in suburban Beaconsfield listed trees, grass, squirrels, birds, and a brook, while children in the inner city listed cars, trucks, street-cleaning machines, train tracks, men digging up a road and laying pipes, and telephone poles. Although the home territories are quite different, one is by no means a better learning environment than the other; the two are simply different and provide different experiences.

To compare inner-core environments, three students chose to study a downtown area on the Island of Montreal called Milton Park/Carre St. Louis. They divided the area into thirds: the community north of Pine Avenue, the community east of St. Laurent Boulevard, and the community west of St. Laurent Boulevard.

### THE COMMUNITY NORTH OF PINE AVENUE

The area north of Pine Avenue is inhabited mostly by Portuguese immigrants. The children's responses to the questionnaire indicate that it is a close-knit community. All of the children have relatives living close-by, and many have grandparents sharing their living quarters. Where a mother is not at home at lunch time, the child has lunch at the home of a relative or close family friend, but not at school.

Most of the services the people use are found entirely within the community. Although there are several Health and Dental Clinics in the immediate area, the people who were interviewed are treated by the one Portuguese dentist, although he does not have a Canadian license, and the one Portuguese doctor, although he is not a member of any clinic staff. The Portuguese tend to shop only in small grocery stores owned and staffed by Portuguese people, which has caused large chain stores to pull out of the area. The parents of the children interviewed work in factories within the community.

All the children interviewed attend Our Lady of Mount Royal School and Portuguese School on Saturday. They lead quite an active life within the community; they swim in the indoor pool on St. Laurent and they play soccer in the school yard, which is left open on Saturdays because there are no parks nearby. All of the children interviewed take part in all of the extracurricular classes offered by the school: photography, art, music, and swimming. The school also runs a summer camp for the children who are not in Portugal over the summer. It was found that, although these children rarely move outside of their community, all of those interviewed had been to Portugal at least once since their move to Canada.

### THE COMMUNITY EAST OF ST. LAURENT BOULEVARD

East of St. Laurent Boulevard, the community is quite diffuse. The people come from many different countries and the differences in language and customs seem to have been barriers between them.

Of those children interviewed, two are from the Philippines, one from Portugal, one from Hong Kong, and one from Sweden. The families in this area live in small apartments with no backyards and both parents in each family work. St. Patrick's School does not have any extracurricular activities and the children do not have access to a "Y" or a boys or girls club. There is a swimming pool on St. Laurent, which they do not use, but there is no summer camp available to them. Very few have traveled outside of the community and only two have ever used the Metro (subway).

### THE COMMUNITY WEST OF ST. LAURENT BOULEVARD

The majority of the children interviewed in this area speak English at home. Their families live in row houses, except for one that lives in an apartment. They all have backyards in which to play. All stated that their fathers worked and that mother was home at lunch and after school. They have all traveled outside the community and all have flown. The majority go to day camp in the summer. Although St. Patrick's School does not provide extracurricular activities, all of the children interviewed were enrolled in private music courses and various other activities.

As indicated, students from communities east and west of St. Laurent Boulevard attend St. Patrick's School. Teachers there are faced with classes of students from diverse environments, with different experiences and opportunities. How, then, can the teacher plan the curriculum?

### PROGRAM PLANNING

To plan an effective program of instruction, the teacher must meet the child where he is and work from his strengths and his past experiences. The child's home range, as viewed through his eyes, gives the teacher information she needs to plan an effective and relevant teaching program.

The home range is an intricate composition of the child's home, his family, friends, and relatives; the street on which he lives, his neighbors and the atmosphere of his neighborhood, the boundaries of the area which he is permitted to explore, and the facilities available to him—medical, recreational and extracurricular.

There are a number of ways the teacher can explore the child's environment with the child. Questionnaires and visiting, mapping, and photographing the home range have proven most effective. The teacher's exploration of the community she is working in gives a view complementary to that seen by exploration with the child. People who work and live in a community are usually quite willing to give information. Local entrepreneurs (especially owners of small restaurants), policemen, city hall employees, and people on the street can provide diverse views of the community.

So long as the teacher maintains an interested, open, and accepting attitude toward the child's environment, there is much she can learn about the stimulating and varied experiences available to the child in the urban environment.

## ASPECTS OF THE URBAN ENVIRONMENT

Teachers have a tendency to regard what happens in rural settings as more educational, greener, and more pleasant than what happens elsewhere. Many teachers in urban schools have a penchant for busing children out to see the cows, chickens, pigs, and horses on Olde MacDonald's Farm. Yet inner-city pet shops have animals that are equally interesting and make better pets. A trip to the latest demolition site usually triggers a series of questions complex enough to require help from a resource book. Field trips are relatively simple in the city, as one may visit a variety of factories, garages, stores, movie theatres, live theatres, concerts, museums, libraries, and greenhouses. There is so much happening in the city that the supply of learning materials and situations will never be exhausted.

While attending this symposium, I took a trip with the children of St. Stephen's School, an inner-city school in Washington, D.C., to one of their favorite play areas—an abandoned dairy which they called the Scary Dairy. It is a place that provides them with constant adventure. There is a variety of visual, auditory, and tactile stimuli. The children pass small green trees

growing through the concrete, the stark white processing area, the gray gravel roof, and the green entrance hall. They can hear their voices echo. They can, and do, jump from one level of the building to another. Their depth perception is heightened. The walk along the land to the dairy was delightful; red roses were in bloom and dripping over the fence of one of the backyards opposite the dairy.

The trip continued on to the creek. This 5-minute walk from the dairy seemed to take us from the urban core to scenes one would expect to find in the wooded country. The creek was swift and surrounded by dense green trees. The children said that they played around the creek frequently and enjoyed it almost as much as the dairy.

If a teacher at Stephen's School lived outside the area and did not explore it with the children, she would not know about these two very special places. Consequently, she would not be able to draw upon the children's experiences in these two locations and would not be able to use these places to help further the children's learning.

Green is beautiful, but so is gray, the color most frequently attributed to the urban scene, a scene in which children explore and learn as actively and inquisitively as their suburban and rural peers.

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1968. *Teaching in inner-city schools*. Natl. Educ. Assoc.  
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PHOTO BY WALT BLAIR

“In a sense, all of us who work with children are nectar  
merchants offering our individual wares” - Mary A.  
Rhomberg

## Green is for Growing: The Girl Scout Experience With Environmental Programs

by MARY A. RHOMBERG, *Volunteer Trainer, Girl Scout Council  
of the Nation's Capital.*

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**ABSTRACT.** With neighborhood organization, program flexibility, and child participation in the planning and implementation of activities, the Girl Scout program is designed to be highly responsive to the varying needs of individual groups of girls. There is no fixed agenda or focus on a single aspect of environmental education. Instead, the Girl Scout concept of total environment encourages activities that place equal emphasis on projects fostering development of self, community involvement, and a variety of outdoor experiences. The Girl Scout movement has both strengths and weaknesses as a vehicle for environmental education.

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A FORMER PRESIDENT of Girl Scouts U.S.A. said, "Words will be understood only when interpreted by experience and, if experience is wanting, then it must be supplied" (*Arnold 1934*). The purpose of the Girl Scout program is to do what it can to supply experience in ways that are appropriate and acceptable to children. It tries to round out a child's definition of herself and her total environment.

Over a period of 60 years the Girl Scouts have developed a number of techniques or approaches that lead to a program of creative recreation that children enjoy and that has the capacity to grow as the child grows. The intent is not to fit the child to the program, but to fit the program to the child. Thus scouting offers an ongoing program designed so each small group can build a program suited to its individual needs.

The purpose of this paper is to share some aspects of the Girl Scout experience in providing environmental programs for children. A general discussion of what the Scout movement does in fact do will include adult-child partnership in developing troop programs, community contact as an integral part of environmental programs and some observations on our long and

successful experience with outdoor programs. This will be followed by an appraisal of the role scouting plays (or can play) vis-a-vis an overall community effort to enrich the environmental knowledge of urban children.

To put these remarks into perspective, it is first necessary to define the Scout concept of environmental program and to outline the framework within which the movement operates, for these matters largely determine the types of programs we can realistically undertake.

The Girl Scouts prefer the approach that "environment is everything". In this view, individual growth, community affairs, obligations of citizenship, and outdoor activities are equally important elements of an environmental program and are equally deserving of attention in troop planning.

How this view is translated into program can most easily be shown by listing the activities of a single troop. During a school year, a busy group of teenagers did the following things: visited the state legislature and the U.S. Senate, talked with their state senator about gun control, did volunteer work at an animal shelter, and taught camping skills to younger scouts.

Being strongly oriented toward the outdoors, they also went camping and backpacking, took a canoe course, and built a new trail at a Scout camp. As a service project, some girls assisted in a program for underprivileged children and others were responsible for child care during periodic visits of the bloodmobile.

A troop with different interests, or at another age level, would have a different program, but the same elements of service, community involvement, and the out-of-doors would be included.

To the Girl Scout organization, the particular directions that troop activities take are not important, for scouting has no fixed agenda. What is important is that the chosen activities help a child to grow as an individual by giving her varied experience and a chance to make decisions and to assume responsibility. We believe that, over the scouting years, the many bits and pieces of experience will eventually fall into place to help build positive attitudes about oneself and one's environment.

Since scouting is based on voluntary participation, activities must also be designed so the girls have a good time and feel satisfied that their interests and needs are met. Both sets of goals are served by a child-adult partnership. Each troop (approximately 20 girls with two adult leaders) is completely free to plan its own activities, and the girls are encouraged to participate in the planning process to the fullest extent that their ages and capabilities allow.

This means that the first element of the Scout environmental program, individual growth, is a built-in feature of scouting. The operational structure is designed to give a child chances to feel good about herself. She is encouraged to think independently and to take responsibility in troop affairs and, within the sheltered troop situation, she can afford to try, because not so much is riding on the outcome as in school or even in the family. The inevitable failures are as conducive to growth as the successes. We can say that we want children to become independent, but we don't really mean it unless we let them try. A poet put it this way:

Youth, you should heed the older witted  
When they say don't go too far;  
Now their sins are all committed,  
Lord, how virtuous they are!<sup>1</sup>

<sup>1</sup> Wilhelm Busch in "Die Fromme Helene" ("Pious Helen")

Community contact, the second parameter of environmental program, is traditionally developed through giving service or excursions within the city. With younger children the results are mixed, for it is not easy to devise events that are meaningful and still appropriate in terms of age and experience. Nevertheless these projects are encouraged, for they expose children to the many strands that are woven into the fabric of a community. Hopefully, these small experiences in citizenship are the first steps toward full community participation in later years.

When girls reach their teens, service becomes an important part of the troop program. In general, teenage Scouts want to become involved in helping others, for they regard service as a mark of maturity. But they resent anything that smacks of exploitation; they want to be appreciated as individuals and expect their newfound maturity to be taken seriously. If their conditions are met, they can do a great deal.

We have some notable success stories, where enthusiasm and energy have sparked a whole community.<sup>2</sup> For example, some Scouts in Virginia established a library in Appalachia, and a Connecticut troop talked their community into saving a bog and helping them build a bog walk for community use. Although most projects are far more modest in scope, the motivational basis is the same, i.e., change is brought about by people who care and are willing to try.

The outdoor program is the facet of environmental education most commonly associated with scouting—everyone knows the Girl Scouts sell cookies and go camping. (In point of fact, the two are more closely related than some might think, for without cookie sales, outdoor programs would be severely limited.) The outdoor program is indeed very popular and, for some, provides the impetus for joining Scouts in the first place. It seems to be the one thing that, for many girls, scouting can provide more satisfactorily than most organizations.

Nature study per se is not emphasized, except in summer programs where the pace is more leisurely and special consultants are available. To help leaders who are interested, Scout

<sup>2</sup> A compendium of successful and imaginative project ideas developed by Scouts can be found in *Service Is a Way of Thinking*, Girl Scouts USA (New York 1967) Catalog no. 19-140.

resources include many suggestions for nature-oriented games, crafts, and other activities.<sup>3</sup> In Scout camps, nature trails are laid out over and over again as different groups with new ideas come along, and heavy stress is put on good conservation practices—the outdoor good turn is as old as scouting. Nevertheless, the main thrust is to help children enjoy and feel more comfortable in the out-of-doors. Outings are relatively unstructured so that, within reason, each girl has a chance to enjoy the natural environment in her own way.

At first, outdoor activities tend to center around camp skills, i.e., outdoor housekeeping. Younger girls are eager to learn these skills which are, after all, an exciting new way to play house. We have learned that this is also a necessary step in their outdoor education, because they are not very receptive to other things until they feel confident that they can cope with their surroundings and the mechanics of outdoor living.

With their basic skills well in hand, teenagers use outdoor experiences to learn more about themselves, and learning about the natural environment is secondary. Some outings come close to being retreats. Togetherness is very big and there is endless talk as the girls try out new ideas and express feelings. Though they actually do very little, the girls nevertheless place great value on the isolation and tranquility of the camp situation.

On the other hand, adventurous activities like backpacking, canoeing, and wilderness and winter camping are also popular. These activities have always been a part of scouting, but more and more girls are asking for them every year. Here the girls want to learn about themselves in another way: by accepting physical challenges to prove that they can "hack it". Some people attribute this heightened interest to the advent of women's lib and, in one way, they are right. Adventure has always been important to girls, but now the climate of opinion has given them the courage to demand it.

For any youth-serving organization, the cost of outdoor programs is a problem. In scouting every effort is made to keep camping within the financial reach of all troops, and for the most part we do well. The problem is approached in

two ways. First, the organization assumes the responsibility of providing camp areas and some equipment at minimal cost to troops. Second, strong traditions of thrift and adaptability are fostered in the troops.

Many Scout councils maintain depots where equipment is available for a small handling fee. When this equipment is all spoken for, troops borrow and improvise. The need for thrift has resulted in the well-known Scout penchant for making camp equipment from discards, often called creative junkery. For example, a cardboard box lined with foil becomes an excellent charcoal oven; three plastic garden bags can make a serviceable rain suit. The main value of such items is not their very low cost, but the fact that they serve as constant reminders that the least expensive way must continually be sought for everything we do.

Both in adult training and in planning with girls, an unceasing emphasis on basics and inexpensive alternatives runs through all discussions of food, clothing and equipment. Doing-it-yourself and saving odds and ends become a way of life. And it works: we may not look very elegant, but we do get the girls outdoors in huge numbers.

In the Council of the Nation's Capital, we are particularly fortunate in that we can offer many outdoor opportunities at low cost. Besides having access to many parks, the Girl Scouts own a number of excellent camp properties that are used to capacity. During the school year the camps are used for day outings and weekend camping; in the summer they are day and resident camps. Additional day camps are established on non-Scout properties more accessible to the children in some areas. The result is that a larger percentage of girls are getting outdoor experience than in almost any other Scout council in the country.

Yet there are troops that do not take advantage of these opportunities. While finances do enter the picture, adult attitudes seem to be more responsible. When they take over leadership of a troop, not many adults have enough experience to feel comfortable in assuming the considerable responsibilities that go with outdoor program. They have to be trained. Where leader turnover is high, or where an outdoor tradition is lacking, the necessary training never takes place.

There are other obstacles. For safety, the Girl

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<sup>3</sup> Two such publications published by Girl Scouts USA are *Let's Try It*, catalog no. 19-197, and *Leader's Nature Guide*, catalog no. 19-9833.

Scouts require that a number of adults accompany the girls, and these adults are sometimes hard to come by, either because they have no time or because they feel they would be of little use. Also, parents with no outdoor experience themselves worry about the well-being of their children out in the woods. (In general, parents are far more protective of their daughters than of their sons.) All of these problems are more acute in highly urbanized areas, but by no means confined to them. When parents are given a full explanation of what a troop plans to do, they are usually much more receptive and supportive.

For the children in such troops, summer day camps are particularly important. There they can gain experience under the tutelage of specialists. Therefore an effort is made to establish day camps that are easily accessible. In Washington, D.C., a successful day camp has been established on a wooded college property in the heart of the city. Guided by an imaginative director, the camp offers a full range of camp activities suited to the children's needs—they even get overnight tenting experience. The location reduces transportation costs and allays parental apprehension. The next step, going out to the Scout camps, is taken more easily after the day camp experience.

Looking at the total program, scouting clearly does make a difference to the girls involved, in terms of both personal growth and broadened experience. The next step is to evaluate Scout program as a vehicle for environmental education in relation to other youth programs in the community. There are several points of strength and weakness to be noted.

The two greatest strengths of scouting go together: it is essentially a neighborhood affair and it has a high degree of flexibility. Each troop is formed within a single neighborhood, with volunteer leaders recruited from the same area. Thus there is a strong element of identification and the leaders are able to assess more accurately the needs and interests that must be met. Because each troop plans its own activities, the leaders are free to use the resources of the Girl Scouts and the community in ways that are most suitable for their own group of girls. As the group's program develops, the girls will reach out from their own neighborhood to broaden their experience and understanding,

but relationships and relevance to self and home remain clear.

Another strength of scouting is its ability to help very large numbers of children. Other programs may have a sharper focus and are able to handle specific phases of environmental learning more thoroughly and efficiently. However this sharp focus usually also limits time and numbers. In scouting, on the other hand, there is an established structure for building broad ongoing programs for very many children—programs well suited to the introduction of new views and new viewpoints.

The long experience of the Girl Scouts has shown that the single most important ingredient of good program is leadership. This ingredient is both a strength and a weakness of the Scout movement. As already noted, it is a strength because of the close identification possible between child and adult. It can also be a weakness because volunteer leaders come to their jobs with widely different capabilities and background experience.

The Girl Scouts maintain a strong adult training program, but only so much training can be required of volunteers. Most of our volunteers are genuinely interested in learning how to do a better job. In fact, the major unsung success of scouting is the amount of adult education that takes place in the name of serving youth. But where leadership is inadequate, the program suffers in scope or substance.

The other weakness is scouting's dependence on community support. Moral support is there—scouting ranks right along with motherhood and the flag. But the more tangible evidences of support are not so readily offered. Because the basic operating unit is the individual troop, and because the principal emphasis is on individual growth rather than the more visible forms of achievement, Girl Scouts have a low profile despite their large numbers.

On balance, scouting clearly has much to offer as a means of bringing environmental learning to children. Within the Girl Scout community, we believe we can increase our impact on the lives of children, first, by looking at our own operation to find how we can reach more of the girls who could most benefit from our style of program and, second, by working with other agencies where we can make a positive contribution. In the long run, the quality of experience is

more important than its substance; we expect that the quality can be improved by sharing resources and capabilities.

We believe cooperation works best on the local level and when it is aimed at reaching common, specific goals. For example, in one county we provide summer day camp for many children, but there are many others we cannot serve. Therefore we are sharing materials and program descriptions with the Department of Recreation, which organizes summer programs at neighborhood schools. In another county, the Girl Scouts have started working closely with the Youth in Crisis program, while in a third they are cooperating with the parks to set up a ranger aide program to expand the interpretive program for young children.

Sharing in one form or another makes sense. John Burroughs (1913) said, "I go to books and to nature as a bee goes to the flower, for a nectar that I can make into my own honey." In a sense, all of us who work with children are nectar merchants offering our individual wares. We can't say for sure how things will turn out, but we can provide the best possible selection of experiences and attitudes from which intelligent choices can be made.

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PHOTO BY WALT BLAIR

"In contrast, many of our urban youth today have only alleys, decaying lots, and condemned buildings to explore" — Robert A. Hanson

## An Outdoor Challenge Program as a Means of Enhancing Mental Health

by ROBERT A. HANSON, *Community Mental Health Center for Marquette and Alger Counties, Michigan.*

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*ABSTRACT.* Modern life fosters confusion and encourages passivity, and youth suffer most from this pattern. The Outdoor Challenge Program enables young people to experience the active roles and the clarity of purpose called forth by a wilderness opportunity. The experience appears to enhance their mental health during and after the program.

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MAN HAS A GREAT NEED to explore and learn. These psychological processes evolved in the wilderness before history began, and it is still in wilderness that they can be experienced at their peak. Perhaps part of the continuing human need for exploration is what Pfeiffer (1969) describes as, "The central mystery of man, his persisting restlessness, this is the human drive... It is the force behind discontent, the search for novelty, exploration and missions of all sorts." When a contemporary man speaks of a need to return for a time to the wilderness, he is in essence going back to where his significant psychological processes developed. The natural environment is the true home of these processes, and in that environment we expect to find a clarity and effectiveness of psychological functioning. Indeed, research is now beginning to demonstrate them (see the following paper in this symposium by R. Kaplan).

To appreciate the significance of man's tie to his wilderness heritage, compare the effectiveness of his psychological processes in the wilderness with their effectiveness in a modern urban environment. Stanley Milgram (1970), writing on the experience of living in cities, says, "City life, as we experience it, constitutes a continuous set of encounters with overload, and of resultant adaptations." Each of the adaptations Milgram cities has a tendency to insulate and remove the individual from his environ-

ment and from fellow humans. The mechanisms that allow people to go about their daily activities in an urban setting without involving themselves with the drunk on the street corner, the crime in their neighborhoods, the bewildering mass of humanity, are really mechanisms that require them to ignore much of their environment. The opposite is needed in the natural environment, where man depended on knowledge. This dependence, in the sense of psychological functioning today is one of his major ties to the natural environment.

During man's development, natural selection favored effective exploration. Through many thousands of years of evolution man built upon his psychological capacity for exploration; many lands and places were discovered and rediscovered. Man's recent history is filled with tales of great explorers, and they often serve as models and idols for youth. In the last few hundred years, exploration of living space has ceased because there is no new space to explore. But exploration of wilderness or natural areas still seems meaningful. There an individual or group can rediscover the thrill of exploration, while leaving the land undisturbed for others to rediscover. In contrast, many of our urban youth today have only alleys, decaying lots, and condemned buildings to explore. Exploration, which used to be held in high esteem, is now often considered delinquent, because of the lack of opportunity and increasing population. The

need for this type of experience is greatest in urban areas where the opportunity is lacking.

It is the lack of clarity for many of these urban youth, (as described later in this symposium by Stephen Kaplan) that disrupts their relationships with their environment. Changing contemporary demands on youth foster confusion and tend to leave youth with little chance to respond by active exploration. They are forced to be passive.

## THE OUTDOOR CHALLENGE PROGRAM

The Outdoor Challenge Program (*Hanson 1973*) was developed to give teenagers a highly active 2 weeks in the wilderness. It focused on clearly defined goals and on specific techniques that could be quickly learned and put into practice: map reading, compass orienteering, backpacking, setting up camp, rappelling, locating edible foods and shelter, solo experience, ecology (with emphasis on understanding the ecosystem to be lived with for 2 weeks), first aid, etc. The first day the group is taken by the leaders on an orientation hike into a swamp, then asked to find their own way back without instruction. Usually they become lost, and fail totally to function as a group. The leaders use each problem to put the group in a position where it must take responsibility for itself and find some way of organizing and solving problems. Techniques of map and compass orientation are taught the same day or the following morning. The next day the group must find its own way over a 5-mile course full of swamps, high cliffs, and trackless forest, under the watchful eyes of the leaders. Initially, the participants feel hesitant but in 3 or 4 days they are ready to strike out across 25 miles of trackless forest, and after 10 days they are eager to go off on their own without the leaders. It is inspiring to watch them change as they develop increasing confidence and self-esteem.

Rappelling and overnight solos offer the greatest challenge as well as the greatest rewards. These activities are specifically chosen to enhance a clarity of purpose, which is perhaps both frightening and appealing. They are presented and learned in such a way that even when the participants have fears (and most do) they believe they can do what they set out to.

They learn to help and support each other, and though one may be afraid of one activity, he may do better than the average the next day at another activity. When the group has completed these 2 weeks, the members are both reluctant to leave the wilderness and ready and proud to go home. They have many stories to tell, but more important, they have a new sense of clarity and purpose in their lives.

## HOW PARTICIPANTS CHANGE

As a leader in these programs, I have seen listless, bored, fearful (and sometimes eager) participants who left for the wilderness 2 weeks earlier return stimulated, active, hopeful, eager, and proud. They spoke of new things they wanted to do. Equally often they talked about old passive behavior using drugs, being afraid of the dark, having no interest in the future, all of which they intended to change. During the 2-week period, most of these young people were perceiving, thinking, and feeling at a high pitch for them; their psychological processes were active and they were making the best of this opportunity.

After a few days in the wilderness their ties to their previous environment are loosening and they *begin* to see themselves in a new, more active position. They have been able to find their way to a lake represented by a small mark on a mighty big map. They are tired but they know their accomplishments.

They are beginning to develop new ties to this environment; things in the wilderness are becoming real to them. They feel a stronger, clearer relationship to their world, which many acknowledge they have never felt before. They are eager to keep on and reach new and more fulfilling goals. As the 2 weeks are completed, I believe, the participants begin to feel at home in this unfamiliar but comfortable environment. They begin to feel that the wilderness is theirs; they have lived in it, been along with it, related to it. They can feel clearly the strength of a new relationship to their external world and a new self-concept. Their object relationships have been strengthened. They have explored and come to know an area in a way that most of them have had little change to before. They have come to know themselves a bit better, and by so

doing most of them have found something in the wilderness that they can take back.

## VALUES THAT ENDURE

It seems that in this wilderness experience the paradigm of man's relations with his external objects is modified. The individual is active; he comes to know the world about him, first by the physical act of exploration on foot, then psychologically on solo where he has several days to reflect on his experiences and to strengthen his emotional and cognitive relations with this new, clearer, more definite world.

We can view man as able to relate to objects in his external world in three ways: First, he may relate to them with fear. A fearful individual often goes through much of his life having difficulty establishing close relationships with people and things; he never seems able to trust, avoids putting himself in situations where he will have to depend on anyone or anything. Second, one may relate to objects with dependence. A dependent individual tends to cling to others, has difficulty letting go of other people or trying anything on his own, and seems always to put himself in situations that force others to reassure him. He relates in a similar way to objects in his environment. Third, and far healthier, is the individual who relates to objects and people as other possibilities to explore, to learn about, to try new relationships with. Here exploration, which, as we have seen, has great evolutionary importance, is a key to developing healthier, clearer, and more meaningful relationships with one's environment.

Man, through exploration, built his knowledge-processing system and obtained the basic data about his environment that he needed to expand his knowledge of the world. When this knowledge-processing system was built and began functioning, man gained his knowledge by walking. The physiological process of walking while exploring gave basic data from the most primitive of human senses, touch. Man

touched the earth with his feet; he felt it through the kinesthetic sensors in his muscles, and at times with his hands. Even today, the infant's first real contact with his external world is by touch, and it is often by touch that he explores and learns.

Walking also determined the amount and speed by which data was presented to our information-processing mechanisms. Even today we often hear that "one knows an area by having walked through it." Psychological evolution began with the speed of its data-processing requirements often determined by walking speed. These processing mechanisms have, in more recent times, been subjected to an increasing flood of stimuli. As we have seen, in the city much of this flood must be ignored; the psychological effects of doing so are considered by S. Kaplan in this symposium.

In the wilderness, exploration and active processes such as walking enable people to experience clear and effective functioning of their perceptual and cognitive processes. The clarity of this encounter seems to provide basic elements upon which an efficient and active behavioral system may be established. The experience seems to enhance mental health and facilitate psychological functioning even after it is over.

## Acknowledgments

This research was supported, in part, by the USDA Forest Service, North Central Forest Experiment Station, under Contract No. 13-387. The support and assistance provided by Rachel and Stephen Kaplan of the University of Michigan is much appreciated.

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PHOTO BY WALT BLAIR

“They seemed to approach each other in a very accepting fashion, enjoying the situation for itself” — Rachel Kaplan

## Summer Outdoor Programs: Their Participants and Their Effects

by RACHEL KAPLAN, *Associate Professor, School of Natural Resources and Doctoral Program in Urban and Regional Planning; Lecturer in Psychology, University of Michigan.*

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**ABSTRACT.** In a study of the benefits of various summer programs, especially those involving wilderness experiences, the use of pretests for all the groups made possible evaluation of the degree of self-selection as well. Similar tests 6 months later showed the influences of the summer programs themselves. The results suggest that even a relatively short encounter with the out-of-doors results in pervasive changes, the most striking of which relate to increased competence in skills required in the woods.

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"... I WOKE up this morning at 6:30 not believing that I had made it through the nite. The sun was just coming up; it was beautiful. I am not even hungry it is so peaceful out here that I really could learn to enjoy it without the anxiety that I always have." (MJP)

"I got up today rather excited with the thought of leading the crew on our only hike without leaders. We broke camp . . . wasn't long before we hit a swamp — up to our waists we hit. We cam across three such swamps and even tho we arrived to our destination safely, my leadership was questioned and sometimes challenged. No one else was even willing to lead . . . I love this life. I am rather sad I have to go home. . . . When I go home I know I will want to tell my friends about this experience. I will become frustrated and bitchy because either I won't have the words or they won't have the ears. Whereas now I am happy." (AMG)

These are entries from the diaries written during a solo in the wilderness by participants in the Outdoor Challenge Program (described by Robert Hanson in the preceding paper). The kids express it so well! It is not hard to sense from their notes that the experience matters; that they acquire a different sense of themselves. Our aims in doing research in this area were several: we wanted to know whether the

benefits of a program like this lasted beyond the program itself; we wanted to see whether it is the acquisition of specific skills that relates to enhanced feelings of self-confidence; and we wanted to find out whether the effects are specific to particular kinds of programs.

Our collaboration with Bob Hanson has been an exciting adventure for several years now. The first year produced a small-scale study of the benefits of the program (*Kaplan 1974*). The study presented here involved the larger scale effort during 1973. The participants were 267 youths of both sexes who had 1 or 2 more years to go in high school when they completed the first round of questionnaires just as the school year ended. Of these, 75 percent returned the second questionnaire some 6 months later, at a time when summer activities seemed long past and the school year was well under way.

The participants included five distinct groups. Two of these can be considered control groups, as we had no knowledge of their summer activities. One of the control groups was drawn from Michigan's Upper Peninsula, because that is the region from which the 20 Outdoor Challenge participants have come. Five schools serving 14 communities were included from this land of low population density where the winters are hard and long. The other control

group consisted of 30 students who took a conservation course at a local high school. It seemed that a group with some nature-oriented background might provide a fair comparison to those who would be involved in summer programs with such a focus.

The closest comparison to the Outdoor Challenge group was provided by the 28 youths who went on backpacking trips of roughly comparable duration—2 weeks or so of actual hiking. Some of these went to a wilderness area southeast of Yellowstone National Park and others to Isle Royal. The trips were described as “hiking, backpacking, canoeing, camping adventures” with an “emphasis on an appreciation and learning about our natural world.”

The remaining group went to a 5-1/2-week coeducational camp in northern Michigan. Its focus was on community, on caring for people and the land. Although the concern for lifestyles adapted to ecological principles is an important feature there, the concern for personal growth in a supportive social setting is equally strong. The 44 participants differed from the other groups both in the duration of the activity and in having a nonnomadic base of operation. They were, however, similar to the backpacking group in orientation and goals, since both were under the overall guidance of the same insightful and dedicated team.

The variety of the participating groups provided an opportunity to determine whether self-selection would be evident in the initial data collected before the summer experience. It was. The members of the control group were outgoing and interpersonally active. The members of the camp group were also oriented toward interpersonal activities and situations, but in a much quieter, noncompetitive, and less active sense. They seemed to approach each other in a very accepting fashion, enjoying the situation for itself. The most striking difference between this group and the backpackers might be thought of as patience. Though the questionnaire did not tap this directly, the backpackers seemed to be more adventurous and eager to be “doing it” without excessive forethought. The Outdoor Challenge group was not strikingly different from the rest of the Upper Peninsula sample, although they were less involved interpersonally and more eager to “get away from it all.” It should be mentioned that the comparisons of the groups yielded no significant

differences with respect to self-esteem, nor on the measures of various skills.

## AREAS OF THE STUDY

The sketches of the initial group differences are based on the responses to a 7-page questionnaire completed in June. At that time the participants had no reason to expect that there would ever be a follow-up. As it turned out, the 4-page fall questionnaires covered much of the same material. The common portions of the two questionnaires dealt with the following:

*Care about and good at:* A list of kinds of activities on which the participants indicated how much they cared about each and how good at each they felt they were. The list of activities included sports, camping, crafts and making things, sitting around talking, dating, and a few others.

*Woodsmanship skills:* Participants were asked to rate themselves on each of a dozen outdoor life skills, such as setting up camp, map reading, long hikes, ecology, and finding food in the woods.

*Friendship skills:* Included with the woodsmanship skills were two items on interpersonal skills: “making new friends” and “getting along with strangers in confined situations.”

*Reasons:* The 39 items pertaining to reasons for choosing one’s favorite activities were scored to form eight different clusters of reasons, including workout (the competition and exercise in the activities), affiliation, peace and quiet, leadership accomplishment (e.g., “gives me a chance to be in charge”), and self-directed accomplishment (e.g., “always learning new things”).

*Self-esteem:* Our hope was to break down this concept into meaningful parts. Like many other psychological concepts (intelligence and creativity are good examples), self-esteem is often regarded as a global entity which people possess to varying degrees. It seems to us damaging to look at it that way. The “esteem” scales derived from the 20 self-description items in the questionnaires included: realistic task orientation (e.g., “I’m sensible about how long things take to get done”), challenge, self-reliance, and interpersonal. These four scales together comprised a positive view scale. In ad-

dition, the negative view scale (e.g., "I tend to avoid new challenges," and "I find it hard to open up to people") is quite separate from the other scales. It is possible and even likely for people to have both positive and negative feelings about themselves at the same time.

*Open-ended questions:* "How would your best friend describe you (aside from physical characteristics)?" "What sorts of things have given you the greatest sense of accomplishment or pride?" and "If you could change yourself in any way, in what way would that be?" These were analyzed in terms of categories based on the spring data and applied to both sets of responses.

In addition, the first questionnaire included the Environmental Preference Questionnaire, *EPQ*, which has two pages of short items dealing with preferences for different kinds of settings. It is scored for seven scales, including nature, suburbs, cities, and social.

Where "scales" are mentioned in the discussion, these are based on groups of items that are all about a common idea. Except for the open-ended portions, responses were rated on a 6-point scale so that there was plenty of choice to indicate how well the item described the participant's feelings. The technicalities of deriving the scales or clusters of items and a more extensive discussion of the findings of the June questionnaire with respect to *EPQ*, reasons, and self-esteem are the subjects of a separate paper (*Kaplan 1976*).

## SOME RESULTS

A study of this kind has some built-in handicaps. In trying to avoid misperceptions of summer effects by collecting the "after" material too soon, one necessarily introduces other difficulties. By late fall many things other than summer activities play important roles in the lives of these students. In June school was almost over—for some participants it was already a thing of the past—but in late fall school is very much a reality. Furthermore, many of the topics we studied vary with the seasons. Sports activities and outdoor opportunities clearly differ from spring to fall. The place of driving and dating in the overall picture may also change. But this does not mean that changed responses on the questionnaire cannot

be ascribed to the summer experience. The purpose of collecting "before" and "after" data from various groups attending different summer programs is to get a glimpse of such changes. I mention all these things only to encourage some degree of caution in looking at the results.<sup>1</sup>

### Skills

Not surprisingly, the Outdoor Challenge group showed a profound and highly significant improvement in virtually every one of the woodsmanship skills. Of the 12 items, only canoeing showed no change—and it was not part of the program! These results are strikingly similar to what we found in the previous year, with a smaller and all-male group. The backpacking group showed significant changes on some of these skills and came out ahead of the camp group on eight of the items. The Challenge participants rated themselves more skilled than did the backpacking group on seven of the items. Although these skill ratings are all self-reports, they match our expectations surprisingly well. The groups did not differ in these ratings before the start of the summer, nor did they know each other's ratings. The emphasis of the Outdoor Challenge Program is on wilderness skills, and the participants are intensely involved in activities that require such skills. The backpackers also used such skills to a far greater extent than the campers.

### Skills and Self Views

One of our ideas in doing this research was that gaining competence at something would enhance some aspect of a person's view of himself. While people have the capacity to dismiss their own skills as not important, we felt this was less likely to happen in the case of nature-related skills. It seemed reasonable, then, to relate the scores on woodsmanship skills to the various domains of self-esteem. Had we simply divided the entire sample into high and low scorers on the skills, we would have found the Challenge and other backpackers in the "high" group. Instead, we divided each of the five groups—those in summer programs as well as the controls—into high and low scorers within each group. Our concern was not whether

<sup>1</sup> Throughout this paper the findings that are cited are statistically significant at  $p < .05$  when small groups are compared and  $p < .01$  when groups of 100 or more are compared. The tools used in these comparisons were t tests, analysis of variance, and in a few instances chi square.

the skills were acquired through a specified program, but simply whether being more skilled in these particular activities had a bearing on the youth's feelings toward himself.

We found that within each group there was indeed a significant relationship between relative standing on woodsmanship skills and one of the domains of self-esteem. Those who scored higher on the skills thought of themselves as more realistic about the demands of their work and better able to gage their task-related limitations.

Quite apart from the measures of skills, the Outdoor Challenge people were less likely to express negative views of themselves. Comparably, of the people who initially scored low on the positive view scale, close to half of those in each of the summer programs ended with high scores in the fall. By contrast, only about a quarter of those in the two control groups showed such changes.

#### Composite View

The overall pattern of the results suggests that the different summer experiences resulted in changes that were clearly reflected several months later.

By late fall the two control groups reflected one stereotype of people in their mid-teens: they saw themselves as good at driving (motorcycles, cars); they cared about sitting around talking and listening to music. They were interested in dating. Contact with nature and various activities that were less interpersonal were not of great importance.

The campers from the start took a more accepting, noncompetitive stance toward their peers. By fall, many felt more skillful at "making friends," though dating was relatively less important to them. Many of them expressed a concern for social commitment, for being considerate of others. They also talked about personal growth and self-discipline, and continued to favor activities that permit creative expression.

Both the Outdoor Challenge and the other backpacking groups showed little desire to change their physical characteristics or prowess. Perhaps the competence they acquired in particular skills in the woods is related to this. The Outdoor Challenge people showed the least concern for interpersonal activities and interests, though they felt they were better at

dating as well as better at getting along with others under confined conditions. In addition, they now preferred activities that permit some peace and quiet, some solitude.

The results suggest that nature-related activities do indeed make a difference. Even a relatively short encounter with the out-of-doors is reflected in some pervasive changes. There is a suggestion that competence in the skills required in the woods is related to some aspects of self-esteem. This is true whether the skills were acquired in a summer program specifically focused on such skills or elsewhere. The results also support the more informal findings reported in the previous Outdoor Challenge study, that a relatively short program can result in positive changes some time later.

Let me close with some more of the "poetry" that these kids produced while all alone with their thoughts in the woods:

"I have all ways been in the woods and I can relax by taking a short hike in the woods easier than watching TV or reading a book because in the woods there are no words or signs or people to look at and I am glad that they have nature areas like this so people can use this as an escape . . . Now I know why my father likes to take a lunch to work rather than go to the country club and eat. He is in a business that he makes deals with people every day because he is a car sales man and he is the best I know . . . [Like the other sales people] my Dad gets tired of people too, but he eats his lunch at the park and maybe that is all it takes—just that half or full hour in the park can make my Dad forget people and he is glad to go back to work. The other salesmen go and eat at the club and they see more people—they have no escapement." (WM)

"I spent the night sleeping and listening to the silence. I had a lot of thoughts. I have always worried too much what other people think of me. I am going to try and fix that. I will still worry a little bit but not so much . . . Silence is really a funny thing. I don't hear it often. Last night I think I experienced the most I ever have." (TP)

#### Acknowledgments

This research was supported in part by the USDA Forest Service, North Central Forest Experiment Station, St. Paul, Minn., by grants to

Stephen Kaplan and me and to the Community Mental Health Center in Marquette, Michigan, which sponsors the Outdoor Challenge Program. Robert A. Hanson, the program's director, not only inspired our research but has been continuously helpful in its execution. The willingness of the sponsors to let us take this research in whatever direction we saw fit is greatly appreciated. Paula Leinbach and John Russell were most helpful in obtaining data

from other participating groups. Janet Frey provided invaluable assistance with data analysis.

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PHOTO BY WALT BLAIR

“What is perhaps the most obvious direction for theory, namely that people innately *like* nature, turns out to be quite unsatisfactory” - Stephen Kaplan

# Tranquility and Challenge in the Natural Environment

by STEPHEN KAPLAN, *Professor, Departments of Psychology and of Computer and Communication Sciences, University of Michigan.*

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*ABSTRACT.* The issue of clarity is perhaps most urgent and powerful for the adolescent. One interesting route to clarity is through challenge and fascination. People have powerful reactions to certain environmental patterns, although they may not be aware of them if they have not had the opportunity to experience them. Having such an opportunity at a time when issues of identity and one's relation to the environment are pressing could have a lasting impact on the character and functioning of the individual. The natural environment, with its special capacity to hold an individual's attention, may be unusually effective in fostering the experience of cognitive clarity.

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NATURE IS IMPORTANT to people. This observation is hardly novel, yet it is only recently that there has been empirical evidence to support it. In fact, the evidence presented at this conference is probably as extensive as the sum of the hard data in the literature up to now.

Thus, at last, there is beginning to be evidence for the importance of nature. Both to guide future research in this area and to apply effectively what we know, the next step is to develop a psychological theory to explain this phenomenon. What is perhaps the most obvious direction for theory, namely that people innately *like* nature, turns out to be quite unsatisfactory. The fact of the matter is that people are quite often fearful or even terrified of nature. Indeed, a suitable theory will have to explain how nature has value and attraction for people in spite of its potential to frighten them.

As a cognitive psychologist interested in how people make sense out of the world, I have approached this problem by examining the effect that nature has on the thought process, on a person's state of mind. Dr. Mead's illustration of the child's reaction to an ant is instructive. The child reacts with fascination: there is a clear focus of attention and behavior. For some,

nature is a source of perspective, of tranquility. What seems common to the various effects of the nature experience is the sense of cognitive *clarity* or, conversely, the absence of confusion. Undoubtedly, such a state of mind can be, and in general will be, highly pleasurable. But this is not the same as the direct pleasure of a lollipop or a pat on the head. It is, if you will, informationally-based pleasure, that is, pleasure mediated by clarity.

The link between clarity and pleasure involves certain physiological considerations too technical to go into here. But it is possible to relate these concepts on functional and intuitive grounds without detailing possible mechanisms.

On functional grounds people had better find clarity pleasurable. For humans to survive in the dangerous and difficult world in which they evolved, they would have had to make up their minds quickly. And they would have had to *like* being in the state of having their minds made up (*S. Kaplan 1973b*). Put the other way, liking to be lost in thought would have been quickly fatal in the context of the African savanna where human evolution is believed to have taken place.

From an intuitive point of view, the relation

of clarity and pleasure presents little difficulty. People who are confused about themselves or their world, or both, have been known to despair and even to attempt suicide. On the other side of the ledger, crusades—where it is utterly clear who the bad guy is—appear to be a source of considerable pleasure (to the participants). The attraction of rather eccentric belief systems also seems to be related to the clarity they promise. Mobs, too, offer a kind of clarity. When everyone is shouting the same slogans, all the stimulation one experiences is in agreement—a state of affairs all too rare in the everyday world. Indeed, as the world becomes more complicated and value systems and life styles proliferate, the achievement of clarity becomes increasingly problematic.

## TWO KINDS OF ATTENTION

My analysis, then, will be based on the concept of clarity—what it is, how it works, and how it is related to nature.

As it turns out, the concept of clarity has been little studied in psychology. Fortunately, *attention*, a closely related concept, has been studied extensively. Admittedly at first blush the two concepts may seem to have little in common. Clarity is a state of mind. Attention involves the selection of what stimulation to respond to out of the enormous variety of stimulation that might have been responded to. But when attention is successful, all the stimulation dealt with has a common focus. In other words, the outcome of the successful operation of attention is a clear state of mind.

The concept of attention received some of its most thoughtful analysis quite a few years ago. In 1892 William James put forward several distinctions that form the basis of this paper. *Voluntary attention*, in James' terminology, is that attention that requires effort. When one is tempted by distractions, but pays attention, as it were, by an effort of the will, that attention is voluntary. By contrast, some attention occurs in spite of ourselves. It not only requires no effort, it would take an effort not to attend. Something very beautiful might call forth attention of this kind, but so might something strikingly ugly, or potentially dangerous. James calls this latter kind of attention *involuntary*.

Voluntary attention is all too familiar. We fall

back on it constantly as we make our way through the dull but necessary requirements of everyday existence. So much of what we do has little intrinsic fascination and demands an effort to keep our minds on the task. Indeed it might be argued that in the modern world the interesting is no longer important, no longer interesting.

The effect of this effort to stay with the task is the suppression or holding down of all potential distractions. There must be some mechanism, presumably inhibitory, that does this. The more stimuli there are that must be attended to even though they are not particularly gripping in themselves, the more this mechanism must be brought into play. Likewise, the more distractions there are, the more stimuli that must be ignored, the greater the need for this mechanism. As Milgram (1970) has pointed out, the city is an environment of overwhelming stimulation, a source of stress to which people respond by growing more insensitive. One can readily see how the stresses of modern life could lead to fatigue of the mechanism that gives us the capacity to suppress distraction. Recovery presumably requires resting this overworked capacity. This could be achieved by avoiding circumstances that require effort to pay attention. Thus recovery of voluntary attention could ultimately hinge on the availability of environments that are involuntarily interesting. If nature could be shown to have this property, then the popularity of natural settings for recovery from overload and stress would make considerable sense.

James distinguishes two kinds of involuntary attention, which he calls the immediate and the derived. The derived is based on experience, as (in James's example) the reaction to a faint tap on the window pane when it is a prearranged signal between lovers.

The immediate form of involuntary attention has a strikingly primitive flavor, as is clear from his list of examples: "strange things, moving things, wild animals, bright things, pretty things, metallic things, words, blows, blood, etc. etc. etc." (p. 88). This colorful list is rich in implications. First, it suggests that "immediate involuntary attention" involves the property of fascination so vividly illustrated in Dr. Mead's example yesterday. At the same time, James' list shows the close linkage to evolution; sur-

vival may well have depended upon paying immediate attention to stimuli of this kind. A third characteristic of this list is its lack of system. Its disorder and incompleteness, even to James' exuberant use of "etc." fairly cry out for a more orderly, more coherent framework.

## SOURCES OF FASCINATION

Such a framework follows readily from the evolutionary significance of this process. An individual's likelihood of survival would be enhanced if certain kinds of patterns or events were innately fascinating, if they required no effort to attend. These might include circumstances where it was likely that useful new information could be acquired (as in watching a highly skilled individual carry out some task). It would also be adaptive for potentially dangerous situations to be fascinating. If such situations were simply perceived as bad or painful, the reaction might be headlong flight without calculation or strategy. But fascination with potential danger would lead to the close scrutiny of the situation needed by a creature whose survival was far more dependent upon wits than speed (*S. Kaplan 1976*). Such fascination would also make possible the group cooperation and group defense that is characteristic of many primate groups. Headlong flight is rarely conducive to cooperative efforts.

Thus there are a variety of circumstances—the potentially educational, the potentially dangerous, the potentially important in one way or another—that would appropriately be fascinating to humans. To identify these circumstances would require a research program of major proportions. One might, for example, present visual patterns on a screen and observe people's behavior. Any stimuli that failed to hold people's rapt attention would be discarded and replaced by others until one had a vast collection of material, all of which had proven fascination value.

Fortunately for our purposes this research has already been carried out, and on a large scale. It is called "television," and it provides an excellent overview of what people do in fact find fascinating. For those who decry modern trends of this kind, and long for a simpler time gone by, the circus is a similar experiment—and leads to similar conclusions.

From these and other activities (e.g., zoos, auto racing, theater) that elicit rapt attention in humans, the various domains of fascination begin to be visible. A central distinction here appears to be between process and content.

### Process

The process that people find fascinating is, in the largest sense, the process of coping with uncertainty (*S. Kaplan 1973a*). This can, of course, be broken down into innumerable sub-processes, since there are many facets of this vital human activity. For our purposes, three rather general subprocesses should suffice:

(1) Making sense out of the world: Recognizing (e.g., bird-watching) and predicting (e.g., gambling) are frequently fascinating and are the basics of the sense-making process.

(2) Acting on the environment: This includes evaluating (as in identifying the good guys and the bad guys), and coming to decisions, as well as acting per se.

(3) Exploration. The fascination of this process is so well known that it hardly needs discussion. It might be useful to point out some of the adaptive values of this process. On the one hand, it involves the acquisition of information in an organism that depends upon information for survival. In addition, it involves the *practice* of making sense and acting in an organism that must be able to carry out these procedures quickly and efficiently when the chips are down.

### Content

The contents that people find fascinating presumably are related to coping with the environment just as the basic processes are. Thus it is hardly surprising that people have strong reactions to wild animals. In fact, wild animals are sufficiently fascinating that compounds where such creatures can be viewed by the public are available in most of our major cities. Snakes are legendary in this respect; wolves and bears elicit particular interest, as do any animals that are particularly large. There are also strong reactions to the young of many species.

Green things, too, have their special claim on human attention. Gardens (*R. Kaplan 1973*, *Lewis* in this volume), parks, wilderness, even house plants (*Illis et al. 1970*) reflect this area of fascination. Although television seems not to

specialize in this domain, efforts to evoke a feeling of tranquility (e.g., cigarette commercials) tend to rely heavily on patterns of natural vegetation.

The preference for green things blends into the related issue of landscape preference. Here water must be added as a powerful (and evolutionarily appropriate) factor. A host of other factors are involved at this scale; while there is not the space to discuss them all here, they are quite consistent with the overall emphasis on attention and survival (*S. Kaplan 1975*).

This variety of fascinating living things readily merges into various survival-related physical phenomena. Here we might include fires, caves, the weather (especially bad weather) and miscellaneous natural hazards. We might also include certain portions of the environment that humans have altered, adapted, or constructed for their own use. Shelters, tools, and food would be good examples.

While this collection may sound too much like the preoccupations of a myopic caveman, urban children still are fascinated by fires. An occasion that promises free food (or drink) is still very attractive, even to people who could well afford to buy their own, and even today people with little else in common talk about the weather.

## NATURE AND PERSONAL GROWTH

In this perspective a challenging exposure to the out-of-doors (such as the Outdoor Challenge Program) provides a unique opportunity. It would be difficult to imagine another experience that draws so heavily both on contents and processes that command involuntary attention. The natural environment can provide an experience of clarity hard to match in any other way.

This special character undoubtedly has numerous implications for the process of personal growth. Let me comment briefly on three such possibilities that I find particularly intriguing.

(1) One of the ways the challenge-oriented outdoor programs differ from other sources of involuntary attention (like television and circuses, for example) is that they are active. It is

necessarily the individual who is the source, the locus of control in what happens. By emphasizing the capacity to act (one of the subprocesses that inherently hold attention) they enhance an important aspect of confidence and competence.

(2) Skill learning in general might be expected to enhance self-esteem. But to the extent that people tend to dismiss the skills they have as being of little importance, this benefit might be minimized. Skills relevant to the natural environment, by contrast, are more difficult to dismiss, because the natural environment communicates its importance so effectively through the attention it demands and the clarity it evokes.

(3) It may be that the issue of clarity is particularly urgent and powerful for the adolescent. He is beset with unclarity concerning himself and his relation to others. He also is attempting to find effective ways of dealing with the lack of clarity in his environment. It may well be that he is at a critical point when such issues will be resolved one way or the other.

Among the many ways of achieving clarity, perhaps the most popular are reliance on the social support of the peer group and adoption of a simplifying world view (often of the "us vs. them" variety). An interesting alternative route of clarity is through the challenge and fascination of the natural environment. In this way a youth might discover an unexpected capacity for clarity. The power of the human reaction to certain environmental patterns is real only for the person who has experienced it. Having an opportunity to do so at a time when issues of identity and one's relation to the environment are pressing could have a lasting impact on the character and functioning of the individual.

### Acknowledgment

This research was supported, in part, by the USDA Forest Service, North Central Forest Experiment Station, St. Paul, Minn.

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"Plants are nonthreatening and nondiscriminating in a world that is constantly judgemental" - Charles A. Lewis

## Human Perspectives in Horticulture

by CHARLES A. LEWIS, *Horticulturist, Morton Arboretum, and Coordinator, American Horticultural Society People-Plant Program.*

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**ABSTRACT.** Gardening produces not only vegetables and flowers, but also social and behavioral benefits. In low-income housing sites in New York, Philadelphia, and Chicago, gardening programs have resulted in reduced vandalism, new neighborliness, cleaned and painted buildings and streets, and other improvements. The human response to plants, and the qualities of plants that encourage this response, are valuable in the production of humanly satisfying environments.

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**M**AN HAS BEEN associated with plants since his beginning. Our progenitors, primitive oxygen-breathing forms of life, evolved in an environment already populated with green plants. Ittis, Loucks, and Andrews (1970) suggest that primitive responses to vegetation were acquired during our evolutionary journey and are with us yet, buried deep in our psyches.

### PROXIMITY TO PLANTS: EFFECT ON RESPONSE

It is difficult to delineate human responses to plants because plants are integrated into human experience at several levels, each of which produces its own typical response. By discerning the several levels at which people interact with plants, we may be better able to isolate and study the accompanying behavioral responses in a proper perspective.

The hierarchy of integrative levels is influenced by personal and cultural distances between the person and vegetation: the least personal responses occur with the greatest separation. The situation is somewhat analogous to the view of a city from several different heights and the kind of response engendered at each. The distant view, as from an airplane, reveals the gross geometry of the ci-

ty, a flat structural abstraction of lines and lights. We observe it without personal involvement, except perhaps for trying to find meanings in the distant pattern. An intermediate view is seen looking down from a tall building. We are aware of the three-dimensional aspect: building walls create impressive deep canyons at whose remote base are narrow streets inhabited by tiny slow-moving vehicles and people. From this viewpoint, the city is awesome; we are impressed by its physical grandeur and we respond to it. The minute streets, people, and traffic are less impressive than the physical grandeur. The closest view is at street level, where we see and even become involved in the tangle of people and traffic. No longer observers, we participate intimately in the life fabric of the city. Responses at this level are extremely personal.

And so it is with plants. Distant views of vegetation, such as those from an airplane, reveal gross patterns in various shades of green and brown, interlocked like pieces of a puzzle. We may respond to the green as representing life, but the lack of detail at this scale prevents our discerning specific types of vegetation, such as field or forest, which would evoke a more personal response.

Closer proximity reveals scenic details of vegetation, such as open field, dense forest, or

tree-lined street. As observers, physically separate from the scene, we respond with meanings we read into the scene. Components of verdure, shade, and color carry pleasurable connotations which influence our response. This level of perception can be equated with viewing the city from atop a tall building.

The closest association with plants occurs in gardening, where we are intimately involved with growing one or more plants. We water and fertilize, always watching closely to determine whether the plant is responding properly to our nurturing. This direct involvement with plants is analogous to the street-level experience of the city and evokes the most personal level of response. This association of people and plants in an almost symbiotic relationship is the special interest of the American Horticultural Society's People-Plant Program of which I am coordinator.

## GARDENING IN LOW-INCOME AREAS

I first observed these responses while judging the New York City Housing Authority Tenant Garden Contest, which permitted thousands of inner-city dwellers to garden on the grounds of their buildings. A subsequent visit to the Neighborhood Garden Association's window-box program in Philadelphia revealed similar responses (*Lewis 1972, 1973*).

In both cities the gardeners were almost parental in their pride and protectiveness toward their gardens. They took turns guarding them against vandalism. The garden became a special place where friends met to talk, where wedding and graduation pictures were photographed.

Soon neighbors began to cooperate in activities beyond the garden plots. Streets were cleaned, buildings repaired and painted, vacant lots rehabilitated into playgrounds and miniparks. These activities were spontaneous, not part of the garden contest. Clearly something happened to motivate the gardeners into these nongardening activities.

Similar responses occurred in a garden contest sponsored by the Chicago Housing Authority in 1974, which attracted participants from a wide range of age and ethnic groups. Tenants of high-rise buildings were allowed to garden on

plots near their homes, an activity previously possible only for residents of row houses with yards.

Again contestants were very proud of their gardens. They joined together to nurture the gardens, protect them from vandalism, and to share their bounty with neighbors at community harvest dinners. The gardens were considered special places—"holy ground", one tenant called them—and were held in high esteem.

Here too, gardening residents initiated activities outside the garden plots, painting curbs, benches, and chains along walks to harmonize with the garden colors. At the Robert Taylor Homes, an impersonal high-rise complex, the entrance columns and portico trim received the same colorful treatment. Soon large geometric or pictorial murals appeared on walls adjacent to building entrances. The anonymous decorations were exceedingly well designed and carefully executed, notwithstanding C.H.A. rules that forbade painting the buildings.

In public housing, grass around the buildings is considered part of the physical plant, to be maintained by management, and not the concern of residents. However, at Robert Taylor the gardening tenants sowed grass seed and created a large area of lawn on what had been bare ground surrounding their gardens. Would the results have been the same if C.H.A. had asked these tenants to paint the buildings or plant a lawn?

Gardening in low-income areas of Chicago, Philadelphia, and New York, seems to have encouraged residents to improve their physical surroundings. What personal changes are expressed in these activities? In terms of human values, what is the meaning of cleaned streets, reduced vandalism, painted houses, new neighborliness? In what way does the process of gardening, the interaction of person and plant, produce these results?

Lacking data from precise investigations, we have only theories about the qualities of plants and gardening that encourage improved behavior.

## BEHAVIORAL RESPONSES TO GARDENING

Dr. Edward Stainbrook (*1973*), Chairman of the Department of Human Behavior at the

University of Southern California School of Medicine, has written "An environment of ugliness, delapidation, dirtiness, over-built space, and lack of natural surroundings confirms the negative self-appraisal a person may have developed through other contacts with society. Self-esteem is the keystone to emotional well-being; a poor self-appraisal among other factors, determines how one treats his surroundings and how destructive he will be toward himself and others. These factors set up a vicious circle that is difficult to break".

How does the process of gardening enhance self-esteem? The gardener takes on a responsibility when he grows a plant. It is a living entity, and its future is dependent on the gardener's ability to provide conditions for growth. Each day as he tends his garden, the gardener observes new growth of the plant as it responds to his planting, watering and fertilizing. The slow but steady progress from seedling to young plant, then to maturity and flowering, provides the gardener with continuous evidence of his success. New leaves, stems, and flowers are his reward.

With a private garden plot, the gardener's sense of personal domain is extended beyond his apartment walls. Though the garden is a representation of his individuality, it also provides pleasure for all who pass by and see it.

In planting, growing, protecting, and enjoying the garden, the gardener finds opportunities for social contact with neighbors he may not have known before. Neighbors working together in the garden build a sense of community among themselves.

The garden, proof of an ability to change physical surroundings, projects a sense of personal mastery of the environment. His personal attitudes thus enhanced, the gardener goes on to effect changes beyond the garden. A large mural decorating a building entrance, for example, creates a distinct identity, and separates that building from its impersonal replicates. The cleaned streets and painted buildings may be seen as the physical environment upgraded to reflect the change in the gardener's psychological environment.

Dumont (1971), studying the mental health of cities, cites self-esteem, sense of community, and mastery of the environment as unfulfilled needs of the urban ghetto dweller. Urban gardens help to fulfill all of these needs.

These qualities of gardening encourage a positive self-appraisal and help to create self-esteem.

## LIFE-ENHANCING QUALITIES OF PLANTS

What intrinsic qualities of plants elicit human responses? Plants are living organisms, with specific requirements for growth which, in the wild, are supplied by the ecological niche in which the plant grows. In a garden, supplying the factors needed for growth becomes the responsibility of the grower. The dependency of cultivated plants on the gardener seems a key element in the interaction.

Plants are nonthreatening and non-discriminating in a world that is constantly judgmental. Plants respond to the nurturing care they receive, not to the race or the intellectual, social, or physical capacity of the gardener. Plants provide a benevolent setting in which a person with real or imagined handicaps may take the first steps toward self-confidence.

Plants take away some of the anxiety and tension of the immediate. Now by showing us that there are long, enduring patterns in life. It takes time for a cutting to grow roots, for a seed to germinate, for a leaf to open. Plants respond visibly to the sun in its daily course and signal the change of seasons. These intrinsic rhythms were biologically set in the genes of plants by the same forces that set human biological clocks. Plants symbolize enduring qualities: an oak tree has looked like an oak tree for thousands of years. There is a certainty in knowing that a rose is a rose is indeed a rose—at all times and in all places.

These life-enhancing qualities of plants are utilized in horticultural therapy, aiding recovery and rehabilitation in mental hospitals, physical rehabilitation centers, geriatric centers, schools for exceptional children, drug and alcohol rehabilitation centers, and correctional institutions. This work is the focus of the National Council for Therapy and Rehabilitation Through Horticulture, with headquarters in Mount Vernon, Virginia.

From the human perspective, we can see distinct behavioral and social benefits accruing to gardeners in situations of stress. Research by behavioral and social scientists is needed to

identify the factors involved at the people-plant interface. Kaplan's (1973) study, "Some Psychological Benefits of Gardening", is a first step in this direction. Ultimately, we will see planners and architects designing environments for habitation that will, by providing opportunities for activities with plants, prevent some of the stress we now are trying to alleviate.

Those of us who work with children should be aware that gardening produces much more than flowers, vegetables, and plants. It can enhance a child's understanding of himself and his world. It can help a child gain self-confidence in a stressful environment.

Walter Hickle sensed the significance of man-plant relationships when he spoke, in 1970, of the need for a personal ecology of the mind and spirit of man. He said "There is a mystery attached to the variety and perfection of nature, a mystery which stirs wonder in a child and gives a grown man perspective. If we help refresh the

inner man, we would help begin to answer such real questions as those of the inner city."

#### Acknowledgment

This work was supported in part through a grant from Mrs. Enid A. Haupt to the American Horticultural Society's People-Plant Program.

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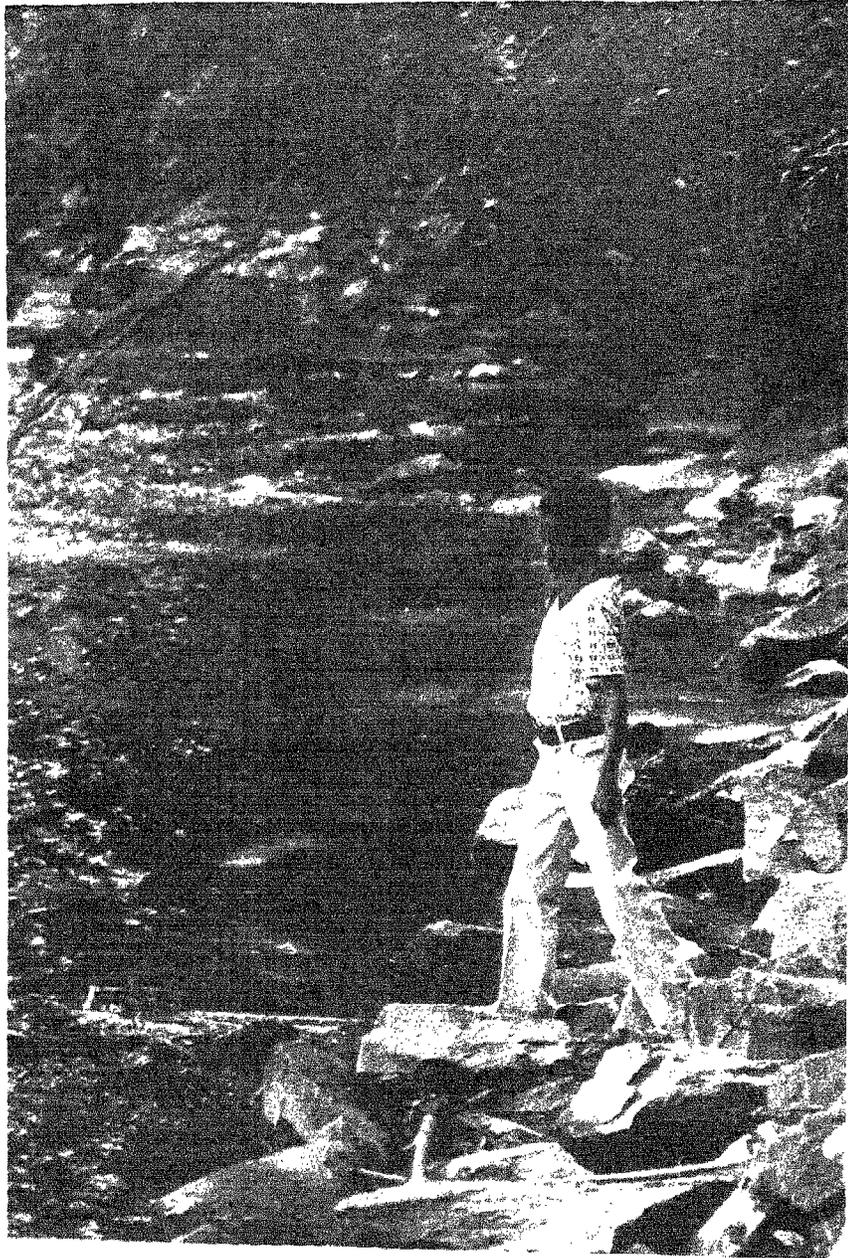


PHOTO BY WALT BLAIR

"What a person may learn about himself in an intensive outdoor experience is frequently indicative of how he lives the rest of his life" - Frederick W. Medrick

# Confronting Passive Behavior Through Outdoor Experience: A TA Approach to Experiential Learning

by FREDERICK W. MEDRICK, *Rocky Mountain Center for Experiential Learning, Denver, Colorado.*

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*ABSTRACT.* The concepts and techniques of transactional analysis (TA) can usefully be applied to outdoor challenge programs aimed at facilitating personal growth, developing responsibility, and teaching cooperative behavior. Passive behavior results from discounting of the self and others; four levels of it have been identified, and TA offers various means of preventing or confronting it. A no-discount contract and individual growth or learning contracts are prerequisite to responsible behavior. Both structural analysis (identifying ego states) and script analysis are valuable tools for detecting and analyzing the causes of ineffectual behavior. Permission, protection, and potency are essential for effective facilitation of outdoor growth experiences.

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**T**HE MOST EFFECTIVE learning, whether from an educational or therapeutic standpoint, occurs in situations where what is learned can be put immediately into practice and the learner can receive instant feedback and reinforcement. The outdoor environment is particularly effective in encouraging such learning and supporting individuals who are incorporating new ways of acting and responding into their daily lives.

I would like to share some theories and experiences which I have found helpful in crystallizing my position. I will draw upon my training in the use of transactional analysis (TA), as developed by Dr. Eric Berne, and my work with Outward Bound and similar wilderness experience programs. Incorporating the approaches developed by transactional analysis into experiences in the outdoors enhances the potential of these experiences for developing new awareness and effecting substantial change in a person's way of functioning.

The experiences I find most susceptible to TA approaches are those outdoor activities—such as backpacking, rockclimbing, mountaineering,

ski touring, and river rafting—where the environment is totally new and there is a certain amount of objective danger, entailing substantial stress and requiring cooperative functioning to insure the safe and successful completion of the experience. Some of the learning in these situations is very directive (rockclimbing) while other learning is carefully supervised but largely experiential (camping and wilderness navigation).

The most essential component of such intensified learning is a person's decision to achieve some particular behavioral goal during the course of an experience. This goal may be as broad as developing the ability to assimilate more data, learning a particular skill, changing one's way of relating to others, or crediting (and getting support for confronting) the anxiety one has about unfamiliar and physically demanding activities.

The means I have found most effective for stimulating such learning is the therapeutic contract developed by transactional analysis. This entails a clear statement by an individual of why he is engaging in a particular experience,

what he wants to get out of it, how he is going to accomplish this, and what evidence will demonstrate that he has achieved this goal.

The important part of the *contract* is the *doing* part and, in a group experience like most outdoor pursuits, it is important for a person to identify what he needs or wants from others to support his growth. This support may range from verbal acknowledgement and praise to strong confrontation and refusal by others to support (respond to) negative behaviors. The contract is a means of monitoring a person's individual performance during an experience and using the support of others to reinforce a personal commitment to attaining new awareness or changing behavior.

Encouraging and monitoring such growth takes leaders trained and experienced in individual and group counseling. The most difficult stage in the process seems to be the beginning, when participants are helped to identify what they may have to gain from an outdoor experience and to risk committing themselves to utilizing the opportunity at hand to gain it. This requires a very careful introduction for the uninitiated to the whole notion of growth (as actualizing one's inherent potential) and how it may be approached through outdoor activities.

Essentially, this introduction is a statement that everyone is engaged in growth and movement of some sort and that part of the process of self-actualization (*Maslow 1962*) entails movement toward some goal or ideal that a person chooses for himself. I find that it helps to get people to share the aspirations they have for themselves—for the impending experience and for their lives as a whole—and there is a wide variety of techniques available in the growth movement to aid in this. It is even useful to have people write down certain growth goals to refer back to as the experience proceeds.

The next stage in the contract process has to do with how these goals may be pursued. This is something that needs to be focused upon during the early stages of an experience, since most persons have only vague notions of what they are going to encounter. At the outset, a fairly general statement may be sufficient for some, while others may wish to be very specific. As the experience evolves, it is important to review the appropriateness of each goal and to clarify or modify it if necessary. This is a basic part of the kind of self-definition that people appear to go

through as they engage in something totally new.

The next stage is to identify the progress being made in meeting a particular part or the whole of the learning contract. This is most effectively done after some significant experience has taken place, such as getting lost, crossing a rushing stream, climbing a peak, or negotiating a challenging rapid. Usually, reviewing the experience and sharing success or failure is foremost in a group's mind at such a time. Progress on the personal contract is secondary to what has by then become the development of a group contract: to function well enough together to ensure the success of group endeavor. Each person's personal contract undergoes some change as a group identity begins to emerge.

The personal contract, then, is aided by the assessment of each person's role in achieving the group goal. It is important to stimulate exchange and feedback, both positive and critical, within a group so that the effects of an individual's actions, whether constructive or disruptive, are more immediately apparent. There is a very natural feedback that comes from determining whether events went according to plan, what preparations were made, and whether and how modifications were made in the original plan to adjust it for unexpected factors.

The effectiveness of any experience in contributing to the personal growth of an individual depends on his degree of participation in it. To evaluate the effectiveness of an experience, specific questions can be directed to each person's role and what he got from his participation. When a person has not felt particularly effective, it can be helpful to explore what may be getting in his way and how it might be changed. This can be the basis for a new "mini" contract.

Finally, it is important during the concluding phase of an experience to review both the expectations and the success of the personal contract. There is learning to be had in becoming aware that a particular contract did not work and that there were factors that interfered with its fulfillment. Even more helpful is for a person to see what he personally may be doing to get in the way of his own growth, and for him to credit the resistance to change he may have.

Facilitating these awarenesses takes a good deal of perceptiveness and counseling skill.

The contract structure establishes this self-assessment process as a norm for the experience, and can have valuable carryover into other parts of a person's life. What a person may learn about himself in an intensive outdoor experience is frequently indicative of how he lives the rest of his life. By becoming aware of this and trying some new ways of acting, a person may be able to initiate a new "program" for himself that brings him more satisfaction and clearer ways of getting his personal needs met.

This notion is supported and extended in the TA theory of scripts (Berne 1972). Eric Berne's observation is that each person lives his life according to a certain plan or program that is determined early in his life by parental and cultural influences (injunctions and counterinjunctions). These influences program and regulate all his subsequent actions and choices.

The program generally manifests itself through certain "predictable" ways of responding to stress situations. A person trained to detect such patterns of behavior and response can anticipate and even head off destructive or dysfunctional behaviors. By observing the way a person approaches a challenge such as a rock-climb or initiative problem, one can often recognize the predominant approach or frame of reference from which a person responds to stimuli, analyzes problems, and makes decisions.

Another concept that is helpful in understanding behavior is the TA notion of ego states. An *ego state* is a pattern of behaviors and/or statements that represent personality structures incorporated by the individual to enable him to function as a "whole" person within his world. The classic TA labels of *Parent*, *Adult*, and *Child* refer to those aspects of one's personality that serve, respectively, to provide rules for behavior and guidelines for protection, process information and make decisions, and experience feelings and act in ways calculated to get personal needs met. These concepts are explained in detail in most TA literature (Berne 1961, 1964, 1972).

Knowledge of these ego states and of the signs that indicate when an individual is functioning from one position or another indicates how a person can be expected to function. When information is communicated, particularly that per-

taining to personal safety, it is extremely important that the recipient's Adult ego state be available to assimilate and apply the information.

Similarly, it is important to engage a person's Parent in helping him to incorporate and utilize the safety information that is given. Then the impulses of the Child will have some kind of internal monitor and compliance will be assured. Frequently it is necessary for an instructor to provide "parenting" in the form of permission to try a new activity or alter a self-destructive behavior.

Finally, it is essential that the kind of energy and excitement available to most children, the curiosity and the urge to experiment and discover, be stimulated in a person who is taking part in a new experience. This applies also to the process of getting individuals to work together as a group.

One particular TA theory that helps us comprehend and modify inadequate learning processes in the outdoors is the theory of passivity developed by the Schiff family at the Cathexis Institute in California (Schiff and Schiff 1971). Essentially, the theory is that when there is incomplete separation from the major parental figures in one's life, much of one's energy is given over to re-establishing the kind of symbiotic attachment that was essential to survival in infancy but is inappropriate in an autonomous adult. Such a person tries, usually in subtle ways identified in TA as *games* or *rackets*, to get others to do what he is capable of but unwilling to do for himself—whether expressing feelings, taking care of his needs, or fulfilling his commitments or responsibilities. Instead of asking directly for what he wants, an individual may develop a variety of manipulative techniques to get his needs met.

The passivity material has particular application to outdoor experiences because the results of indirect and manipulative behavior are almost immediately evident in these circumstances; sometimes they critically affect safety and survival. For example, when a person is not being active in taking care of his survival needs, such as food, warmth, and shelter, it becomes evident very quickly in diminished performance or increased survival risk, such as by hypothermia, exhaustion, or illness.

Four levels of passive behavior are identified by the Schiffs: withdrawal, overadaptation,

agitation, and incapacitation or violence. *Withdrawal* is usually manifested by a person *doing nothing* and getting recognition and reinforcement (strokes) by having others *do* for him. Withdrawn people usually defer to others on decisions and actions that have to do with getting needs met, such as cooking, setting up camp, navigating, or initiating other tasks. Such a person waits for someone else to ask first instead of taking initiative. In more extreme instances, a withdrawn person does not act at all but only receives the benefit of others' actions. This is the form of passive behavior that I have witnessed most often in outdoor situations. Such withdrawal isolates the individual from the group and makes it even more difficult for him to influence his experience, have an impact on others, and get something for himself through his own actions. Hence, such passivity tends to be self-reinforcing.

*Overadaptation* is shown when a person does just what is asked or expected of him in a situation and little more. It usually looks as though such a person is cooperating and taking responsibility for his actions, but the responsibility for the *outcome* of his actions is usually left to his peers or the leader. For example, a person may do everything he is told to perfectly in preparing for a rock-climb. However, on the climb he requires constant coaching and specific directions from the instructors and other climbers, instead of solving problems and making decisions on his own. He may finish the climb, but he gains little sense of accomplishment from doing so.

Frequently, when a person is uncomfortable (fearful, angry, overly excited) with an experience or a situation, he tends to dissipate a good deal of energy in preparation or in activity that doesn't lead directly to accomplishing the task at hand. This is known as *agitation*, or non-productive activity. A person may do a great deal of moving around and shifting of equipment in preparing a meal, but not actually make any progress in preparing it. Instead of asking for information or directions, he dissipates his energy in fruitless activity.

The ultimate expression of passive behavior occurs when a person is actually *incapacitated* or resorts to *violence* to get his way or get taken care of. I have witnessed this particularly in urban youth who are out of their "territory" and don't know how to get their needs met. The motive in this level of passive behavior, however

subtle, seems to be to get attention, get taken care of, or make a point that the person was not effective in making more directly ("I told you I couldn't carry such a heavy pack"). A lower level of this same type of behavior is shown by the person who consistently complains either about the physical hardship, his own incapacity, or the fact that the program isn't working out the way he expected.

The basic factor in all the forms of passive behavior that I have been discussing is what is called *discounting*; it is a decision on the part of a person not to use the information or skills he has to get his needs met, because he believes either that he cannot get his needs met at all, or that he cannot get them met in any way other than the one he is using. Discounting is *not counting* that one has the means to get most of one's needs and wants met in direct and responsible ways.

In the outdoors, such discounting may have several causes. A person, for example, may either be unaware of or refuse to acknowledge the dangers in a particular situation. Threatened by bad weather and wind, he may not take precautions to avoid hypothermia, such as putting on extra clothing or drinking a cup of hot tea or chocolate. Or, a person may actually claim that he is fine when in fact he has goosebumps and is shivering. These two approaches are known as *discounting the situation* and *discounting the importance (or danger) of the situation*. In both instances, the person is waiting around to be told what is happening or what to do, instead of taking responsibility for himself.

Another form of discounting occurs when, being appraised of a situation, a person decides *there is nothing he can do about it*. An example of this is when a student is told that a shelter he has constructed is inadequate to provide protection in an impending storm and he decides there is nothing that can be done to make it better, and so goes to sleep, only to awaken wet and cold during the night.

This feeling is frequently personalized; a person decides that *he is personally unable to do anything* to take better care of himself. This is usually evidenced by an "I can't" attitude toward such tasks as making it to a destination when the going is rough or attempting a rock-climb that others have been successful in. Such a passive person may eventually respond to a great deal of urging from his peers or the leader,

but he is essentially unwilling to make the decision and commitment for himself.

All these forms of discounting promote a "taking care of" atmosphere in which the individual seeks and obtains reinforcement for being passive about meeting his needs. Some of my most frustrating wilderness experiences have been when every member of a group chose this mode of functioning. The obvious goal of such behavior is to make another person feel uncomfortable enough with what he is witnessing and experiencing the effects of that he, instead of the person being passive, will take action and responsibility. This puts particular pressure on the leader, who is responsible for seeing that something does happen. In each of these instances, however, taking over instead of confronting can be seen as a rescue of the other person. It is a way of supporting his maintenance of a personally dysfunctional pattern of behavior.

The format that I have found most useful for dealing with ineffectual performance during outdoor learning experiences is the *passivity confrontation contract*. This is an agreement among the participants to work together to achieve both the individual goals and the groups that have been identified, as they have evolved during the experience the group has been sharing. Each person agrees to be confronted when his behavior does not match the behavior he identified as a goal. Similarly, he agrees to confront others when their behavior does not match what they identified as goals. Such confrontation may range from pointing out some neglect or avoidance to, in extreme circumstances, very strong objection and some form of consequence for behavior that is discounting. It is important, particularly where physical safety is an issue, that each person agree in some verbal fashion to abide by the guidelines laid down for an activity. It is equally important that each individual be involved in establishing and working with those guidelines that are less critical but equally important to the success of the experience. These include how the basic tasks of the day are to be accomplished as well as how the most important decisions are to be made.

Claude Steiner, in his book *Scripts People Live* (1974), identifies three criteria which, I believe, define effective leadership in implement-

ing the growth approaches I have described: potency, permission, and protection. *Potency* results from the personal competence of the leader in outdoor skills and whatever counseling ability he brings to the situation. It is a product of the willingness of the leader to risk stating his own expectations clearly and providing a role model for others.

*Permission* is the support a leader provides for a person who is ready to experiment with new behavior and tune into what he needs to do to get his needs met. This frequently means countermessaging rules and messages that were established early and are deeply ingrained.

*Protection* means assuring a person, both by the structure of the course (goals, procedures, rules, guidelines, etc.) and by the precautions taken for his safety, that he will be both physically and emotionally safe. In short, he will be credited for whatever position he comes from, given space to explore his interaction with others on whatever level he needs to, and asked to be responsible for himself and his actions for the duration of the experience. In accordance with the passivity confrontation contract (*no discount contract*), he will be confronted for discounting and expected to alter his behavior in a way that aids cooperation and is consistent with the physical circumstances.

In summary, the effectiveness of any outdoor activity as a growth experience depends on the nature, structure, and, most importantly, the communicated intent of the program. The contract procedure of TA and its understanding of passivity provide an effective vehicle for identifying and acting on how a person functions. The ego state concept and script theory provide a conceptual framework for understanding how behavior originates and is expressed. Combined with the natural encounter that occurs during intensive outdoor experiences, these approaches provide support for participants to examine their old ways of acting and develop new structures and means for validating and modifying what they do and how they do it. Some of the approaches provided by TA enhance the total impact of outdoor programs and increase their potential for carry-over of significant learning into the rest of a person's life.

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"It is imperative that those who design the environments in which children must live and learn, and those who design the programs that use these environments, understand the special problems of handicapped children" — Dennis A. Vinton and Donald E. Hawkins

# The Natural Environment and Human Development: Implications for Handicapped Children in Urban Settings

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**ABSTRACT.** This review of literature is intended to promote awareness of the needs of the 15 percent of the nation's children and youth who are afflicted with some form of handicap. It is imperative that those who design children's programs that utilize natural environments understand the special problems of handicapped children.

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## INTRODUCTION

**T**HIS PAPER is based on a review of the literature prepared to help participants in the Symposium-Fair on Children, Nature, and the Urban Environment be aware that fully 15 percent of the nation's children and youth are afflicted with some form of handicap.

These children, be they physically or mentally handicapped; deaf, blind, or emotionally disturbed; suffering from impaired or speech-learning disability, face very special problems that make it difficult for them to participate in those life experiences that are the birthright of all the nation's children.

It is imperative that those who design the environments in which children must live and learn, and those who design the programs that use these environments, understand the special problems of handicapped children. Their goal must be to design environments and programs that meet the needs of *all* children.

In an effort to provide relevant input for the Symposium participants, the authors identified two major topics that were generally related to the topics presented and discussed during the Symposium sessions. They were: (1) the value of the natural environment in the growth and development of handicapped children; and (2)

program planning, administration, and evaluation.

A thorough search of the literature was undertaken for each of these topics to identify and review research with implications for handicapped children and youth. During the week of the Symposium, specially trained teams monitored all presentations and evaluated the information presented for applicability to handicapped children. Specific recommendations for designers and program planners were then developed to guarantee that the special problems and needs of handicapped children would be provided for. These recommendations were presented to participants at a panel discussion on the last day of the Symposium.

The Symposium program showed that little, if any, thought had been given to the unique problems of handicapped urban children. This oversight is more likely benign than willful.

## THE URBAN ENVIRONMENT: A UNIQUE PROBLEM SETTING

Until recently, the urban environment was excluded from environmental education. When outdoor programs were offered at all to city children, teachers generally headed for a city

park to conduct a nature study class. The city as an environment was rarely considered. Yet the city is the area most profoundly affected by the environmental crisis (*Hawkins and Vinton 1973*).

Air and water pollution, solid wastes, and a lack of space for comfortable living are more serious problems in cities than in areas with low population density. In today's cities noise, crowding, inconvenience, and disunion from natural environments combine in a unique threat to personal mental and physical health. The inner-city child bears the brunt of the urban environmental crisis, for he is more crowded and his dwelling less sound.

Even the more fortunate city children grow up with little awareness of the natural environment. Urban environments are constricted; they offer little room for imaginative play and almost no contact with nature. They are often confusing, dysfunctional, and even dangerous. Although the city is notable for the diversity of cultures, values, lifestyles, and services it shelters, these are to a great extent segregated from one another so that children have few opportunities to experience the different environments within their city. The children move from their homes to their egg-crate schools and back, and fail to observe the nuances of even the small environment in between (*Yambert 1970, Bushnell 1970*). Instead of learning to perceive with all their senses, they learn to blot out unpleasant sights, sounds, and smells.

Environmental education for urban children—and most of our children now grow up in metropolitan areas—would enable them to perceive their environment, appreciate both its good and its bad aspects, and participate in improving it. It would take them out of what are usually gloomy school buildings and provide an environment for learning different from the one in which they too often face only failure. It would allow them to investigate real things instead of artificial ones and to develop all their senses.

Children of poverty, more than children of affluent backgrounds, tend to be what the Gesell Institute of Child Development terms "reality bound." They learn better dealing with the concrete than with the abstract. Environmental education could be a means of providing successful learning experiences for such children.

Environmental education for urban children should provide experiences in many kinds of environments, so that they can know of worlds beyond the tenement, the subway, and the street corner. Best of all, they might build a positive self-concept from success at solving problems in these environments that could encourage them to participate in ameliorating the problems of their own.

The city is actually an ecosystem, a community of physical and biological entities interacting with each other and with the total environment. Education that deals with the urban environment should help learners understand the city as such a totality. The city, moreover, does not end at a specific boundary, but influences environments far beyond its political limits.

Urban environmental education thus includes investigation of all types of environments. In addition to the study of the effects of the city on the natural environment, urban environmental education must deal with public health, transportation, architecture and landscaping, and zoning and planning. The most traditional forms of environmental education—nature study and conservation—are easily adaptable to urban surroundings and points of reference familiar to the city dweller.

According to current statistics provided by the National Advisory Committee on the Handicapped (1976), there are presently 8 million children in the United States who are classified as handicapped or disabled. Over three-fourths, or 6 million, of these children reside in urban areas. Few would deny that children growing up in urban centers today encounter problems unprecedented in our nation's history. For children who are handicapped, these problems are magnified.

## THE VALUE OF THE NATURAL ENVIRONMENT IN THE GROWTH AND DEVELOPMENT OF HANDICAPPED CHILDREN

Although limited, existing research indicates that the natural environment can provide a fertile medium for the physical, emotional, intellectual, and social development of the disabled child (*Havighurst 1965; Lefebvre 1972; Holden 1962; Robb 1971; Balla, Butterfield, and*

Zigler 1974; Guthrie, Butler, and Gorlow 1963). The value of the natural environment as a therapeutic modality can also be inferred from studies that have identified the detrimental effects of isolation, hospitalization, and institutionalization and the positive effects of exploration, free play, and the home environment.

### Physical and Motor Development

Research has shown that physical and motor development of handicapped children may be retarded by environmental conditions related to their disability, such as institutionalization and isolation. Other research has shown that for some disability groups, physical and motor development can be enhanced by the provision of physically-based learning experiences in a play environment (Drowatzky 1968, Oliver 1972, Rarick 1973.)

### Perceptual Development

The available research indicates that perceptual development is independent of intellectual development in the mentally retarded and that haptic perceptual development is similar for blind and sighted children (Doyle 1967, Gottesman 1971). Since, in these skill areas, the mentally retarded and blind can perform at approximately the same levels as their normal peers, it can be inferred that providing opportunities to develop these skills through play could give the disabled child successful experiences. It can be further theorized that these successes may be of value in enhancing self-attitudes and may have carryover value in other areas as well. Further research is needed to substantiate these inferences.

### Behavioral, Personality, and Affective Development

Numerous studies of various dimensions of the self-concept of handicapped children have been reported (American Camping Association 1972). It is generally accepted that the lower self-concepts found among disabled children are due primarily to environmental factors related to the disability, and that self-attitudes can be enhanced through programs in which the environment is manipulated so that the child is able to perceive himself in positive ways. Similarly, in other areas of personality and social development, research indicates that en-

vironmental manipulation can be of benefit to the disabled child (Lowry 1974, Robb 1971, Tait 1972).

### Intellectual/Cognitive / Language Development

The effect of the natural environment on intellectual, cognitive, and language development has been investigated in several recreation and school camps, as well as in recreation-oriented education programs. The results of these studies indicate that camping and recreation in general can benefit the mentally retarded, blind, deaf, and those with learning disabilities in improving communication and academic skills (Baer and Stanley 1969, Buell 1956).

## PROGRAM PLANNING, ADMINISTRATION, AND EVALUATION

A considerable amount of literature describing innovative ideas in programming and program administration, and a limited number of research studies have been published. However, the body of scientific knowledge about the planning, administration, and evaluation of programs for the handicapped that use the natural environment contains many large, easily identifiable gaps.

### Programs

Many environmentally oriented programs for handicapped children have been implemented. Some, within public school systems, have helped mentally retarded and learning disabled children to improve their academic skills and attitudes (Albert 1970, Brannan 1969). Others have been used to enhance the physical and social skills and self-attitudes of children with all kinds of handicaps. The activities in these programs have ranged from highly structured nature studies and traditional recreation to individualized environmental exploration.

Environmentally oriented programs for the handicapped in the community, sponsored by youth organizations such as the Girl Scouts, Boy Scouts, and YM and YWCA's, also comprise both traditional and innovative activities (Barnett 1970). Unlike school programs,

however, their objectives are usually not stated in terms of specific physical, emotional, and intellectual benefits.

Community-based programs sponsored by municipal recreation departments, universities, voluntary health agencies, and private organizations (Mitchell 1971, Ryan 1964) differ according to the philosophy and goals of the sponsoring agency. Some, like public schools, establish their programs to achieve specific therapeutic objectives. Others, like the youth organizations, offer a purely recreational program based on the philosophy that activities which use the natural environment are inherently therapeutic.

Outside the urban community, environmentally oriented programs for the handicapped can be found in organized camps and in federal and state parks. Most camp programs described in the literature are at therapeutic camps and integrate therapeutic techniques into traditional camping activities (Vinton and Pantzer 1974). In the parks, services have been expanded in recent years to include not only accessible outdoor facilities, but also larger environmental programs for the handicapped.

Two major trends are the integration of handicapped with nonhandicapped participants (mainstreaming) and year-round programming. Integration of people with every major type of disability has been described in the literature, and both successful and unsuccessful integration efforts have been documented (Bent and Miller 1969, Williams and Coltoff 1965). Although we do not fully understand when and how integration is successful, some answers are being provided by demonstration projects and research studies.

Year-round programming is gaining impetus across the nation. It is being offered as a partial solution to the financial waste of using facilities and personnel only part of each year. Some descriptions and discussions have been presented in the literature, but the overall impact of year-round programming has not yet been assessed.

### Administration

The diverse public, private, and voluntary organizations involved in providing environmental programs to special populations share certain administrative concerns, especial-

ly funding and staff development (Nesbitt et al. 1972).

Inadequate funding has prompted agencies in some communities to pool their resources. In other communities, it has led to a greater use of volunteers. Among the sources of volunteers cited in the literature are Vista workers, members of senior citizen groups, older persons with handicapping conditions, and reformatory inmates.

Although it is generally agreed that staff working with the handicapped need specialized training, there appears to be little agreement on the type or extent of training necessary.

During the spring of 1972, a major national conference on training personnel in camping and outdoor recreation for handicapped children was sponsored by the Bureau of Education for the Handicapped and San Jose State University. Using a modified Delphi technique, the participants developed a position statement that was published with other position statements in the conference proceedings (Nesbitt et al. 1972). To date, there is little evidence that the recommendations of this conference have been implemented.

One need identified by that conference was further study of program evaluation. Although considerable research has been reported on the physical, psychological, educational, and social effects of specific programs that use the natural environment as a therapeutic modality, few investigations that dealt with overall program evaluation have been reported. In studies of the effects of camping programs, the programs are generally described, but rarely quantitatively or qualitatively defined. Thus, replicating successful programs remains difficult and evaluating failures remains guesswork.

## SUMMARY AND RECOMMENDATIONS

Environmental learning is a joyful activity, a relevant pursuit, and a way to help the handicapped child understand his or her own environment. Environmental learning programs for handicapped children should closely resemble those for nonhandicapped children. Modifications should be based on the needs and abilities of each child, not on their handicapping conditions.

In developing such programs, parents, camp personnel, recreation leaders, and teachers should understand that environmental learning includes various stages of experiential development—planning, anticipation, actualization, recollection, and evaluation. The following are general suggestions for developing and implementing those experiences:

- Provide group situations that encourage close contact with other people.
- Use interested people and whatever equipment, props, and spaces are available.
- Provide a nonthreatening, nondemanding environment.
- Develop a program that will allow all children a variety of experiences despite their handicapping conditions.
- Introduce new activities gradually or incorporate them with familiar ones to expand the child's experiential range.
- Encourage creative, inventive, and expressive efforts by providing environments with a wide array of manipulatable materials.
- Develop a program what will afford personal enjoyment and satisfaction to all participants.
- Provide the positive "can" instead of the negative "can't".
- Encourage the child's sensitivity to what is happening in his environment by helping him to understand his own feelings and reactions.
- Develop within the child the responsibility and desire to manage life pursuits.
- Work to create a positive self-image and self-respect leading toward the desire to grow and develop.
- Encourage self-discovery, curiosity, inquiry, and initiative.
- Don't limit yourself to one facility. Utilize all types of environments, especially the natural environment.
- Integrate handicapped children and other children in the same program.
- Recognize that children are innately curious and will explore their environment without your intervention.
- When two or more children are interested in exploring the same problem or materials, give them full opportunity to collaborate in some way.
- Understand that a child may possess knowledge and yet be unable to display it publicly. Knowledge resides with the knower, not in its public expression.

Although camping and environmental education are steps in the right direction, they touch only a small group of children and usually only for one or 2 weeks a year. What kinds of environmental learning activities can take place every day? It is much easier for the handicapped child to adjust to the natural world, with its diversity, than to the physical or cultural environment.

The man-built physical environment presents problems for the handicapped child because design standards have ignored those with unusual requirements. Advocacy of the handicapped child's right to equal opportunity is beginning to create public awareness and bring about changes. The next major problem is the social environment, which includes people and their culture. The handicapped child is restricted by social norms that exclude those who are different.

Traditionally, environmental programs for the handicapped have been endorsed by parents, educators, and recreation professionals because of the supposed benefits of living in the natural environment. As we enter a new era of concern for our natural, physical, and cultural environment, the concept of human ecology is coming to the fore. There is a trend toward reconceptualizing programs for the handicapped, with the focus on the individual, not the handicapping condition, and on the individual's interaction with his total environment. The learning experience that takes place in the natural environment can take place in daily life also—in the home, the school, the recreation center — everywhere. The environment itself is the classroom, and the learning that takes place there can help the handicapped child enter the mainstream of society.

### Acknowledgments

Numerous individuals contributed to the preparation of this paper. Appreciation is extended to Barbara Pantzer of the University of Kentucky and to Robin Smith, Liane Summerfield, and Robert Cipriano of the George Washington University for their assistance with the literature search. Special thanks is due Wileen Snow of the George Washington University for assistance in preparing and editing the original manuscript.

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PHOTO BY MICKEY SPENCER

“Unless children have the chance to experience novelty in the real world they will slip into the well-worn thoughtways of the adult status quo—biologically conservative before their time—where awareness is prematurely relegated to the nonconscious level of reflex, habit, and routine” - Robin C. Moore

# The Environmental Design of Children-Nature Relations: Some Strands of Applicative Theory

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**ABSTRACT.** A brief framework for children-environment relations, focused on 8- to 12-year-olds and their natural environment, is based on the principles of maturation and Gestalt therapy. The concepts of "quality" and "place" are discussed. A comprehensive ecological framework is proposed, relating theory to the material resources used in place-making, together with a set of design criteria emphasizing the use of natural materials.

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THE MATERIAL presented here focuses on "middle-aged", 8- to 12-year-old children; the nature of their relationship to natural resources; and some suggested criteria for the design of natural environments in urban areas. Let me stress that the focus is only partial. Children cannot be separated from society. Neither can nature be divorced from environment—they can only be distinguished. I write as a designer/researcher, interested in constructing a theoretical framework to guide more relevant research and help build child-environments that foster a higher degree of well-being. Thus far, my thoughts arise from a fruitful combination of theory, gleaned from clinical psychology, and natural ecology, plus my own empirical experience.

## MATURATION AND ENVIRONMENT

The "principle of maturation", as reviewed by Hadfield (1962), recognizes that the human organism is born with a set of innate capacities and urges that emerge in a predictable sequence of development. Although their initial appearance is presumed to be unrelated to external stimulation, their exercise and application are actually entirely dependent on the

quality of the setting. As Hadfield says:

"The [social] environment and the *material world* [my emphasis] . . . are the medium in and through which the potentialities in the child's nature are expressed and developed."

Thus, heredity and environment are a coacting duet. Heredity provides the potential for *action*; environment is the applicative *medium* for skill development, direction and purpose—what White (1959) calls the growth of *competence*.

Maturation theory enables us to identify and define stages of growth and development. It is quite unrealistic to treat children as a monolithic social group for the purposes of research and design. Hadfield identifies five "phases of development", from birth to adolescence, in terms of differing dominant characteristics. Before age 8 or so, a child's experience is mainly limited to the immediate home range by the scope of its natural desire to explore, plus parental fear of the world outside. Early childhood has included the playful exploration, discovery, imitation, and testing of the environment—a time of preparation, hopefully divorced from the harsher, dominating realities of the larger world. This has allowed the child's personality to emerge and be itself, without an irreparable amount of psychic warping.

## THE PRIMITIVE YEARS

It is in their middle years (about 8 to 12) that children have their deepest and most extensive relationships with the outdoors. Hadfield (himself born in the South Sea Islands), calls this period the "primitive age" reflecting its behavioral characteristics. It is a phase when the child applies nascent skills to the real world, while still unaware of its real problems. The child can play beyond the now extinct functions of the home shelter, parental protection, and the necessity for adult endorsement.

These middle years are a unique period of freedom, health, and vitality (e.g. they have the lowest mortality rate) during which the child has a great interest in making a practical contribution to life around her/him. Playful behavior is retained from earlier periods, but its style and purpose have changed to serve in an apprenticeship for life. In this phase, interaction with nature on a large scale reaches its highest level of behavioral significance. Hadfield (1964) suggests that the principle of recapitulation/collective unconscious may be at work here, whereby behavior is informed by an archaic genetic memory of earlier human history. Edith Cobb (1959), in her unsurpassable essay, talks about the innate genius of the child and the intuitive understandings that arise from its interactions with the natural world. Her evocative ideas do much to explain the overwhelming attraction of untrammelled natural environments but they need further development to be operational for design.

## ENVIRONMENTAL ASSIMILATION AS GROWTH

Gestalt therapy theory, as presented by Perls, Hefferline, and Goodman (1965), is an eclectic but unified system of concepts for understanding people-environment relations. It retains considerable evocative power, yet takes us many steps forward along the path of application.

Here we find growth and development described in terms of *assimilation* of environment by organism. In this process organism aggresses environment—"destroying" (destructing) it, to provide material for the "reconstruction" of a new actuality. It is an endless cycle of "creative adjustment",

motivated by the organism's "excitement", via its environmental "contact", leading to/flowing from "awareness of self" as an "organism/environment field".

The inventors of gestalt therapy were mainly interested in interpersonal relations. We need to apply their theory to the material environment, and thus provide ourselves with a tool for people-environment research. Environmentally, the primary factor involved is *novelty/diversity*. The excited organism seeks novelty. To satisfy this need, the environment must supply sufficient diversity to *accommodate* varied user-needs, over an extended period of time.

Although natural environments provide a necessary (and unbeatable) opportunity for overt manipulation, creative adjustment can take place in other ways. Some environments can be perceived anew with each visit, each time stimulating new imaginings and reinterpretations of reality. Natural resources are especially potent because of their sensory complexity and attendant characteristics of change.

Unless children have a chance to experience novelty in the real world they will slip into the well worn thoughtways of the adult status quo—biologically conservative before their time—where awareness is prematurely relegated to the nonconscious level of reflex, habit, and routine. Therefore, let us say that "strong contact" with natural resources is necessary (but not sufficient) for complete well-being. For the purposes of research and design we need to elaborate the point a good deal further.

## QUALITY IN CHILDREN- ENVIRONMENT RELATIONS

When we talk of a "responsive environment" we are referring to a *relationship* between the organism and its immediate surroundings. Gestalt therapy talks about the excitement of growth that arises in a person as a result of strong, aware contact. But what part does the physical setting play in this process.?

Anyone who has been in the company of children, in a diverse natural setting, must have been impressed by the way certain objects and materials seem irresistibly to draw attention to themselves. I call this characteristic *incitation*. The setting incites, from the outside; the user

excites from inside. Both characteristics must be present to a balanced degree for creative aware contact to be initiated and grow into a qualitative relationship.

There is no other type of relationship between organism and environment except a qualitative one (Pirsig 1974). In essence it is an expression of values between the two. Thus the designer-as-interpreter-of-values must help provide an environment for the propagation of "good quality" user-setting relations. If we now incorporate this point of view within an ecological framework, we can operationally recognize the fact of human volition and self-government and give tangible expression to the concrete manipulable designable elements of the material world.

## THE MATERIAL BASIS OF CHILDHOOD ECOLOGY

Childhood quality arises from the *interaction* of children with a *diversity* of surroundings. It is a process of continuing growth, learning, and *change* resulting in the *adaptations* of children and environment to each other (Moore 1974 b).

Figure 1 illustrates the person-environment basis from which this ecology is generated. The diagram is derived from an earlier one of Billings' (1970) illustrating plant-environment, rather than child-environment relationships.

Since children (unlike plants) can manipulate their environment, all the relationships are potentially two-way (double-ended arrows). For example, if it rains or the wind blows, children

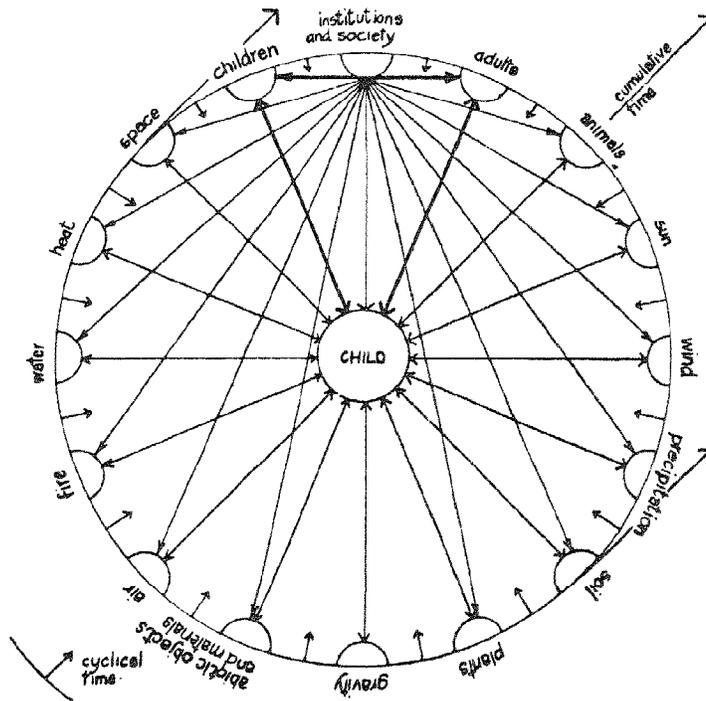


Figure 1.—The ecology of childhood (derived from Billings 1970).

The individual child has interrelationships with two sets of factors:

**Social:** Interactions with other children, adults and social institutions which lead to generational cultural continuity or change.

**Natural:** Interactions with biotic and abiotic objects materials and phenomena in play and learning places.

Planning, Design, and Education can directly influence children-environment interaction by intentional physical change, or influence the "controlling institutions" by changing values.

can move to shelter (if available) or make their own (if materials are provided).

Since it is adults-as-society who are ultimately in control, "institutions and society" is given a one-way connection to all other factors. Individual adults can limit or extend children's experience as indicated. Factors also have independent relationships with each other (not shown). Many such relationships can be modified by design—leading to changed relationships with children; e.g., high buildings frequently blot out the supply of sunlight to plants, depriving children of the experience of vegetation.

The primary pattern of life evolves in the realms of space, time, and social relations. The social processes of play are represented by the "child"- "children" link.

The *time* factor is present in many forms. There is a long-term temporal scale of *cumulative* cultural change and individual development; there is the *sequential* process of maturing, of moving through different stages; there are the *cyclical* changes of seasons, of day and night; and the repetitive dynamics of week-day and weekend, close to a child's daily life. Time is expressed in movement and speed, which are central to a child's continuous behavior. Space and time are so closely interwoven in a child's life that they must be considered as the single factor: *space-time*.

A child's pace is entirely different from an adult's. This gives leisure planning a primary task of ensuring that children have an opportunity to live in their own space-time; divorced from the tightly scheduled materialistic adult world. It is critically important that children have escape places of their own, where time is suspended, so they may explore the nature of themselves and the physical world.

*Space*, for the sake of symmetrical elegance, is shown as merely one factor on a par with the others. In reality, space is the experiential locus of all other factors. The factors shown have been chosen for their presumed universal significance in childhood experience. I hope that the level of generality chosen for each factor defines it as a separate entity. If the subsumed levels are mentally included, a universe of organism/environment potentiality is represented—a diversity accommodating the child's process of learning, growth, and mutual adaptation.

The factors can be subdivided into three major groups:

- *objects*: visible, holdable, differentiated "things".
- *materials*: amorphous, undifferentiated "stuff".
- *natural phenomena*: manifest properties of environmental *processes*, rather than substances; e.g., the weather.

An obvious phenomenon is "gravity", a natural limiting condition that is always present to be explored, played with, and pushed to its limits: "how high can *you* jump? Tree climbing, tree forts, rock throwing, ball playing and all varieties of swinging, sliding, jumping, and climbing are further expressions. "Wind" is another phenomenon important enough to include, although in fact it is only one of many expressions of the material we call "air". In combination with the phenomenon known as "precipitation", air has many phenomenological faces: just think of all the varieties of mist, fog, drizzle, and downpour—including smog. The sun adds a further dimension of heat and light; diffused, scattered, or obscured by clouds, trees, buildings, etc.

Other factors can be classed as *materials*; "water" is a good example. Although changes of stage give it many properties, as noted above, it nonetheless exists as tangible, tastable, touchable, stuff-on-the-ground. "Soil" or "dirt" is similarly a basic material. It too has a phenomenological role, as in the topographic system of drainage and erosion. In essence, "fire" is a phenomenon, but in the experiential world of children it can also be "used" as a play material. In addition, a fire can be perceived as an object: a place to sit around—a social setting.

The child's world often seems to be composed largely of a universe of *objects*, although only one or two classes are shown diagrammatically. "Plants" and "animals" are included from the natural world, as things kids respond to directly. A child's behavior, and presumably his/her perception of the world, appears very often to be "object-oriented". Thus, the "abiotic" category (I prefer to call it "peoplemade" rather than man-made) is the rubric for a multitude of "things": cars, toothbrushes, shoes, houses, bits of wood, nails, and so on; including the tools used to modify, transform and reassemble such materials: hammers, saws, shovels, etc. The distinction between "tools" and "objects" is fre-

quently absent from childrens' behavior. This lack of functional object definition lies at the heart of a child's intuitive relationship with the physical world. For convenience we can refer collectively to natural objects, materials, and phenomena as *natural resources*.

## PLACE AS QUALITY

Places arise from the stable combination of space, objects, materials, and phenomena. Place is the nexus of quality. Children are place-oriented organisms; thus places, together with the pathways connecting them are the habitat systems of childhood. From a design point of view it is worthwhile to highlight the four major classes of place-making variables:

- Fixed features: Spaces and fixed objects.
- Loose parts: Objects and materials that can be manipulated or moved around. (Term first coined by Simon Nicholson, 1971).
- Natural phenomena: The given natural dynamics.
- Populations: The surrounding communities (both human and non-human) which instill a pattern of social dynamics within the space, as a result of being attracted (incited) by resources and phenomena within it.

Most designed spaces, with the exception of adventure playgrounds, weigh heavily on the side of permanent fixed features rather than manipulable/interactive resources. Once a place has an equitable fixed/loose balance, the spectrum of play patterns broadens considerably (Moore 1974 a). Natural settings, again, do this most effectively.

Since most *institutional* arrangements for children fall far short of providing conducive social settings, kids are more inclined to find places for themselves in unofficial hidden-away corners. There are a multitude of potentially secret places, especially in older and lower-density areas. At higher densities, where space is more tightly organized, and also in newly built areas designed by so-called systematic, rational methods, the probability of finding or creating private nooks and crannies is negligible. Roger Hart, in a study of children's play patterns in Wilmington, Vermont, documented how children use unkempt, rough, overgrown

spaces, rather than the highly manicured suburban landscape (Hart 1974).

The ubiquitous attraction of natural resources and their contribution to childhood quality are undeniable. The challenge for planning and design is to find ways of incorporating far more of these natural "found place" qualities into official public space. Here is a list of criteria, all of which can be applied to the utilization of natural resources in the planning and design of places for children:

*Flexibility.* A terrain that to a degree can be changed and moved around to generate new patterns of relationship.

*Permanence.* Elements that remain unchanging, to provide familiarity, security, and identity; e.g., large rocks, mature trees.

*Change.* A variety of elements that will indicate changes in season, climate, and life in the community.

*Open-endedness.* Situations that users can manipulate and build onto for their own reasons.

*Manipulability.* A choice of materials and objects that users can work with manually—sand, dirt, water, vegetation, and assorted objects.

*Diversity and choice.* A guiding principle that applies to everything: colors, smells, textures, shapes, sizes, sounds, objects, materials, interactions, people, climate, time, space, movement, change, and so on.

*Ambient microclimate.* Elements that protect users from excessive wind, rain, sun, shade, and noise. An environment that provides year-round comfort. Vegetation is invariably an effective modifier of climate, because it is so varied and therefore provides a greater range of climatic choice. It has a less cut-and-dried effect than manmade structures. Trees are hard to beat as shade elements; spreading deciduous species that shed their leaves to let the winter sun through are especially good.

*Social interaction.* A variety of places for different sizes of groups, to facilitate social and working relationships. Undoubtedly, natural settings are especially conducive to interaction.

*Privacy.* A choice of situations where individual users and groups can be left alone in peace—especially places where children can get away from adults and intrusive stimuli.

*Safety.* The complete avoidance of situations that could result in *serious* injury.

*People-plant interaction.* A spectrum of

places where users can make contact with the growing/living environment to varying degrees, depending on the amount of vegetative protection provided. They should range from limited-access fragile environments to open rough ground covered with the hardiest impact-resistant plants.

*Wildlife habitats.* The provision of shelter and food sources for small animal life—birds, insects and other organisms. Vegetation, rocks, logs, marshes, and ponds can support the modest scale of wildlife that children find attractive; e.g., beetles, salamanders, snails, sowbugs, ants, fish, shrimp, worms, caterpillars, tadpoles, ladybugs, butterflies, spiders, and so on.

*People-made/nature mix.* Children respond with greater imagination to the intimate fine-grained combination of people-made and objects and natural materials.

*Indoor-outdoor relationships.* A variety of juxtapositions between buildings and the outdoors, with transitions ranging from slow to abrupt. The use of intermediate spaces such as terraces, decks, verandas, and pagodas is recommended. Architecture and landscape should be articulated as varied interpenetrating systems; sometimes contrasted, sometimes ambiguous; always working together for the benefit of overall quality.

*Scale, size, shape, enclosure, and continuity.* These basic dimensions of spatial design must be varied, juxtaposed, contrasted, and orchestrated to produce a coherent whole encompassing a range of spatial experience. *Scale* refers to the relative size of something; *size* refers to the actual dimensions; *shape* refers to the geometrical characteristics; *enclosure* is the sense of being contained by space; and *continuity* means the ability to move through space from one point to another.

Intrinsically, natural resources provide a far greater range of scale of possible interaction than people-made environments, and present it more coherently. The range extends from the microcosmic collecting of grass seed, to climbing and playing in trees, to large-scale exploration. A more varied spatial and textural setting is achieved with vegetation, which has a complexity and subtlety beyond that possible using solely people-made elements.

Vegetated enclosures give a "boundary depth"—a less intimidating territorial ambigui-

ty. The division of space by natural resources can produce an infinite variety of shapes. The result is a better social ecology, with more room for social maneuverability. This is a definite advantage to children. The precise boundaries produced by fences give an advantage to adults, making it possible to keep children more tightly controlled. A prime example is the school yard surrounded by chain-link fences.

*Third dimension.*—Think of spatial experience in all three dimensions. Children are particularly attracted to moving up and down, as well as through space. Consider the climability of all elements, including trees.

*Explorability/experimentation.*—This criterion is really the sum total of several others, but it is inserted to emphasize the overall effect of natural resources on child-environment interaction.

*Affiliation/identity.*—Many children seem to find natural environments more comfortable than people-made ones for social activity (Moore and Wochiler 1974). The higher the rate of use, the higher the sense of attachment. Natural objects that have a clearly differentiated identity, such as trees, large rocks, ponds, streams, etc., seem to produce a strong image in the mind of the user, judging from children's cognitive maps.

*Continuity.*—The importance of interconnectedness in the motor-related environment has been noted by several researchers and was verified in the Lenox-Camden Experiment (Moore 1966). Continuity is achieved by joining elements together so that "play circuits" can occur. Movement experience can be greatly improved by the incorporation of vegetative and other natural resources. A simple comparative example is the difference in feeling between a path that is a bland strip of asphalt and one where planting has been used to create sequences of texture, smell, light, shade, and color.

*Access.*—The basic need for access per se is not much affected by the presence of natural resources; but since access for children is normally via foot paths or bikeways, quality is increased by using topography and by following natural features such as creeks. In designing pathway systems one should bear in mind that the experience of the journey is as important as the arrival.

Also let me say that it makes no sense to

provide natural-resource areas for children unless they are readily accessible—an issue frequently not taken seriously enough in urban open-space planning.

*Conservation.*—A point to emphasize is that it is far easier to incorporate play into an existing natural scene than vice versa. The incorporation of natural resources into bland urban play areas is a management challenge at best. Better to conserve natural resources in the first place, by conscious planning.

*Application.*—These criteria can contribute to, but not produce, a design solution. Hopefully, they provide some systematic guidance; it is up to the designer's consciousness, imagination, and skill to create an environment that will embody high-quality human experience. Each site, community, and planning process is unique. This necessitates a wide margin of choice, interpretation, and combination of elements to fit many different circumstances.

Much depends on the designer's willingness to team up with the user-clients (*Nicholson and Schreiner 1973, Moore 1975*). Social science isn't going to. Under Schumacher's (*1973*) broadside, the myth of value-free science seems to have finally succumbed. It's time for those whose job it is to deal directly with the messy world to ignore the intimidations of social science and get on with their own high-utility systematic investigations—where it counts. For a solid base of empirical work is urgently required.

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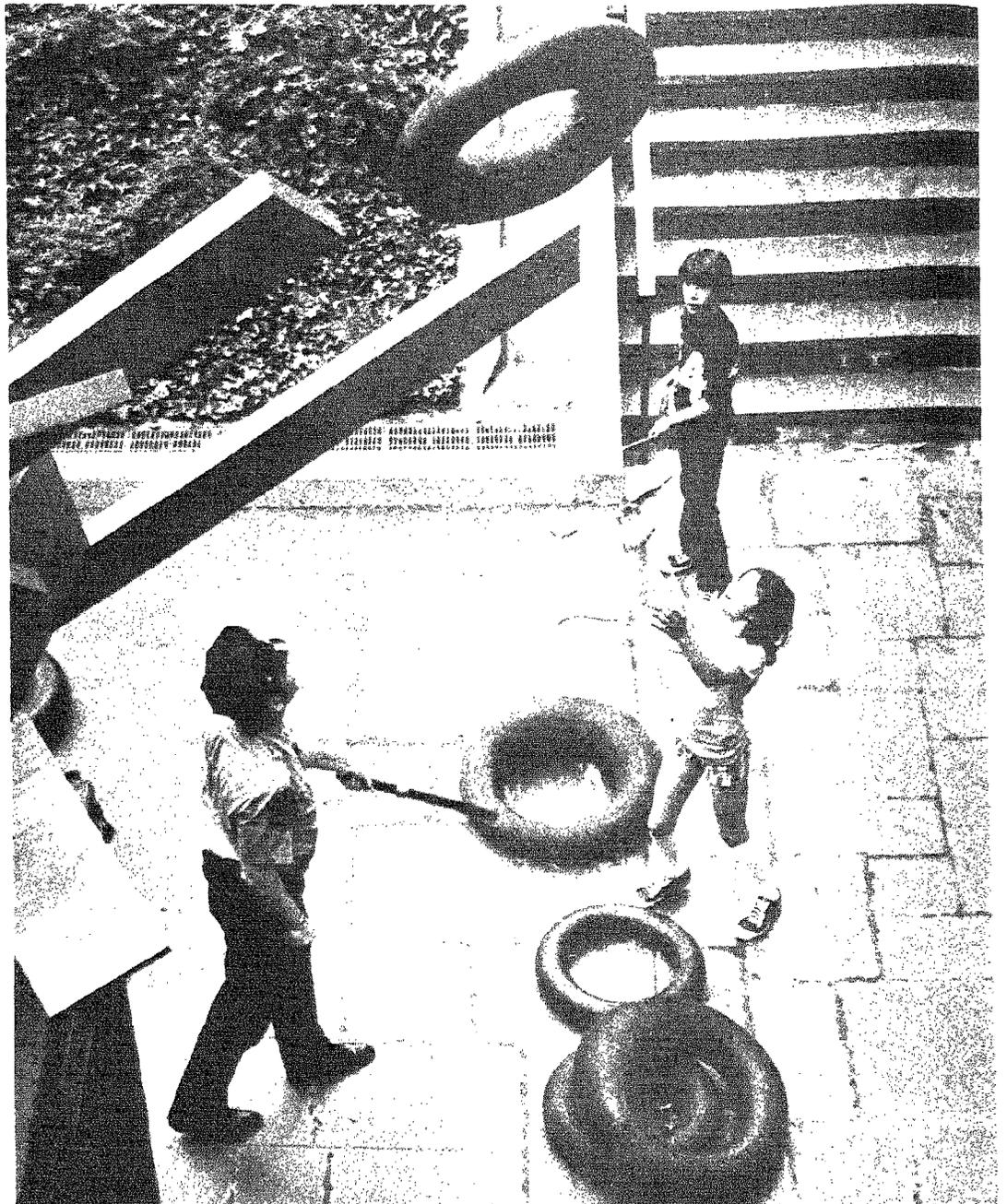


PHOTO BY STEVE SWARTZ

“Children in cities can become adapted to almost anything—polluted air, treeless avenues, starless skies, aggressive behavior, and the rat race of overcompetitive societies” - Elwood L. Shafer

# Research Needs for Programs That Provide Natural Environments for Children

by ELWOOD L. SHAFER, *Principal Recreation Research Scientist, USDA Forest Service, Washington, D. C.*

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**ABSTRACT.** The major emphases of selected Symposium papers are underscored, and some personal thoughts are presented on how childrens' understanding of natural environments will eventually affect the quality of this Nation's environment. Special emphasis is given to research needs for insuring the establishment, protection, and management of natural environments for children in urban environments.

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## INTRODUCTION

**I**NTERACTIONS among children, the natural environment, and where and how these children live are fundamental determinants of this Nation's quality of life. My objectives are to underscore the importance of natural environments for urban children, and to suggest research needs for community, city, state and Federal programs that provide those environments.

## THE IMPORTANCE OF NATURAL ENVIRONMENTS

This area of research has high priority for several reasons: Today, about 75 percent of the Nation's children live in densely populated areas. In just a few short years, these same children will be using the democratic process to make decisions about environmental issues that are of major concern to this country and the world. If a large proportion of today's children are not aware of and do not appreciate how their lives depend on natural environments, how, as adults, will they be able to help make intelligent decisions about the use, management, or protection of air, water, soil, flora, and fauna—their basic life support systems?

Children in cities can become adapted to almost anything—polluted air, treeless avenues, starless skies, aggressive behavior, and the rat race of overcompetitive societies. But in one way or another, the child has to pay later for the adjustment he or she makes to undesirable conditions. (The cost includes, for example, increases in chronic diseases and decadence of human values.) Urban children are often inclined to take nature for granted, to accept it without curiosity or question. Children become aware of events and things only when they come close to them or when an event affects the child spiritually or physically and penetrates the consciousness as an out-of-the ordinary, significant experience.

Furthermore, the earlier a child experiences and values his natural environment—sees with awe the first spring flower, or responds to the alluring, magical promise of a wooded glen—the deeper and more enduring will be his faculty for perceiving and experiencing his relationship with and dependence upon nature.

But nature has been thrust so far out to the edge of modern life that many times children are obliged to live without it altogether. Furthermore, in our zest for helping—or pushing—our children up the ladder of success, we often neglect an important aspect of their growth: we often do not provide the en-

vironments that children need for the idle times of introspection, rumination, and fantasy that are vital to the development of a rich personality. I believe that nature can provide the backdrop not only for contemplative thought, but also for the healthy play and exercise that are so vital to their physical well-being.

To paraphrase Winston Churchill, "We shape our environments, and afterwards our environments shape us." By preserving, maintaining, developing, and protecting natural environments in urban areas for children to use for recreation, we can create a variety of conditions that call forth active and creative responses during a child's early years, responses that may be far more important for intellectual and emotional growth than economic factors or passive exposure to cultural artifacts.

Looking forward to the not-so-distant day when perhaps 9 out of 10 of the Nation's children will live in cities, we should pursue with all our vigor and imagination those ideas that mean for all of them and us a more healthful and worthwhile life. Natural environments where children can satisfy their longing for recreation, quiet, privacy, independence, initiative, and open space, are not frills or luxuries, but real biological necessities.

Furthermore, we face not only the problem of how to provide green space for urban children, but also how to bring about the degree of institutional change that such provision calls for. The answer is not "blowin' in the wind," nor will it come with the dawning of the Age of Aquarius. Indeed, if we rely on such panaceas, we will more likely experience the groaning than the greening of America for today's urban children. The developing tensions of our society cannot wait that long.

We must work with speed and competence to build into our institutional systems the possibilities for a fuller expression and expansion of the values of natural urban environments. Changing some of our old priorities and practices in urban development is a task for the tough-minded and competent. Those who come to it with the currently fashionable mixture of passion, poetry, and platitudes only add to the confusion.

## RESEARCH NEEDS

A top priority challenge for management

research is to devise ways to get large numbers of potentially delinquent urban youth (14 to 19 years old) involved in summer work programs that relate directly to natural environments—either in or near the city. Elements of the natural environment provide the overall framework in which such programs would operate, and something that youth can relate to in a meaningful, tangible way. The assumption here is that if we provide aesthetic natural environments where youth can do meaningful tasks, there will be the short-term benefit of a decrease in crime in the cities during the summer, and the long-term benefits of children's better understanding and respect for themselves and others. Granted, the assumptions are largely intuitive at this point. Feasibility studies are needed to determine the probable costs; the kinds and distributions of local, state, Federal, and private areas and facilities available or capable of being renovated; and the direct and indirect benefits that would likely accrue to society and to the individual participants. In other words, the research challenge is to devise a strategy, estimate the costs, and document the support systems that would be required to obtain specified benefits from large-scale summer work programs in natural environments for youth.

Another challenge is research related to the public policy issues that provide or don't provide adequate green space for children. A key problem is: How shall we organize, control, and coordinate public and private policies for the development of green space for urban children so as to provide maximum opportunities at least cost? Or to phrase the question another way: What kind of quasi-public structure would best meet the needs for effective use of green space for children?

Next, what equitable and effective kinds of taxation and zoning would best support an urban land-use policy that would provide adequate natural environments for urban children?

Another research question: What means of public involvement work best in developing green space for urban children?

In what areas is compromise most acceptable in conflicts between the use of natural environments for children versus other social needs?

How can urban children's needs for green space be integrated with other urban land-use goals?

As you can see from this brief but somewhat comprehensive list of research questions that evolved from the sessions I attended, the related research tasks seem monumental and extremely challenging. No one said, however, that the research required for programs to provide

natural environments for children was going to be easy. This symposium has laid the foundation for beginning the needed research. To complete the task, we need to heed the advice of Mother Scott (an 83-years-young blues singer and Washington Grey Panther who performed during one of the sessions), "No matter how tough the problem, be the labor large or small, if a task is once begun, keep on goin'."

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PHOTO BY WALT BLAIR

"Environmental education programs for children are often based on what we think adults need to know. This is a worthy goal; however, the approach to attaining it must be tailored to the child's changing level of comprehension" - George H. Moeller

## Research Priorities in Environmental Education

by GEORGE H. MOELLER, Program Coordinator, Pinchot Institute of Environmental Forestry Research, USDA Forest Service, Northeastern Forest Experiment Station.

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**ABSTRACT.** Although natural processes operate in urban areas, they are difficult to observe. Much discussion during the symposium-fair was devoted to finding ways to improve urban children's environmental understanding through environmental education programs. But before effective environmental education programs can be developed, research is needed to: test the effectiveness of various approaches to teaching environmental education in relation to differences among children; help define testable program goals that relate to a child's level of comprehension; develop better methods of training teachers and administering environmental education programs; and identify ways to use elements found in the urban environment to foster an understanding of environmental concepts.

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ONCE UPON A TIME, not so very long ago, the relatively undisturbed natural environment lay at the doorstep of the "urban" resident. To experience nature, all that was required was to stand on ones toes and peak over a stone fence, hedge, or city gate. By necessity, an understanding of natural processes was an integral part of life. Little had to be done to formally "educate" the maturing child about his place in the natural world. Very often survival depended on how well "environmental education" lessons were learned.

The urban resident of today, even after climbing to the top of the highest skyscraper, may get only a fleeting glimpse of nature. The same natural processes are still operating all around him but they are harder to see because they are less dramatic and their effects less immediate. The contemporary urban resident has become increasingly divorced from the natural framework of trees, forests, fields, and natural processes that were an integral part of the developmental environment of earlier generations. The effects that this separation from nature may have on today's urban children, in terms of their psychological development,

self-concept, and preparation for responsible citizenship, are not known.

The trend toward increasing urbanization cannot be reversed. But as demonstrated during sessions of this symposium-fair, a great deal can be done to foster the urban child's understanding of natural processes. These processes still operate in cities, but they are much less obvious than in years past. We can no longer expect children to understand their place in the natural world intuitively, without assistance.

Because of the trend toward separation from natural processes, some kind of environmental education has become a basic need for the urban child. Without background knowledge and understanding of the natural world, and a concept of their place in that world, urban children will not be prepared to make the complex environmental decisions that they will be forced to make as responsible adults. Environmental education should not be treated as a luxury in modern education systems. Environmental education is vital to man's ultimate survival as well as to maintaining and improving the present-day quality of life (Pullias 1968). It is of utmost importance that environmental educa-

tion programs be carried out universally and that they be carried out properly.

The introduction of environmental education programs into the Nation's schools is progressing at an unsteady rate. According to a recent report of the National Center for Educational Statistics, United States Office of Education, "18 percent of the 23.9 million elementary school pupils, and 9 percent of 17.2 million secondary school pupils" were enrolled in environmental courses in 1970 (*Science, Mathematics, and Environmental Information Center* 1972). Most environmental education programs were in suburban and rural school systems. In a study conducted by the National Education Association (1970), only 11 percent of the Nation's schools with enrollments of 1000 or more (schools that account for 90 percent of all public school pupils) were found to carry out environmental education programs that met the National Education Association's criteria. While a few areas of the country have excellent records of achievement in developing environmental education curricula, most have had no central leadership or coordinated effort. Environmental education programs are most often the result of one teacher's awareness, enthusiasm, and dedication.

This lack of support is indeed sad. It is extremely important that environmental education programs be universally introduced in the Nation's public schools—particularly in urban schools. The favorable environmental attitudes that result from such programs would help people make the wide range of environmental decisions they face in everyday life, but the greatest benefit might be realized at the polls (*Schoenfeld* 1971). Just as every citizen is affected by environmental degradation, all have the opportunity to take part in the national decision-making process through their votes. Efforts of government agencies, private enterprise, and conservation groups cannot succeed in achieving and maintaining a wholesome environment without the firm support and understanding of the citizenry (*Conservation Foundation* 1963). As a National Audubon Society report (1967) so well expressed it, "People will not safeguard what they do not know, let alone what they do not understand. They will not protect or treat kindly what they do not appreciate".

During the past 2 days it has been my

pleasure to listen to 34 speakers—educators, practitioners, and theoreticians—who shared their experience and knowledge about the development of environmental education programs. The active participation of Washington, D.C., elementary school children added a sense of reality to these discussion sessions. Topics ranged from the relationship between nature appreciation and child development to practical techniques for introducing children to environmental concepts. I will attempt to summarize what I perceived as some of the major problem areas for environmental education research that were suggested during the discussion sessions. I must, however, caution that what follows is only a partial listing. Continual evaluation and much more input are needed if we are to organize a research package on which to base the design of comprehensive environmental education programs.

In her remarks at the first session of this symposium-fair, Margaret Mead stated, "We don't know what children do at different stages. The child as a universal concept is largely a myth". She argued that the needs of children vary—across cultures, regionally, between urban, suburban, and rural areas, and even from neighborhood to neighborhood. Although these differences are recognized, we tend to develop standardized approaches to teaching about the environment. Research should be done to evaluate the effectiveness of various approaches to teaching environmental education in relation to sociocultural and regional differences among children.

Environmental education programs for children are often based on what we think adults need to know. This is a worthy goal; however, the approach to attaining it must be tailored to the child's changing level of comprehension. As pointed out during the symposium-fair, an adult philosophy cannot easily be reconciled with that of a child. In most sciences we have a pretty good idea about what needs to be known and how to measure learning progress quantitatively. But a child's progress in understanding environmental concepts cannot easily be measured because goals are stated in adult terms and we do not have precise measuring devices. A child may be taught to differentiate different kinds of tree leaves, but we must ask ourselves if this achievement represents a successful environmental educa-

tion effort. Environmental education involves more than the transfer of knowledge—it involves the child's comprehension of his place in the natural world around him. If environmental education is to achieve an adult goal, it is necessary to break down this goal into subgoals that correlate with the child's level of comprehension. Research should be undertaken to help define these goals.

First, however, the goals of environmental education need to be operationally defined. Unless this is done, it will be impossible to evaluate the progress of an environmental education effort. Part of an operational goal definition for environmental education needs to be knowledge transfer. But, as pointed out in the previous paragraph, knowledge acquisition does not necessarily bring greater environmental understanding. A more desirable goal of environmental education is to foster favorable environmental attitudes—a longer lasting dimension of personality. Once goals have been operationally defined, research can develop methods of measuring change in environmental attitudes that result from exposure to environmental education.

Teaching about the environment is a relatively new undertaking. The environmental educator should have a background in biological and social sciences as well as in the philosophy of education. Educational programs to provide this background are now just being organized. Although there is great enthusiasm for teaching environmental education, little is known about the combination of talents needed to teach it effectively. When research has identified these talents, it can help design programs for educating the environmental educator. Basic research is also needed to study the process of environmental education—who should teach it, how should it be taught, and what materials and methods are best to foster an understanding of environmental concepts.

A related issue is that little agreement has been reached on whether environmental education should be taught as a distinct subject or whether all teaching should be done environmentally. Although this question has no absolute answer, research into the process of environmental information exchange would help to identify consequences of alternative approaches to teaching environmental concepts.

The administrative organization of systems

for exchanging environmental information also needs research. For example, what are the roles of nature centers, schools, and other supportive institutional services (libraries, television, periodicals, the greater "community", etc.) in an integrated environmental education program? A symbiotic relationship may develop among these institutions that will lead to a more efficient environmental information exchange system. A related research problem is the need to determine how environmental education programs can best be incorporated into existing educational systems.

How should environmental education be taught? The materials available for teaching environmental education vary widely, as do instructional techniques among educators. Yet little research has been done to determine the informational needs of environmental educators in different institutional and geographic settings. During these sessions, many innovative approaches to teaching environmental education have been discussed. Very few of these have had their influence on children's environmental attitudes quantitatively evaluated. Basic research is, therefore, needed to identify the educational techniques that are most effective in influencing children's environmental attitudes.

Research is needed to find out how children grasp environmental concepts. This research must take into consideration the children's different conceptual abilities at different ages, their past and present experiences, and their home and surrounding environments. Particular emphasis should be placed on developing programs in relation to children's ability to conceptualize and grasp environmental concepts.

The preceding discussion of research needs relates generally to all environmental education efforts. The special circumstances that confront environmental educators in urban areas—lack of opportunity to experience nature, lack of incentive to do so, etc.—require that some research be conducted specifically within urban areas. Even though the modern city masks and dominates nature it still offers many opportunities for environmental education. Research can help to identify these opportunities. We often try to transpose urban children from their home environments to the country, hoping that the exposure to nature will change their attitudes when they return home. This practice is

based on the assumption that if we can get children to the country, they will somehow assimilate all of the values of nature. Urban children spend most of their lives in the city, and most will remain there for their entire lives. Therefore, the city is the best place to teach them environmental concepts. For example, what better place is there than the city to study water and air pollution? Research can help to identify and catalog opportunities for environmental education in urban settings. Where appropriate teaching materials cannot be found, reasonable substitutes can be located. Research can help to identify materials in urban areas that could be used to teach the environmental processes that are now taught only in rural settings.

A critique of research needs in environmental education would not be complete without mention of the difficulties involved. Existing research tools will have to be adapted and new tools developed. New experimental designs will have to be invented and tested. Research techniques for studying children's attitudes will have to be refined. The administrative problems often encountered in conducting research in highly structured institutions such as the public schools will have to be overcome. The cooperation and support of school administrators is absolutely necessary for success of an environmental education research effort.

I have outlined just a few of the major research needs that were suggested during the

environmental education sessions at this symposium-fair. The list is far from complete. But if research attention can be devoted to at least a few of the problem areas defined here, environmental education will be much closer to accomplishing the goals set forth by Caldwell (1970):

"To improve the human environment, both men and politics must be improved. Men make politics; political institutions influence human behavior; but behavior is also influenced by attitudes, beliefs, and values. Purposeful shaping of the environment involves the purposeful shaping of outlooks on life. The quality of the future environment depends, therefore, upon the shaping of attitudes, beliefs, and values through present education".

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**APPENDIX A  
SYMPOSIUM-FAIR PROGRAM**

MONDAY, MAY 19

5:00 - 6:00 P.M.                    **RECEPTION**

Background music by JESSE PESSOA, Brazilian harpist.

6:00 - 7:30 P.M.                    **WELCOME DINNER**

7:30 - 7:45 P.M.                    **GREETINGS!**

Toastmaster: E. L. SHAFER, USDA Forest Service. RODNEY TILLMAN, Dean, School of Education, The George Washington University. ROGER LOCANDRO, Dean, Cook College, Rutgers University. WILLIAM H. SMITH, President, Consortium for Environmental Forestry Studies, Pinchot Institute. REXFORD A. RESLER, Associate Chief, USDA Forest Service.

8 - 9:30 P.M.                        **EVENING EVENT**

Opening Talk: MARY CONWAY KOHLER, Director, National Commission on Resources for Youth.

"The Weeds Asserting Themselves"--KATHLEEN SPIVACK. Poets and children look at the natural environment.

TUESDAY, MAY 20

9 A.M. - 5:00 P.M.                    *The Value of Natural Environments in Human Development*

Coordinators: ROGER HART AND MAYER SPIVACK

The day's discussions began with personal reflections on early childhood. Two papers were discussed by a panel constituted to assist in generating discussion.

9:00 - 9:45 A.M.                    "Early Childhood Playscapes from Memory"    introduced by  
FLORENCE LADD.

9:45 - 10:30 A.M.                    "Experience and Appreciation"    YI-FU TUAN

10:30 - 12:00 Noon                    *Panel Discussion*

ALAN GUSSOW, Friends of the Earth, Congers, New York

ROGER HART, Environmental Psychology Program, City University of New York, Graduate Center.

FLORENCE LADD, environmental psychologist, Harvard University.

KARL LINN, landscape architect and psychologist, Louisville, Kentucky

MARGARET MEAD, cultural anthropologist, American Museum of Natural History, New York.

HAROLD SEARLES, M.D., psychoanalyst, Washington, D.C.

PAUL SHEPARD, teacher and writer, Pitzer College, Claremont, California.

MAYER SPIVACK, Director of Environmental Design and Analysis Unit, Laboratory of Community Psychiatry, Harvard Medical School

YI-FU TUAN, Department of Geography, University of Minnesota, Minneapolis

1:30 - 2:00 P.M.                    "The Role of Place in Human Development"    PAUL SHEPARD

2:00 - 5:00 P.M. *Panel Discussion*

8:00 - 10:30 P.M. *Film Presentation and Discussion*

"Myth of Naro", "Bitter Melons", and other sequences filmed by TIMOTHY ASH and JOHN MARSHALL, Documentary Educational Resources, Center for Documentary Anthropology, Sommerville, Massachusetts.

WEDNESDAY, MAY 21

DAY'S OVERVIEW

9:00 - 12:00 Noon FOUR PARALLEL DISCUSSION SESSIONS

- I. Theory and Research
- II. Education
- III. Community Approaches
- IV. Children's Design and Planning

12:00 Noon - 2:30 P.M. PICNIC LUNCH at Mt. Vernon College.

A participatory recreation program was offered by New Games Foundation, San Francisco, California.

2:30 - 5:00 P.M. FOUR PARALLEL DISCUSSION SESSIONS  
(Continued)

8:00 - 9:30 P.M. EVENING PROGRAM

"Being Present", an evening with PETER CHERMAYEFF, architect, and JANE CHERMAYEFF, painter, co-producers of *Elephant*, *Lion*, *Zebra*, *Cheetah*, and *Giraffe* films. Musical "Jam Session" by volunteers, coordinated by RAY LORENZO.

*I. THEORY AND RESEARCH ON CHILDREN AND THE NATURAL ENVIRONMENT*

Overall Coordinator: RUTH HAMILTON ALLEN

9:00 - 9:30 A.M. "Children's Conception of the Natural World", Introduction to an on-going workshop. ELEANOR DUCKWORTH, the Atlantic Institute, Halifax, N.S., Canada.

9:30 - 11:00 A.M. *Teenagers and the Natural Environment: Challenge and Tranquility*  
Coordinator: RACHEL KAPLAN

Research on the effects of summer outdoor programs and the psychological values of wilderness experience.

"An Outdoor Challenge Program as a Means of Enhancing Mental Health"—ROBERT A. HANSON, Community Mental Health Center for Alger and Marquette Counties, Marquette, Michigan.

"Summer Outdoor Programs: Their Participants and Their Effects"—RACHEL KAPLAN, Department of Psychology, University of Michigan, Ann Arbor.

"Tranquility and Challenge in the Natural Environment"—STEPHEN KAPLAN, Department of Psychology, University of Michigan, Ann Arbor.

11:00 - 12:00 Noon

*Research with Urban Youth*

Coordinator: RUTH HAMILTON ALLEN

"City Kids in the Absence of . . ."—FLORENCE LADD, Department of City Planning, Harvard University.

"Urban Youth in Natural Environments: A Field Study of Social Ecology, Behavior, and Social Networks in Six Camping and Conservation Programs"—RUTH HAMILTON ALLEN, Council of Governments, Washington, D.C.

2:30 - 3:30 P.M.

"WILD: Wilderness Incentive Learning Development Project"—JOHN PARTINGTON, Assistant Professor, Department of Psychology, Carlton University, Ottawa, Ontario, Canada.

3:30 - 5:00 P.M.

*Experiencing Nature*

Coordinator: DAVID SEAMON

"Revering Natures 'Unassuming Things': Wordsworth's and Goethe's Experience of the Natural World—Implications for Modern Men and Women"—DAVID SEAMON, Clark University, Worcester, Massachusetts.

"The Value of Natural Settings in Self-Environment Mergence"—NATALIA KRAWETZ, Environmental Psychology Program, City University of New York.

Commentary by:

EMILIE O'MARA, Environmental Psychology Program, City University of New York, Graduate Center.

YI-FU TUAN, Department of Geography, University of Minnesota.

II. *EDUCATION*

Overall Coordinator: BEVERLY DRIVER

9:00 - 11:00 A.M.

*Possibilities and Challenges of Environmental Education for Urban Children and Youth*

Coordinator: BEVERLY DRIVER, Rocky Mountain Forest and Range Experiment Station, USDA Forest Service, Fort Collins, Colorado.

"Possibilities and Challenges of Environmental Education for Inner-City Children"—RONALD GREENWALD, Environmental Education, USDA Forest Service, Washington, D.C. and ERNEST MACDONALD, Environmental Education, Pacific Northwest Region, USDA Forest Service, Portland, Oregon.

"Integrating Environmental Education into Urban Kindergarten through Twelfth Grade Curricula"—PAUL NOVAK, Environmental Education Program, University of Michigan, Ann Arbor.

"Review, Critique, and Synthesis"—PAUL YAMBERT, Department of Forestry, Southern Illinois University, Carbondale, Illinois.

11:00 - 12:00 Noon

*Innovative Public School Approaches*

Coordinator: BEVERLY DRIVER

"Field Trips for Urban Children"—MARION CARPENTER and CAROL ROBBINS, Wave Hill Center for Environmental Studies, Bronx, New York.

"Urban, Suburban, and Rural Children Explore Local Communities"—CASEY MURROW, Environmental Studies Coordinator, Deerfield Valley Elementary School, Wilmington, Vermont.

"A Child Shall Lead Them: The First Urban Soil Survey"—ERNEST L. MOODY and HORACE SMITH, USDA Soil Conservation Service, Washington, D.C.

2:30 - 3:30 P.M.                      "Gardening in the Public Schools"—PETER WOTOWEIC, Supervisor, Horticultural Education, Cleveland, Ohio, Public Schools.

"Encounters with Ecology on the School Grounds of the District of Columbia Public Schools"—SYLVIA K. SHUGRUE, Coordinator, Beautification and Ecology Program, Washington, D.C. Public Schools, and WILLIAM T. WEBB, JR., Communications and Community Relations, Washington, D.C., Public Schools.

3:15 - 4:45 P.M.                      *Natural Science Centers: A Critical Assessment*  
Coordinator: JOHN RIPLEY FORBES, Natural Science Center for Youth Foundation, New Canaan, Connecticut.

A Panel Discussion and critical assessment of children's natural science centers, children's sections of natural history museums, and community nature centers.

CATHERINE PESSINO, The Natural Science Center, American Museum of Natural History, New York City.

ECKLEY MACKLIN, Program Coordinator, West Rock Nature Recreation Center, New Haven, Connecticut.

SALLY MIDDLEBROOKS, "The Nature Shop", Boys Club of New York, Harlem, New York.

FLETCHER A. SMITH, Program Manager, Outreach Services, Anacostia Neighborhood Museum, Smithsonian Institution, Washington, D.C.

4:45 - 6:00 P.M.                      *Teacher Materials Development*  
Coordinator: DAVID HOUSTON

"The Wonders of Nature"—EDWARD SHARON, State and Private Forestry, USDA Forest Service, Albuquerque, New Mexico.

"The Game of the Environment: An Illustrative Approach to Teaching Environmental Relationships"—DAVID R. HOUSTON, Northeastern Forest Experiment Station, USDA Forest Service, Hamden, Connecticut.

"Measuring Environmental Attitudes of Elementary School Students"—JOHN C. BENJAMIN, National Park Service, GEORGE H. MOELLER, Northeastern Forest Experiment Station, USDA Forest Service, and DOUGLAS A. MORRISON, SUNY College of Environmental Science and Forestry at Syracuse University.

### III. COMMUNITY APPROACHES TO ENVIRONMENTAL QUALITY FOR CHILDREN

9:00 - 10:30 A.M.                      *Adult's Views of Urban Children's Environments*  
Coordinator: LOIS MARK STALVEY

"Children's Health in Urbania"—L. RIDDICK LYNCH, Department of Health Sciences, Jersey City State College, Jersey City, New Jersey.

"The Urban Child: Getting Ready for Failure"—LOIS MARK STALVEY, Philadelphia, Pennsylvania.

"Encouraging Teachers to Understand the Neighborhood Environment of their Children"—ELLEN JACOBS, Preschool Education, Sir George Williams Campus of Concordia University, Montreal, Canada.

10:30 - 12:00 Noon                      *Washington, D.C., Teenagers Views of their Natural Environment*  
Coordinator: A. LAVERNE DICKERSON

Teenagers from the Washington, D.C., High schools (under the auspices of the YMCA) presented a video tape of their perceptions of their environment as a stimulus for discussion.

"Growing Along with Your Environment"—STUART DENNISTON, BERNARD SPRIGGS, and CARLOS REYES, Washington, D.C.

"Cityscape"—JOSEPH MASSENBERG, JR., MARIKO MOORE-KAWAGUCHI, and ROX-ANNE DOYE, Western High School, Washington, D.C.

2:30 - 5:00 P.M.                      *Children's Urban Gardens: A Tool for Environmental Enlightenment*  
Coordinator: CHARLES LEWIS

"People-Plant Interaction Program of the American Horticultural Society"—CHARLES LEWIS, Horticulturalist, Morton Arboretum, Lisle, Illinois.

"Vegetable Gardens: A Tool for Environmental Education"—BARBARA SHALUCHA, Director, Hilltop Garden Program, Department of Botany, University of Indiana.

"Gardening with Children in the Inner City"—VIRGINIA BEATTY, Urban Specialist, Chicago Horticultural Society, Chicago, Illinois.

"Washington Youth Gardens"—WILLIAM C. HASH, Director, Washington Youth Gardens Program, Department of Recreation, Washington, D.C.

### IV. CHILDREN'S ENVIRONMENTAL RESOURCES AND THE ROLE OF DESIGN AND PLANNING

Overall Coordinator: ROBIN MOORE

9:00 - 10:00 A.M.                      "Children's Imagination, Play, and Games"—BRIAN SUTTON-SMITH, Developmental Psychology Program, Teachers College, Columbia University.

10:00 - 10:30 A.M.                      *Introduction to the Child-Designed "Our City" Walking Tour*

Children of STEVENS ELEMENTARY SCHOOL, with SIMON NICHOLSON, The Open University, Oxford, England, MARK FRANCIS, RAY LORENZO, and ROGER HART.

10:30 A.M. - 4:00 P.M.      *Children's Environmental Resources in Urban, Suburban, or Rural Settings*

Coordinator: ROGER HART

"Preadolescent's Access to and Use of the City's Resources"—STEPHEN CARR, Arrow Street, Inc., Cambridge, Massachusetts.

"The Use of Natural Elements by City Children: A Case Study in Participatory Research"—MARK FRANCIS and RAYMOND LORENZO, Urban Design Program and Department of City Planning, Graduate School of Design, Harvard University.

"Children's Environmental Resources in New York City"—ALAN SOMMERMAN, GWEN HAMLIN, and FRED WHEELER, Environmental Psychology Program, Graduate Center, City University of New York.

"Children's Use of the Environment in Baltimore"—PENNY WILLIAMSON, Baltimore City Planning Department.

"Children's Outdoor Activities in a Suburban Residential Setting"—JIM AIELLO, Department of Geography, Syracuse University.

"Children's Environmental Resources in a Small New England Town"—ROGER HART, Environmental Psychology Program, Graduate Center, City University of New York.

4:00 - 5:00 P.M.      *Making Things and Places in Natural Spaces*

"Green Fun"—MARYANNE GJERSVIK, artist, photographer, and author, Riverside, Connecticut.

"Children's Buildings in a New England Village"—ROGER HART, Environmental Psychology Program, Graduate Center, City University of New York.

"Children's Sand Buildings"—PAT LOHEED, Girl Scouts of the United States of America, Boston, Massachusetts.

THURSDAY, MAY 22

*DAYS OVERVIEW*

9:00 - 12:00 Noon

FOUR PARALLEL DISCUSSION SESSIONS

- I. Theory and Research
- II. Education
- III. Community Approaches
- IV. Children's Design and Planning

1:30 - 6:00 P.M.

FOUR PARALLEL DISCUSSION SESSIONS (Continued)

8:00 - 10:00 P.M.

RECEPTION (Including oldtime country dancing with fiddles, banjos, flutes, and dulcimers, staged by CLAIR REININGER. JESSE PESSOA, harpist, played on the Terrance from 8:00 to 9:30 P.M.)

I. *THEORY AND RESEARCH ON CHILDREN AND THE NATURAL ENVIRONMENT*

Overall Coordinator: RUTH HAMILTON ALLEN

9:00 A.M. - 12:00 Noon      *Children's Perceptions of the Natural World*  
Coordinator: BEVERLY DRIVER

"Perceptual Bases of Outdoor Recreation Choice by Teenagers: Relationships Between Cultural and Environmental Attributes"—GEORGE PETERSON, Department of Civil Engineering, Technological Institute, Northwestern University, Evanston, Illinois.

"Urban Children's Innate Capacity, Not Ability, to Respond to Natural Environments"—BEVERLY DRIVER, USDA Forest Service, Fort Collins, Colorado, and PETER K. GREENE, Recreation Resources, Colorado State University.

"Seeing is Being"—PHILIP R. MERRIFIELD, Department of Educational Psychology, New York University.

"Urban and Rural Children's Perceptions of the Environment"—BRIAVEL HOLCOMB, Department of Geography, Rutgers University.

"Use and Perception of the Environment: Cultural Developmental Processes"—MARTIN CHEMERS and IRVING ALTMAN, Department of Psychology, University of Utah.

1:30 - 3:00 P.M.      *Research Methods for Observing Children in Natural Environments*  
Coordinator: RUTH HAMILTON ALLEN

"Observational Methods for Child-Behavior Study"—BILL M. SEAY, Department of Psychology, Louisiana State University.

"Observations in Public Settings"—ROBERT G. LEE, Department of Forestry and Conservation, University of California.

Commentary: ANNE ROBERTSON, Department of Psychology, The Child Study Center, Yale University.

3:00 - 4:45 P.M.      *Nature and Children's Media*  
Coordinator: THOMAS MORE

"Attitudes to Woods and Forests Carried in Children's Books"—GWEN HAMLIN and NANCY DUNCAN, Environmental Psychology Program, City University of New York, and the Department of Geography, Syracuse University.

"Attitudes toward Wildlife in Children's Literature"—THOMAS MORE, NEFES, USDA Forest Service, Amherst, Massachusetts.

"City and Country in Children's Books"—LEONARD MARCUS, Editor, Dover Books, New York.

"The Treatment of the Natural World in Popular Children's TV"—YONA NELSON-SHULMAN, SHEREE WEST, and GWEN HAMLIN, Environmental Psychology Program, Graduate Center City University of New York.

4:45 - 5:45 P.M.      *Research Priorities: Reflections and Summations*

## II. EDUCATION

Overall Coordinator: BEVERLY DRIVER

9:00 - 10:00 A.M.                    *Changing Philosophies and Attitudes to the Role of Outdoor Environment in Child Education and Development*

Placing contemporary developments in context. From the classical European writings through the American Transcendentalists to the 1970's revival and beyond.

Coordinator: CALVIN W. STILLMAN, Department of Environmental Resources, Cook College, Rutgers University.

"Rudolf Steiner"—JIM PEWATHERER, Rudolf Steiner Farm School, Harlemville, New York.

"Frederich Froebel"—ROGER HART, Environmental Psychology Program, Graduate Center, City University of New York.

Commentary: NEIL JORGENSEN, Wheelock College, Boston, Massachusetts.

10:00 - 10:45 A.M.                    *The Tip of the Iceberg*

How to establish a pilot program in environmental education at the early childhood level, where it is really most important. Multimedia presentation. ROBERT LEWIS, Wildwood School, Aspen, Colorado.

10:45 - 11:15 A.M.                    *Environmental Education is Fun*

HAROLD STUFFT, Principal, and students, parents, and teachers of the William Tyler Page Elementary School, Silver Spring, Maryland.

11:15 - 12:00 Noon                    *Developing Curriculum Materials with Teachers*

CLIFFORD ANASTASIOU, Director, Vancouver Environmental Education Project, Vancouver, British Columbia.

1:30 - 3:00 P.M.                    *Living and Working Experiences for Urban Children*

JIM PEWATHERER, Rudolf Steiner Farm School, Harlemville, New York.

LAWRENCE MICKOLIC, Fresh Air Fund, New York.

ELIZABETH BARKSDALE and ERNIE BELL, Camping Program, Department of Recreation, Washington, D. C.

FRANK PRIDEMORE, Superintendent, Cotoctan Mountain Park, National Park Service, Thurmont, Maryland.

LEON J. FISHKIN, "Johnny Horizon Program," National Park Service, Washington, D. C.

3:00 - 5:00 P.M.                    *Living and Working Experiences for Urban Teenagers*  
Coordinator: A. LAVERNE DICKERSON

"Team-Building Among Children: Confronting Passive Behavior Through Outdoor Experience"  
—FREDERICK W. MEDRICK, Director, Rocky Mountain Center for Experiential Learning,  
Denver, Colorado.

"The Youth Conservation Corps (YCC) and the Natural Environment"—A. LAVERNE DICK-  
ERSON, NEFES, USDA Forest Service, Washington, D. C.

"Green is for Growing"—MARY RHOMBERG, Girl Scouts Council of the Nation's Capital,  
Washington, D. C.

"Creating Change"—NICK PAWLEY, Outdoor Learning Center, Inc., Ottawa, Ontario, Canada.

5:00 - 5:45 P.M. *Educational Priorities: Reflections and Summations*

### III. COMMUNITY APPROACHES TO ENVIRONMENTAL QUALITY FOR CHILDREN

9:00 - 10:30 A.M. *European Approaches to Environmental Education in the City*

A report on changes in environment education, particularly community-based activities in the  
United Kingdom.

ANTHONY FYSON, Co-editor, BEE (Bulletin for Environmental Education), Town and Coun-  
try Planning Association, London, England.

10:30 - 12:00 Noon *Teenager Participation in Changing the Urban Environment*  
Coordinator: MARY CONWAY KOHLER, The National Commission  
on Resources for Youth, New York.

Groups of high school students and their advisors from six environmental projects from the  
New York and Washington, D. C. metropolitan areas presented their projects, which repre-  
sented a wide variety of urban community activities. The projects ranged from producing a  
magazine dedicated to the local urban history and culture, to using a retired lightship as a base  
for monitoring the marine environment, to teaching ecology to visiting school children and the  
public. This presentation provided an opportunity to exchange ideas with the target group  
of this conference—youth.

1:30 - 2:15 P.M. *Children as Working Partners in a Self-Reliant Urban Neighborhood*

A discussion of the integration of learning, play, and work in the production of food, energy, and  
"good" goods.

DAVID MORRIS and NEIL SELDMAN, Institute for Local Self-Reliance, Washington, D. C.

2:15 - 3:00 P.M. *Science as Part of the Everyday Life of Children in the City*

KARL HESS, Community Technology Warehouse, Washington, D. C.

3:00 - 4:30 P.M. *Community/School Approaches to Environmental Action*

NANCY WOLF, Environmental Action Coalition, New York.

*Communities and Schools Working with Children to Build Environments*

TONY SHARKEY and SHARON HAYMAN, Creative Teaching Workshop, New York.

4:30 - 6:00 P.M.                      *Community Priorities: Reflections and Summations*

Discussion led by DONALD KLEIN

IV. *CHILDREN'S ENVIRONMENTAL RESOURCES: THE ROLE OF DESIGN AND PLANNING*

9:00 A.M. - 12 Noon                      *Natural Spaces in Cities: The Role of City Planning and Design*  
Coordinator: ROBIN MOORE

"International Approaches"—POLLY HILL, advisor on Children's Environments to the Canadian Central Mortgage and Housing Authority, Vice-President of the International Playgrounds Association, Ottawa, Ontario, Canada.

"Changing School Yards: A Vehicle for Environmental Education" - ROBIN MOORE, Department of Landscape Architecture, University of California, Berkeley.

"The Potential of Abandoned Lots and Other City No Places"—JAN SCHWARZ, Brooklyn, New York.

"How Some City Playgrounds Work, or Don't Work, and Why"—NANCY LINDAY, Street Life Project, New York.

"Working with Community Resources to Change Children's Environments"—STEEN ESBENSEN, Office for Children, Boston, Massachusetts.

Panel Discussion: FLORENCE LADD, MARK FRANCIS, RAY LORENZO and DAVID RAPHAEL, Graduate School of Design, Harvard University, and IRENE CHOKO and ANNE-MARIE POLLOWY, Ecole d'Architecture, Universite' de Montre'al.

1:30 - 3:00 P.M.                      *Providing Recreation Opportunities Within Cities*  
Coordinator: RUTH HAMILTON ALLEN

"The Value of Zoos"—NEIL CHEEK, Texas A & M University.

"The Value of Washington's Parks"—BART TRUSDALE, Education Program, U. S. Department of the Interior, Washington, D. C.

"Large City Public Recreation Green Space in the U.S.A."—WILLIAM HARTWIG, MICHAEL FOSTER, and A. LAVERNE DICKERSON, Department of Human Kinetics and Leisure Studies, George Washington University, and NEFES, USDA Forest Service, Washington, D. C.

3:00 - 5:00 P.M.                      *Natural Spaces in Cities: Priorities, Reflections, and Summations*  
Discussion led by LYNNE GAY, Cambridge, Massachusetts.

FRIDAY, MAY 23

*IMPACT SESSIONS*

9:00 - 10:00 A.M.                      I. *Nature and the City: Implications for Handicapped Children*

A panel with expertise on the special problems facing handicapped children reviewed the discussions of the previous 3 days and debated their implications for handicapped children.

ROBERT CIPRIANO and DONALD E. HAWKINS, Department of Human Kinetics and Leisure Studies, the George Washington University.

DENNIS A. VINTON, Department of Health, Physical Education, and Recreation, University of Kentucky.

10:00 - 11:00 A.M.            II. *Research Priorities*

Social and behavioral scientists reviewed the proceedings of the Symposium-Fair and suggested new research priorities.

WILLIAM BURCH, Forest Sociology, School of Forestry and Environmental Studies, Yale University (Theory and Research)

ELWOOD L. SHAFER, Forest Environmental Research, USDA Forest Service, Washington, D. C. (Community Approaches).

EDWARD STONE, Landscape Architect, USDA Forest Service, Washington, D. C. (Design and Planning).

GEORGE H. MOELLER, NEFES, USDA Forest Service, Upper Darby, Pennsylvania (Education).

11:00 A.M. - 12 Noon        III. *Desired Change and Strategies for Change - Education*

Implications of the conference for changes in education practices.

11:00 - 12 Noon (Cont.)     A. LAVERNE DICKERSON, NEFES, USDA Forest Service, Washington, D. C.

ANTHONY FYSON, Co-editor, BEE (Bulletin for Environmental Education), London, England.

12 NOON - 1:00 P.M.        IV. *Desired Change and Strategies for Change - Environmental Design and Planning*

POLLY HILL, Advisor on Children's Environments to the Canadian Central Mortgage and Housing Authority, Vice-President of the International Playgrounds Association, Ottawa, Ontario, Canada.

POLLY HILL led a discussion of the previous 2 days' perspectives on children's environmental resources in different types of environments and various innovations in design and planning with children.

#### *ONGOING WORKSHOPS AND FIELD TRIPS*

*WEDNESDAY AND THURSDAY, MAY 21 and 22*

Coordinator: ALAN KNIGHT, Biospheres, Boston, Massachusetts

"The Development of the Child's Conceptions of the Natural World - The Work of Jean Piaget and collaborators"—ELEANOR DUCKWORTH, The Atlantic Institute, Halifax, N. S., Canada.

"Innovative Approaches for Increasing Environmental Awareness"—STEVE VAN MATRE, Department of Leisure and Environmental Studies, George Williams College, Downere Grove, Illinois, and PAUL YAMBERT, Department of Forestry, Southern Illinois University.

"Environmental Autobiography and Environmental Experience Workshops"—KENNETH HELPHAND, Department of Landscape Architecture, University of Oregon, and DAVID SEAMON, Department of Geography, Clark University.

"City Nature Field Walks"—MARION CARPENTER and CAROL ROBBINS, Wave Hill Center for Environmental Studies, Bronx, New York.

"Child-Designed City Trips"—Washington, D.C., School Children with SIMON NICHOLSON, The Open University, Oxford, England, ROGER HART, Environmental Psychology Program, Graduate Center, City University of New York, and MARK FRANCIS and RAY LORENZO, Graduate School of Design, Harvard University.

"Craft Techniques"—The Anacostia Neighborhood Museum, Smithsonian Institution, Washington, D. C.

"Developing Curriculum Materials with Teachers"—CLIFFORD ANASTASIOU, Vancouver Environmental Education Project, University of British Columbia.

#### *CHILDREN'S RESOURCE AND DISCOVERY ROOM*

Coordinated by MARK FRANCIS and RAY LORENZO, Graduate School of Design, Harvard University

#### *EVENTS*

The Children's Resource and Discovery room served as a center for kids and their friends visiting and participating in the conference. It provided a focal point for a number of scheduled workshops with various Washington, D. C. elementary schools. A partial list of the workshops includes:

A selection of interactive exhibits from the "Discovery Room for Children", coordinated by PEGGY MAHOOD, National Museum of Natural History, Washington, D. C.:

"Nature as a Source for Creative Activity"—CLIFFORD PETERSEN, Indianapolis, Indiana.

"Teaching Nature through Song and Poetry"—ECKLEY MACKLIN and GARY AXELROD, West Rock Nature Recreation Center, New Haven, Connecticut.

"Nature-Related Games and Color Books Developed for the National Park Service"—DON FIELD and GARY MACHLIS, National Park Service and the College of Forest Resources, University of Washington.

"Making Things with Natural Elements"—MARYANNE GJERSVIK, Riverside, Connecticut.

"Innovative Approaches for Increasing Environmental Awareness"—STEVE VAN MATRE - Department of Leisure and Environmental Studies, George Williams College, Downers Grove, Illinois, and PAUL YAMBERT, Department of Forestry, Southern Illinois University, Carbondale.

"Kids Building Kids' Environments"—SHARON HYMAN and TONY SHARKEY, Creative Teaching Workshop, New York.

A selection of games from the children's Natural Science Center—CATHERINE PESSINO, American Museum of Natural History, New York.

#### FILMS

WEDNESDAY and THURSDAY, MAY 21 and 22

These films were selected for viewing at the Symposium-Fair by STEVEN TOWNSEND, Graduate School of Design, Harvard University.

*Where Can City Kids Find Adventure?* (15 minutes), by the Central Mortgage and Housing Corporation.

*Tadpole Tale* (16 minutes), by Universal Education and Visual Arts.

*A Sense of Place* (1 hour 45 minutes), by ALAN GUSSOW, Friends of the Earth.

*Where Do Creative Children Play?* (15 minutes), by the Central Mortgage and Housing Corporation.

*Sky Above* (9 minutes), by Pyramid Films.

*The Cow* (10 minutes), by Church Films.

*Nature in the City* (13 minutes), by Journal Films.

*A Garden for Everyone* (12 minutes), by Contemporary McGraw-Hill Films.

*Windy Day* (10 minutes), by Film Images.

#### EXHIBITS

"Our Environment"—Exhibits prepared by PATRICIA A. COAN, teacher, and her fifth grade class from Stevens Elementary School, Washington, D. C., and CASEY MURROW, Environmental Studies Coordinator, and students from Deerfield Valley Elementary School, Wilmington, Vermont. In addition, SYLVIA SHUGRUE coordinated exhibits from numerous other area schools.

"The Nature Center"—American Museum of Natural History, New York.

"Washington Youth Gardens"—Department of Recreation, Washington, D. C.

"People-Plant Interaction Program"—American Horticulture Society.

"Children, Nature, and Environmental Education in the Parks of D. C."—BART TRUESDALE, National Park Service, Washington, D. C.

"The Use of Natural Elements and City Waste Materials for Children's Building"—SHARON HYMAN and TONY SHARKEY, Creative Teaching Workshop, New York.

Melwood Horticultural Training School, Upper Marlboro, Maryland.

Anacostia Neighborhood Museum, Smithsonian Institution, Washington, D. C.

Youth Conservation Corps and Job Corps—USDA Forest Service and U. S. Department of the Interior.

YMCA—ANTHONY BOWEN, YMCA, Washington, D. C.

Vancouver Environmental Education Project—Display of their innovative teacher-generated materials for environmental education.

*PROGRAM COMMITTEE*

RUTH HAMILTON ALLEN, Council of Governments, Washington, D.C.

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ROGER HART, Environmental Psychology Program, Graduate School of the City University of New York.

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MARY CONWAY KOHLER, The National Commission on Resources for Youth, New York.

GEORGE H. MOELLER, USDA Forest Service, Pinchot Institute of Environmental Forestry Research, Northeastern Forest Experiment Station, Upper Darby, Pa.

KARL LINN, Louisville, Kentucky.

ELWOOD L. SHAFER, USDA Forest Service, Forest Environment Research, Washington, D.C.

MAYER SPIVACK, Director, Environmental Analysis and Design Project, Laboratory of Community Psychiatry, Harvard Medical School.

CALVIN W. STILLMAN, Department of Environmental Resources, Cook College of Rutgers, the State University of New Jersey, New Brunswick.

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ROGER HART, Program Coordinator

KARL LINN, Symposium Manager; Staging of Ceremony and Environment

MAYER SPIVACK, Evening Events

CALVIN STILLMAN, Symposium Director

GEORGE MOELLER, Proceedings Coordinator

*SPECIAL COMMITTEES*

*CHILDREN'S PARTICIPATION*

MARK FRANCIS, Graduate School of Design, Harvard University

SIMON NICHOLSON, The Open University, Oxford, England

SYLVIA K. SHUGRUE, Beautification and Ecology Program, Washington, D.C. Public Schools

*YOUTH PARTICIPATION*

RALPH BEREN, National Commission on Resources for Youth

ANNA CARLSON, National Commission on Resources for Youth

MARY CONWAY KOHLER, National Commission on Resources for Youth

EMILY ENSOR, U. S. Department of the Interior

*CHILDREN'S RESOURCE AND DISCOVERY ROOM*

MARK FRANCIS, Graduate School of Design, Harvard University

RAYMOND LORENZO, Graduate School of Design, Harvard University

PEGGY MAYHOOD, Discovery Room, National Museum of Natural History

*WORKSHOPS AND FIELD TRIPS*

ALAN KNIGHT, Biospheres, Boston, Massachusetts

*COMMUNICATIONS*

ELLEN ANDERSON, Fairfax, Virginia

PHIL DEBRABANT, the George Washington University

*SPECIAL MANAGEMENT AIDES*

ANGELA K. DAVIS, York University

CAROL ETZOLD, Cook College of Rutgers, the State University

NEIL FITZPATRICK, Washington, D. C.

L. R. MARKS, Los Angeles Schools and Editor, ECOGRAM

JULES MARQUART, Farmington-Oakland Teacher Corps Program

WENDY HUSSEY, Department of Geography, Clark University

MARCIA EVANS, ROBIN FINCH, DEBBIE MCGHEE, PAT O'CONNELL, LIANE SUMMERFIELD, THERESA WESTON, KEVIN ZIGGLER, students, The George Washington University

*TRANSFORMATION OF ENVIRONMENT*

*STAFF*

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MITZI CONCKLIN, Resource Percolator, West Springfield, Virginia

JAIME HOROWITZ, Communication Design and Planning, Boston, Massachusetts

MARSH KARLSON, Bannerian, Boston, Massachusetts

DAVID WILHELMI, Lettering, Boston, Massachusetts

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MARCIA CARDILLO, banners and weavings, Cambridge, Massachusetts

BRAD SABELLI, set design, The George Washington University

SARAH FREDERICK, environmental arts, Louisville, Kentucky

DONALD KLEIN, group dynamics, Elliot City, Maryland

ELAINE OSTROFF, choreography, Brookline, Massachusetts

*LOANED ART OBJECTS AND PLANTS*

Banners by NORMAN LALIBERTE and students, courtesy of ACCESS, Santa Barbara, California.

NORMAN LALIBERTE and his students at Newton College, Massachusetts, designed banners to symbolize the elements of the environment. This special project was commissioned by the American Institute of Planners for its 50th International Conference, titled "The Next 50 Years: The Future Environment of a Democracy."

Plants, courtesy of the U. S. Botanic Gardens, Washington, D. C.

Tree Sculpture, PAULETTE BRIMIE, Drama Department, University of California, Santa Barbara

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**APPENDIX B  
LIST OF SYMPOSIUM - FAIR PARTICIPANTS  
MAY 19 - 23, 1975**

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AHEARN, Katie	Commonwealth of Massachusetts Dept. of Mental Health Boston, Mass.
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- Berea, Kentucky, in cooperation with Berea College.
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