

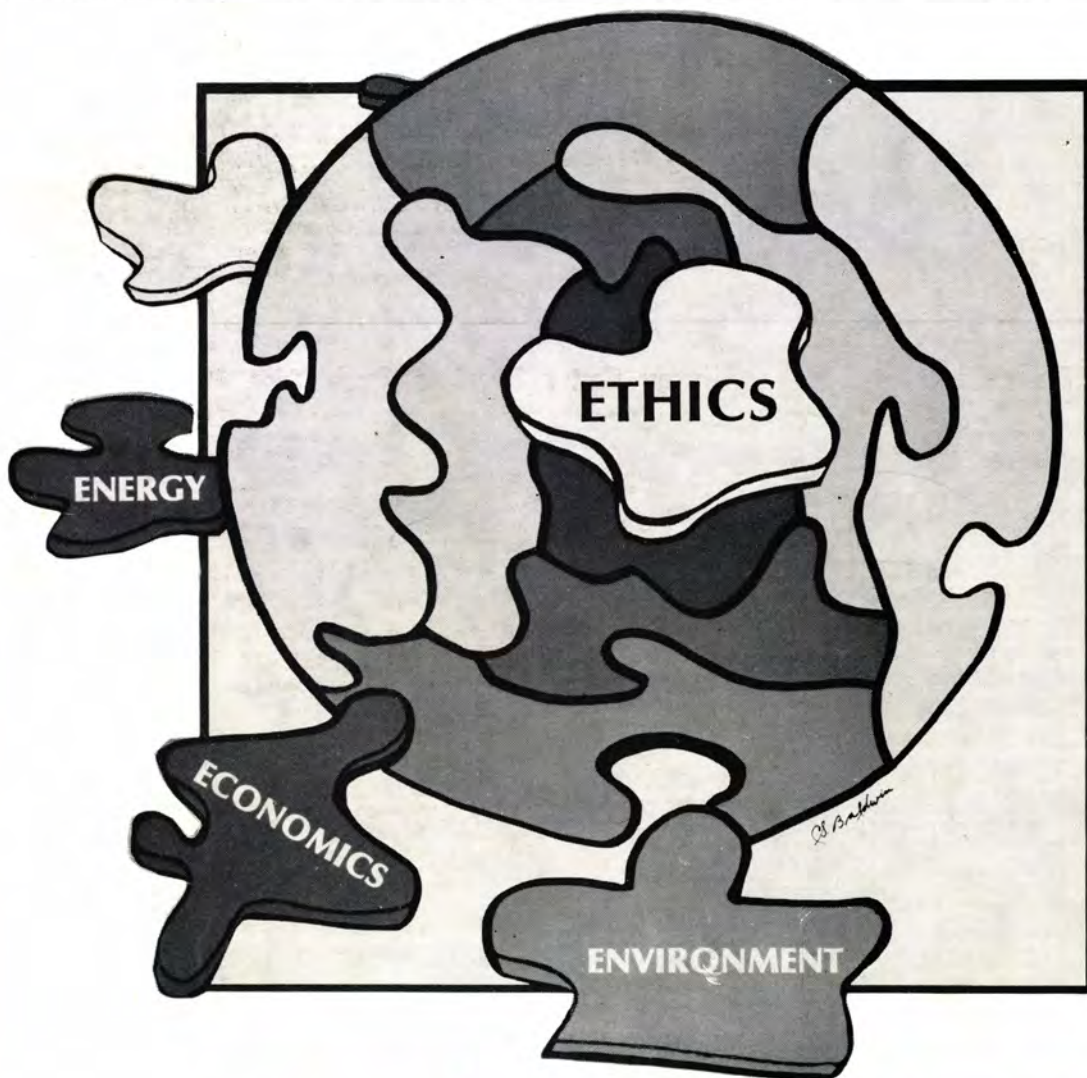
# Nature Study



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## Earth Year 1976

A Declaration of Interdependence . . . The 4E's for '76

— The American Nature Study Society —



# EDITORIAL

The theme of this issue, "Earth Year 1976," focuses attention on the four necessary ingredients to any successful environmental education effort -- **Environment, Energy, Economics** and **Ethics**. Much has been said, both in this publication and in other places, about the first three. The matter of ethics, however, has only recently begun to receive serious study. Yet our ethical and moral attitudes underly all human activity, and are the ground from which we construct our economic systems, use energy, and affect the environment. Our basic ethical understanding governs all that we do.

The American Nature Study Society has always believed that it is essential to develop attitudes toward the natural world which will foster appreciation, wise-use, and careful husbandry of the earth's resources, to the benefit of all mankind now and in the future. We need to refine our ideas about environmental ethics and learn how to motivate ethical behavior. As we, with the Alliance for Environmental Education, support "Earth Year," let us resolve to place "ethics" in the center of our thoughts and actions.

This issue contains two thought-provoking articles by Richard Baer, Jr. and Dave Steffenson, which deal with the ethical, moral and religious underpinnings of environmental education. Give them your thoughtful attention.

J. A. G.

## Alliance Kicks Off "Earth Year"

On the sixth anniversary of the original Earth Day, April 22, the Alliance for Environmental Education announced the beginning of "Earth Year." In an effort to stimulate a sustained and intensive year of environmental education and action, President Rudolph Schafer of the Alliance released a special Earth Year poster for distribution to all interested persons. It is hoped that a copy of the poster can be sent to each member of ANSS, which is a charter organization of the Alliance.

The theme of Earth Year is centered around the "four E's" – environment, economics, energy and ethics. The colorful poster shows these as pieces of a large puzzle which must be properly integrated in order to give an environment in which man and nature can co-exist and support one another. The back of the poster has helpful hints of activities to be conducted during Earth Year and sources of information and help.

No better way could be found to start our nation on its third century than to devote the Bicentennial Year to a thoughtful appraisal of our environment and the development of plans of action to restore and integrate its parts.

## Jimmy Carter Receives Earth Year 1976 Poster



*Jimmy Carter receives one of the first Earth Year 1976 posters in Philadelphia from Marilyn Schwartz, Director of the Distribution Office of the Alliance for Environmental Education, Coordinator of Earth Year '76.*

*The Alliance, comprised of 30 organizations with over 14 million members, has begun to mail 30,000 free posters to the nation's schools and libraries. Individuals may obtain this poster (\$3.00) by writing to Earth Year '76, Philadelphia, Pennsylvania 19103.*

*Earth Year '76 began on April 22, the sixth anniversary of the first massive citizen involvement with environmental problems, and ends on December 31. The theme is: "The 4 E's for '76 – Environment, Energy, Economics, Ethics."*



# EARTH YEAR — 1976

JOHN A. GUSTAFSON

The first "Earth Day" was April 22, 1970. Each year since then a week in April has been designated "Earth Week."

The first Earth Day was an "environmental teach-in" — an opportunity to learn about our environment and what was happening to it. It succeeded in awakening the consciences of many persons, who began to ask, "What can I do?"

Each year has seen an increasing number of "action" projects carried out during Earth Week. Agencies of government, colleges, schools, and citizen's associations have offered help, organized manpower, and publicized environmental activities.

Since 1970 the Earth Week idea has evolved. At first the emphasis was on information *about* the environmental crisis — the "teach-in." Out of this grew action projects to *do something* about the environment — "learning as we work." Then came the energy crisis, with new dimensions affecting the environment. We realized that clean-up campaigns and returnable bottles were only the surface — that the solution to environmental problems lies in the individual behavior of every one of us in every aspect of our lives. It began to dawn on us that the *environmental* crisis, our *economic* plight, and the *energy* crisis were all interwoven and were each affected by our individual and collective values. There are basic and important *ethical* considerations underlying these issues. Earth Year 1976 — in our Bicentennial — centers around all of these components — environment, economics, energy, and ethics; the "4-E's".

The four E's are all part of a whole — perhaps visualized as a set of Chinese boxes, one inside the other. The *Environment* encompasses them all. From the environment we derive the human *Economy*. *Energy* makes both the economy and the environment function. At the center is *Ethics* — the moral values, hopes and aspirations of humanity which motivate our species in all it does, and which thus affects the use of energy, the distribution of economic resources, and the quality of the environment and of the lives we live in it.

Below are brief summaries of each of the four "E's", with questions which may be used in discussion.

## I. Environment

The environment is "where I am" — where I live, work, play. It starts inside each cell of my body, and extends out to encompass the whole earth and solar system. The environment outside of me affects the environment within me; I in turn affect everything about me.

The environment, whether inside or outside, is a *system* of interacting parts, like a finely-tuned engine. It works as long as the parts do their job and energy is supplied. Each part has its role to play — some seemingly very important, some quite small, but all essential to the workings of the whole system. Even though we are only now beginning to appreciate it, the systems approach is not new. In his letter to the people of Corinth in ancient Greece, St. Paul wrote: "Our bodies have many parts, but the many parts make up only one body when they are all put together. So it is with the church . . ." — and we might add, with the *world*.

Humans are able to modify their environments, more so than any other creature. In so doing they may make conditions less suitable for fellow-inhabitants of the earth. Natural environments and the creatures in them have been refined and perfected through ages of subtle changes and corresponding adaptations. They are so very near perfection that any change is likely to make them less perfect. Although humans

may change their environments to make conditions more to their liking, such changes in the long run may not always be beneficial.

Environments are composed not only of those physical attributes which we can sense, but of many parts about which we were ignorant until recently (such as certain kinds of radiation and gases). We still do not know all the components of the environments of the earth. When we modify environments, we are often like the small boy who tinkers with his father's new car. It's unlikely that what he does will make it better, and there's a good chance it will be the worse for his meddling.

### Questions

1. *Is it possible for the human species to develop a technological environment which can coexist with a healthy natural environment?*
2. *Should "clean-up" campaigns be necessary? What good do they do?*
3. *The economies of "one-industry" towns (like the mill towns of New England a few decades ago) were vulnerable to economic change, whereas communities with diverse industries fared better. Ecologists say that diverse environments are more secure than simple environments. Man tends to simplify natural environments through extinction of species and elimination of habitats. Do the principles of economics apply to the environment? Do the principles of ecology apply to economics?*

## II. Energy

Without energy, nothing — absolutely *nothing* — happens! Life is possible because living things capture, store, and expend energy — most of it directly from the sun. Growth and reproduction require energy. The energy from the sun is elusive, as is all electro-magnetic energy. The miracle of life is that living things can convert this powerful will-o-the-wisp into potential energy through the formation of chemical compounds, which can later be broken down and the energy released for useful purposes. Ultimately it again becomes electro-magnetic, and continues on its journey through space. Some of the sun's energy is temporarily trapped by water, as it is evaporated from oceans and land, to be released by condensation and fall toward the sea once more.

Chemical compounds produced by living things sometimes accumulate as coal, shale, oil or natural gas. This is sun's energy borrowed from the past. These compounds are extremely valuable for the manufacture of many useful products in the petrochemical industry. They are largely used, however, for the energy they contain — burned as fuel for cars and home heating and industry. Once these "fossil" fuels are used up, there will be no more. The petrochemical industries will grind to a halt, and we will be forced to obtain our energy from the sun or from nuclear sources.

### Questions

1. *Is it better to turn to renewable sources of energy now than to wait until non-renewable sources are exhausted?*
2. *Is it right for people today to use up a resource which people in the future may wish they had?*
3. *What are the problems as well as the benefits in producing nuclear power?*
4. *How can I reduce my energy demand? How can my community reduce its energy demand? my nation?*



### III. Economics

Some have claimed that pollution control hurts the economy. Others say that a deteriorated environment leads to economic troubles. Some claim that controlling pollution and cleaning up the environment stimulates the economy by putting people to work to repair the damage of decades of neglect. Are we suffering economic losses now because we've lived too "high off the hog" in the past?

#### Questions

1. Is it better to live an affluent life in a filthy environment or to live an austere life in a clean environment? Do we have to make this choice?
2. Is our economy so much tied to the ways of the past that we can't change to new ways in the future? What happens to the economy if we reduce our reliance on the personal automobile by 50% during the next ten years? What happens if we encourage every home owner to produce as much of his power as possible, using sun, wind, or water, or combinations of these self-renewing energy sources?
3. What influence does big business have on decisions affecting the environment? Is such influence good or bad, or both? If it is bad in some instances, how can it be avoided?
4. How does what I "wish for" and "think about" affect the economy?
5. Can the "consumer society" be changed to the "conservator society"? What about the Amish?

### IV. Ethics

At the center of all human activity are found inescapable ethical considerations. What do we hold to be our highest values? What is my responsibility to the world in which I live — the physical world, the world of people, the world of the future? What are the ethical premises upon which democracy is built? Aldo Leopold, the "patron saint" of the ecology movement, wrote these words more than thirty years ago: "The Lord giveth, and the Lord taketh away, but He is no longer the only one to do so. When some remote ancestor of ours invented the shovel, he became a giver: he could plant a tree. And when the axe was invented, he became a taker: he could chop it down. Other ancestors . . . invented other tools, but each of these . . . proves to be either an elaboration of, or an accessory to, the original pair of basic implements. We classify ourselves into vocations, each of which either yields some particular tool, or sells it, or repairs it, or sharpens it, or dispenses advice on how to do so; by such division of labors we avoid responsibility for the misuse of any tool

save our own. But there is one vocation — philosophy — which knows that *all* men, by what they think about and wish for, in effect wield *all* tools."

#### Questions

1. How much of the world's resources is it my "right" to have?
2. Do I have any responsibility to provide for my descendants? Did my ancestors think about me? What difference does it make if they did or if they didn't?
3. What does it mean to have a "conservation conscience"? If I have it, what effect does that have on the way I live?
4. How do you go from knowing what is right to doing what is right?
5. How do I help my neighbors and friends to acquire a conservation conscience?
6. What happens in a world in which some persons are conscientious and some are not? Some have said that conscientious persons are at a competitive disadvantage. Are there ways to compensate for this? What is the role of government, religion, education, and other institutions in encouraging conscientious behavior?
7. How are energy and economics and ethics and environment related?

#### Activities

##### for schools and others —

##### for earth week, earth month, earth year . . .

- Identify, obtain, preserve and maintain natural areas for schools.
- Landscape school grounds for e.e.
- Develop e.e. for the handicapped.
- Institute environmental theater.
- Implement environmental design courses.
- Create environmental awareness displays.
- Re-write technical information for school e.e. use.
- Propose that a regional network for e.e. be set up.
- Institute camping programs for schools and other institutions.
- Use the resources of senior citizens.
- Develop and use environmental simulation games.
- Start an environmental club in school.
- Help make the school system a model of wise environmental planning and resource use.
- Be sure *all* the alternatives to every system and method are explored.
- Make optimum use of the communications media for e.e.

# The American Nature Study Study

A brief historical sketch by HELEN ROSS RUSSELL

In 1905 Professor Maurice Bigelow, professor of biology at Teachers College, Columbia University, founded *The Nature-Study Review*. This periodical was designed to provide "coordination of effort and exchange of ideas among people interested in Nature-Study in the Schools."<sup>1</sup>

Professor Bigelow was concerned about having a wide variety of interests and the editorial committee of the *Review* was composed of Liberty Hyde Bailey, Agriculture, Cornell, H. W. Fairbanks, Geology, Berkeley, C. F. Hodge, Biology,

Clark University, J. F. Woodhull, Physical Science, Teachers College, Columbia and Maurice A. Bigelow. In Volume III, Number 3, March 1907 of the *Review*, Professor Bigelow wrote an editorial which raised the question of forming a *Nature Study Society* so people could meet and be in touch with each other's work, so the nature-study movement could be brought to the attention of other educators and scientists and so that the strength of the nature-study movement could be demonstrated. The response was immediate and enthusiastic. People wrote in from all over the United States and Canada expressing interest and nominating persons to serve on an organizing committee.

1. Eva L. Gordon, "The American Nature Study Society Beginnings" ANSS Newsletter, March, 1958, p. 2.



The committee consisted of Maurice Bigelow, Liberty Hyde Bailey, C. F. Hodge, O. W. Caldwell, Stanley Coulter, H. W. Fairbanks, V. L. Kellogg, Anna B. Comstock, D. Lange, M. F. Guyer, F. L. Stevens, W. Lochhead, C. R. Mann, E. F. Bigelow, J. F. Woodhull and Alice R. Northrup. Bailey was elected chairman and Maurice Bigelow secretary.

The first meeting of the Society was held at the University of Chicago on January 2, 1908 after the close of the December 1907 AAAS Conference.

The proposed constitution was discussed, amended and adopted. Officers were elected with Bailey as president and Maurice Bigelow as secretary. The five vice presidents were: C. F. Dodge, Clark University; F. L. Stevens, N. C. College of Agriculture; V. L. Kellogg, Stanford University; W. Lochhead, Macdonald College, Quebec; F. L. Charles, DeKalb (Ill.) Normal School.

In addition there were ten directors: D. J. Crosby, U.S. Dept. of Agriculture; C. R. Mann, U. of Chicago; S. Coulter, Purdue; H. W. Fairbanks, Berkeley; M. F. Guyer, U. of Chicago; G. H. Trafton, Passaic, N.J.; F. L. Clements, U. of Minnesota; Ruth Marshall, U. of Nebraska; E. R. Downing, Marquette (Mich.) Normal School.

The constitution stated that "The objects of the American Nature-Study Society are, by publications and by national and local meetings: (1) to promote critical investigation of all phases of nature-study (as distinguished from technical science) in schools, especially all studies of nature in elementary schools; and (2) to work for the establishment in schools of such nature-study as has been demonstrated valuable and practicable for elementary education."

The first program consisted of a series of short papers (seventeen speakers were listed in the January 1908 *Nature Study Review*) on the topic "Should Nature-Study be differentiated from Science Teaching?" There was a consensus of opinion "That nature-study adapted for young children differs from science of higher schools sufficiently to warrant the name 'nature-study'." Later issues of the *Nature Study Review* stressed the fact that nature study should not be sentimental, anthropomorphic or teleological; nor should it be something learned by rote. That its emphasis should be on first hand learning by observation, questioning, experimenting, record-keeping; that it should deal with "the real," "the here and now."

Articles dealt with topics like physical science, geology, agriculture, moon study, astronomy, weather, gardening, science museums as a teaching resource, forestry, hygiene, as well as plants and animals. And always the emphasis was on process. One article emphasized the fact that school gardening can be a creative exciting learning experience if questions are raised and if children learn the how and why of soil care and improvement rather than gardening by rote. Another points out that there is a time for all things. Abstract science is appropriate for high school and college but not for little children and watered down advanced science taught by rote to small children was worse than no science at all.

In short, the society was formed to improve the quality of elementary science teaching. Its members were leaders in the field in universities, teacher training institutions, school systems, and other organizations like the school garden movement. Very early it became obvious that its members thoroughly enjoyed nature-study, and this learning from and about the environment could be exciting for adults as well.

Though ANSS met with AAAS and was affiliated with it from the start, there were no degree requirements for membership. The question was one of interest and philosophy. Today the membership is even more diverse: authors, directors of nature centers, science museums, government agencies and

other informal teaching institutions have joined the university and college professors and school teachers in working for good understanding of the natural world.

Many changes have occurred in the almost seventy years since the founding of the society. Maurice Bigelow turned the *Nature Study Review* completely over to the American Nature Study Society in 1910 and for the next four years the secretary-treasurer was also editor. In 1914 Comstock Publishing Company took over the responsibility with Anna Botsford Comstock doing the editing of all the articles except those pertaining to ANSS business, which were still the responsibility of the secretary-treasurer. In 1922 *Nature Magazine* became the official publication. Later *Canadian Nature* and *Cornell Rural School Leaflets* served this function. During these years a newsletter issued four times annually kept members up-to-date on Society affairs. Under Stanley Mulaik of the University of Utah and John Gustafson of the State University of New York, this evolved into the quarterly *Nature Study* in 1965. *Nature Study*, like the *Nature Study Review*, contains papers by members, teaching suggestions, activities, reports of annual meetings and news of members.

Over the years the membership has included many of the leaders in the area of nature study. We find among the presidents, in addition to Bailey, C. F. Hodge, Otis Caldwell, Anna Botsford Comstock, Cap'n Bill Vinal, Bertha Chapman Cady, E. Laurence Palmer, Edith Patch, Charles Mohr, Ellen Eddy Shaw, Dick Westwood, Edwin Way Teale, Ellsworth Jaeger, Roger Tory Peterson, Dick Weaver and others perhaps less well known on the national scene but offering strong leadership in their areas.

Because ANSS is a relatively small organization it has always depended on the commitment of its members.

It is interesting to note that at a work-session held by the board and officers last fall, after a rigorous and searching study of where we are and where we should be going in the last quarter of the 20th century, the consensus was that our main function was educational, our main goal should be to promote good elementary science, but that the basic philosophy of nature study was a sound one for any environmental education program.

In addition to the annual meeting, which is still held with the American Association for the Advancement of Science, and the publishing of the quarterly *Nature Study* journal, the society has been sponsoring workshops on learning and teaching about the urban environment and conducting some mid-season mini-conferences on state and regional levels.

The American Nature Study Society is an affiliate of both the American Association for the Advancement of Science and the Alliance for Environmental Education.

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#### TIES

The pasture dries upon the hill,  
And I am pulled half-sorrowful  
To gather loaves of puffballs, browned  
And fat that stud the hardened ground.

She takes in hand the autumn fruit.  
She tells me that it lacks a root —  
As if to have it said out straight  
That love has other ties than fate.

MILLARD C. DAVIS



# I. Religion and the Environment

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How does religion contribute to our understanding of the environment? An obvious answer is that most religions either explicitly or implicitly present a philosophy of nature. According to Lynn White, Ian McHarg, and others, for example, the Judeo-Christian tradition has fostered an exploitative attitude towards the environment. In my own early work on environment, starting back in 1965, I was mainly concerned to develop a new theology of nature, one that would emphasize stewardship and the need to recognize and protect the values in nature that go beyond the purely instrumental value nature has for man.

The development of such a theology of nature will remain an important task for many years. But I am increasingly convinced that religion also has some important things to contribute to the environmental issue by helping illuminate how man understands himself and how this self-understanding affects his treatment of his environment. In other words, I now believe that the healing of nature will come about only with the healing of persons and the re-shaping of institutions. Let me illustrate this point.

There is much evidence, I believe, that modern Western man has an overdeveloped desire to be in control — of himself, of other people, and finally of his environment. If we go back to the early years of the development of modern science, we find Descartes, Francis Bacon, Leibniz, and others insisting that knowledge gives man control over the world about him. With this power man is able to shape his world in new ways and thus increase his wealth and his chances for a good life. Indeed, the great success of modern science lies precisely in the greater control it gives man over his environment. I for one would not want to give up such a splendid achievement. The modern scientific method constitutes one of the great intellectual breakthroughs of all time. It has enriched all of our lives.

There is nothing wrong, then, with learning to control our world. But such an emphasis on control is only one way of relating to the world, and I would argue that we have distorted our lives by placing too much emphasis on it. In the Western academic tradition we have made such a lop-sided commitment to knowledge as power and control that we have become woefully deficient in other kinds of understanding, including intuition, aesthetic and religious understanding, and wisdom. Art, religion, music, and poetry at best play only a peripheral role in the total life of the modern university. Although we are able to deal brilliantly with man as the object of his own study and scrutiny, when it comes to understanding man as subject, there are great problems. This is one of the reasons, for example, why the term "nature" is so difficult to deal with in our discussions of environment. Is man a part of nature? Obviously. Can man be understood fully within the category of nature? That question is much harder to answer. For instance, if he is fully a part of nature, is it possible for him to act unnaturally? Are not pollution, environmental destruction, etc., simply a natural manifestation of who man is? I wish we had time to look at some of the implications of these fascinating and important questions.

(Paper presented at the C.E.A. Conference, August, 1974)

As Theodore Roszak and others have pointed out, the only truly "reliable knowledge" in the university setting is objective, analytical, empirical knowledge.<sup>1</sup> Our very use of language betrays our bias. We speak of hard facts, incisive arguments, the cutting edge of a discipline, attacking problems, a keen mind. What an incredibly aggressive view of the mind and of intellectual processes! It quite overlooks the fact that many of the most important and meaningful experiences of our lives are very soft, fluid, changing, subtle. Much of life can be understood only through art, and through myth, symbol, analogy, metaphor, and other tools of the poet and novelist. The mystic would say that there comes a point when all words become inappropriate. One can only remain silent.

Our lop-sided commitment to knowledge as control in the Western academic tradition means that already in our schools and universities we develop in our students an essentially manipulative orientation towards life. The easy way in which industry, technology, and the Army Corps of Engineers are presented as the environmental villains, and the university, pure science, and perhaps the Sierra Club are placed on the plus side of the environmental ledger, simply does not do justice to the world in which we live, for the fundamental orientation towards reality in the modern university is not essentially different from that of industry. Both institutions are control oriented, both measure success in largely quantitative terms, both are intent on gaining power over nature, both are extremely aggressive in orientation.

Western man's compulsive need to exercise control over his world is perhaps nowhere more clearly seen than in his attitude toward death. His consistent refusal to deal openly with the meaning of his own finitude and mortality may well lie in the fact that death is one of the most obvious points where he is unable to maintain control over himself and his environment. Our culture has few of the rites of passage so common in most primitive cultures through which the adolescent learns to confront death — the male through the fabricated dangers of the initiation ordeal, the female more often through the very real dangers of childbirth. Rather, we have largely repressed the meaning of death and refuse to talk openly about it. We cover over its reality with elaborate cosmetics, embalming, soft music, and flowers. In contrast to most primitive cultures, where death was viewed as a rite of passage into fuller life, we see death as confrontation with nothingness and the abyss. Death is annihilation, the final destruction of our personal identity. It is indeed the self's ultimate loss of control.

This analysis necessarily has been brief. What, if anything, can we learn from it? Several things, I believe.

In the first place, our schools and universities will continue to foster an aggressive and manipulative mind set in students until we broaden our educational structures and operations to include ways of relating to the world other than that of modern science. As long as we insist on being in control, on gaining power over the world, the world will remain the object of our manipulation. That is one way of relating to the world, and an important way. But other modes of relationship would open up to us new forms of understanding. Contemplation, wonder, awe, silence, for example, all make



it possible for the world to speak to *us*, to change *us*. The development of what theologian Bernard Meland calls the "appreciative consciousness" demands that we become less aggressive, more sensitive to the multitude of subtle stimuli from our environment, more willing to listen, more open to mystery.<sup>2</sup> Some kinds of knowledge are essentially subjective and are totally impossible apart from a context of love, trust, and the refusal to manipulate.

The move towards a broader concept of education probably would be helped by the realization that classical and medieval culture consistently held that ideas are not just for the sake of control but also for enjoyment. Our English word "school" derives from the Greek *schole* and the Latin *schola*, terms which mean "leisure." School was the place where one enjoyed his leisure playing with ideas. In his book, *Leisure: the Basis of Culture*, philosopher Josef Pieper points out that the Middle Ages distinguished between the understanding as *intellectus* and the understanding as *ratio*. *Ratio* was seen as "the power of discursive, logical thought, of searching and examination, of abstraction, of definition and drawing conclusions."<sup>3</sup> *Intellectus*, on the other hand, was understood to be the power of direct intuition and was associated with the passive receptivity of the contemplative. The concepts "intellectual work" and "intellectual worker" simply did not exist during the Middle Ages. *Intellectus* rather came into its own when man ceased trying to manipulate and control his world and simply remained open to the gift of inner illumination and understanding.

My plea is that our schools and universities return to this broader understanding of the life of the intellect in the recognition that empirical-analytical-objective thinking which gives us power over the world about us, albeit a rich and fruitful form of understanding, by no means exhausts the possibilities of the human mind.

Secondly, I do not think we will begin to understand the acquisitiveness of modern Western culture, the insatiable desire for more and more power and things, till we realize that we are probably dealing with a compulsive and largely unconscious need to maintain control of ourselves, of others, and of the world about us. We see death as diminishment. One way to hold death at bay, therefore, is to keep growing; more and more, bigger and bigger. Don't count the cost. Don't ask what the effects will be for our children and grandchildren. Just keep expanding. So great has been our psychological need to keep growing, to keep producing more energy and things,

that we simply have not been able as a nation realistically to assess the long-range implications of our economic activities. To doubt the value of growth as a national goal or to express uncertainty about technology's "limitless" ability to provide for our expanding "needs" is not just to question the conventional wisdom but is to speak heresy. It is to attack the efficacy of the cult, the power of the technological sacraments to continue to perform the miracle of transubstantiation, to multiply the loaves and the fishes, to improve, to perfect, to sanctify "undeveloped" nature. Such growth, of course, is no longer a rational procedure at all, but rather the result of a deep-seated psychological need to gain control over death, to create the illusion that we are more than limited, finite beings.

Americans are frequently called materialists. But I find that label singularly inappropriate. Rather than loving things, most of us simply use them as a means of hiding our insecurity in the face of death. My evidence is very simple. Witness how quickly things move from our forests, mines, and fields to our factories, our stores, our homes, our municipal dumps. There's a kind of obscenity about our flow-through, flush-down, throw-away culture. Incidentally, this is one thing we can't easily blame on Judaism or Christianity, for the Biblical witness on this point is very clear – in spite of many perversions throughout the history of the church: The world God created is basically good. It is God's intent that man love the earth, even though he must not love it inordinately and use earthly things to cover over his own inner emptiness. As theologian Joseph Sittler has said, God is the greatest materialist of us all, for in the words of the priestly editor of Genesis, he not only created the world but also declared it "very good."

Finally, it should be apparent from what I've already said, that the environmental crisis will not prove susceptible to purely technological solutions, for it is essentially a crisis of man's understanding of himself. To be sure, new and imaginative technologies are solely needed. Substantial changes will have to be made in our economic and political institutions. But until we recognize that man's spirit itself is the ultimate front line of the environmental crisis, we will continue to nibble away at the edges.

#### NOTES

1. Theodore Roszak, *The Making of a Counter Culture* (1969), p. 208.
2. Bernard Meland, *Higher Education and the Human Spirit* (1958), chap. V.
3. Josef Pieper, *Leisure: the Basis of Culture* (1963), pp. 26-29.

## II. Sin, the Judeo-Christian Heritage and Environmental Education

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The depths of human experience historically have been understood through symbol, myth and drama. The Judeo-Christian heritage is no exception, with the Bible as the main source. The biblical drama of relationships between God and human beings begins with the primal myth of Creation.

Significantly, the generic people, Adam and Eve, are created to dwell in the Garden – an eco-system. It is a place of *shalom* (love, peace, wholeness), harmony and symbiosis. God is the owner, the Creator who makes it all possible, the Ultimate at the depths of existence. Adam and Eve have a definite place – a human niche in the ecology of Creation with a specific and unique role to play. They are stewards or the caretakers of the Garden, to tend, nurture and live in harmony with the *oikos* (world-house or ecology). Their job is

building and maintaining the ecological *community* in order that all elements, including human beings, may become what God intends.

But in creating people God gave humans freedom as well as other rather unique gifts such as reason, self-consciousness, comprehension of time and history, the ability to manipulate symbols, a high capacity for communication, the ability to order values, and a sense of humor. Radical freedom and these other human gifts are the source of human creativity as well as human sin.

The first sin was ecological! (Rolston). Sin, literally translated, is "missing the mark" of being human. Humans are unique in knowing that they will die, and this knowledge, coupled with human freedom, leads to anxiety and restlessness. The mythological first couple were successfully tempted out of their ecological niche and its corresponding responsi-

(Paper presented at C.E.A. Conference, August, 1974)



bilities. They sought to become God, to have power over the garden, to become superhuman, to regard themselves as their own end rather than as part of an ecological dynamic of means and ends. They sought to be more human through inhuman ends.

This root Sin is Pride (*hubris*), or the general inclination of all persons to overestimate their virtues, powers and achievements; and usually manifested in the will-to-power (Reinhold Niebuhr). Sin is the root cause of the environmental crisis from the Judeo-Christian perspective, and the environmental crisis is one pervasive form of the biblical/human drama.

The will-to-power, coupled with freedom, allows exploitation of the earth through the extension of human power by means of uncontrolled technology. Environmental ignorance and selfish blindness allow us to push our expansionist, short-range goals. The results are alienation, resource depletion, pollution, sickness, famine, war, and finally eco-collapse and death.

Sinful pride has another dimension. The majority of people do not *have* much power. They may follow and support the minority that do, or they at least feel helpless before them, but their will-to-power takes a different form as the masses seek to assuage their anxieties over inevitable death and powerlessness. They escape and deny their humanness, not by direct power, but by demanding satiation and evading pain and responsibility.

Hedonism through consumption gives the illusion of mastery over nature while avoiding responsibility, however temporary the illusion. Some carry this form of sin, the will-to-satiation and escape, to the extreme of sensate suicide (gluttony, alcoholism, drug addiction, sexual obsession, psychosis, etc.) or even suicide itself.

Either route, power or escape, results in the hell of alienation and separation from other persons and from that which fulfills humanness (God as love). The final outcome is unfulfilled death.

It is a spiral of sin at the heart of ecological dynamics that is at fault. Power-seeking is fueled by the greedy demands of the pleasure-seeking. Growth economics depends on the will-to-satiation expanding unabated, basing our well-being on the most ignoble human motivations. Those in power exploit our selfishness, and technology has allowed them to succeed quite well. This has hidden from us the knowledge that technological success in delivering the "good life" has been at the expense of the earth and its resources beyond the point where it can be maintained in the future. The vicious spiral builds and whirls in a synergistic and exponential fashion pointing to probable collapse, death and eventual restoration of the ecological balance (probably without human beings).

In the global village, these forces are playing out the human drama of sin in epic fashion. Fueled by hedonistic consumption and waste, the "industrial-expansionist system" (capitalist and socialist) seeks more and more power over nature through resource depletion and technology, leading to pollution, population explosion, sickness, war and collapse/death. Necessarily this also requires exploitation of a large proportion of the world's people. Inequality, loss of freedom and eventual totalitarian control are also axiomatic.

In the developing "Third World," as well as for a large number of people in the developed world, this systematic exploitation and oppression leads to underconsumption (starvation) with resulting brain damage and sickness; under-utilization and waste of natural resources through imperialistic theft and inappropriate means of development; and revolutionary anarchy and war with all of its nuclear ramifications.

From the standpoint of the Judeo-Christian heritage, I would make three affirmations:

1. God is still God, and still owns and controls the Garden. Philip Slater points out that it is the height of individualistic folly (sin) to assume an environmental crisis. *We* have a crisis, but not God! God's creative processes move on, and the balance is being restored and *will be* restored. The Garden Earth will continue and prosper with or without us.

What we regard as an environmental problem (e.g., the energy crisis) is one of God's mechanisms for restoring homeostasis to the global eco-system. Whatever environmental crisis there is for us, we are *not* called to "solve" it. God is already solving it, and we must be aware that human environmental problem-solving can be another vehicle for ecological sin just as exploitive power and escape are.

*The human problem to be solved is whether (and how) we will be part of God's solution, or will the ultimate solution be arrived at in spite of us, without us, or even through our demise?* The hopefulness in this is that God has given us the freedom to choose. Yet it should also serve to keep environmentalists humble, and keep us focused where we can do the most good. As Pogo says, "We have met the enemy, and he is us." Whether we will choose to move back to our human ecological niche depends a great deal on changing our attitudes and basic values. As Pierre Dansereau says, "the quality of one's inscape determines the quality of the landscape."

2. From the Judeo-Christian viewpoint, *Justice* is the priority human task if we are to ever achieve re-integration and harmony with our proper ecological niche. Just as Jesus and the prophets were on the side of the poor and oppressed, the environmental movement must be on the side of the world revolution that is seeking justice and quality of life for all.

3. The values arena is the best handle we have for action. We need heightened consciousness and broadened understanding of the dynamics of human values interacting with the environment — both as to the present destructive interactions and the potentialities for positive interaction.

Conviction (awareness) of sin has been the traditional place one begins in the salvation process (reconciliation with God and unity with Creation). The major role of education, and environmental education in particular, in this clarification process should be obvious.

Let us be mindful that it is no foreign ideology we oppose. We are seeking to find alternatives to what we have been taught are high ideals, worthy motives and good ends. As someone said, our task is to redefine what we have considered to be normal behavior up to this point. And we will be opposed by mighty, entrenched vested interests.

Environmental education cannot save us. Our sin is so pervasive there is no way we can, by ourselves, get enough understanding nor enough will power to make the necessary changes. However, the Judeo-Christian faith affirms that we can move from awareness and conviction, where environmental education has a major role, toward surrender of our isolated independence and selfishness, and toward liberation from all that keeps us from fulfilling our human destiny. In the process of opening ourselves to liberation, we find the grace of God giving us unexpected and undeserved power to achieve the ecological health and wholeness we need and desire to be reconciled with God and Creation.

#### SOWING

Sow life-in-a-package,	Though death may prowl
Crow fields of song,	On silent pads
Skies of dance,	To haunt the feast,
Faith wearing feathers,	It but adds urgency to life.
Hope riding wings,	Things grow from what is planted.
Joyful acceptance	Harvests are like the seed.
That life is to live.	

JEAN W. SCHEEL



# Interpretation and the Aesthetic Dimension<sup>\*</sup>

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"I sometimes wonder whether almost all of what we are trying to interpret does not fall, at last, into the realm of the aesthetic, . . ." This short yet significant statement was written by Freeman Tilden, the renowned nature interpreter. In his essay *The Mystery of Beauty*<sup>13</sup> Tilden asks this rhetorical question and then, in part, provides an answer by quoting Darwin: "It is easy to specify the individual objects in these grand scenes; but it is not possible to give an adequate idea of the higher feelings of wonder, astonishment, and devotion which fill and elevate the mind." After several decades as an interpreter, Tilden felt that the finest uses of national parks and other preserves within the range of interpretive work lie ultimately in their uplifting qualities, to be reached only through a walk with beauty, in which the interpreter is less of a teacher and more a humble companion sharing the adventure.

Though my own interpretive experience falls far short of Tilden's, I have, nonetheless, come to realize not only the importance but the inherent implications of an aesthetic emphasis. Berndtson<sup>1</sup>, in discussing the aesthetic attitude, writes of percipient response; "The movement inward from object to emotion continues and terminates in contemplation." This act of contemplation embraces *awareness* in the aesthetic experience and rounds out the basic nature of that experience. It is this awareness which is so important—for when one views the distant shore it is more than form, color, line, and texture silhouetted against the setting sun; it is the vast pulsing harmony of biotic with abiotic forming a terrestrial ecosystem. Of the many values concerning shoreline and beyond, admiration which evokes pleasure is certainly one. Thus, if pleasure of admiration leads to a desire for the conservation of the admired qualities, then admiration in the aesthetic sense is not entirely contemplative. Perhaps we should pause a moment and reflect on the word aesthetic, since it is germane to the introductory quote by Tilden and subsequently to this article.

Though many have written of aesthetics and more will do so in the future, it quite literally means a philosophy of the beautiful as a distinct province of

theoretical inquiry. Such reflection on beauty and fine art begins with Hellenic thinkers and perhaps with still earlier philosophers. While no definition of beauty has met with universal acceptance, Bernard Bosanquet<sup>3</sup> in his work *A History of Aesthetic* comments from a historical perspective. Among the ancients, the fundamental theory of the beautiful was connected with motions of rhythm, symmetry, harmony of parts; in short, unity in variety. Among modern thought more emphasis is placed on the idea of significance, expressiveness, the utterance of all that life contains, particularly as it relates to sense-perception. Though Bosanquet was careful not to include pleasure as an integral aspect of beauty, others have, including Santayana<sup>12</sup> who defined beauty as objectified pleasure.

Finally, Louis Reid<sup>10</sup>, a British philosopher, has written these words relating to the aesthetic experience:

*In very different ways Aristotle, 'Longinus', Plotinus, St. Thomas, Francis Bacon, Schopenhauer, Schliermacher, William James, Heidegger, . . . all give credence to the idea that what we now call the 'aesthetic' is not only pleasing, but gives insight—and insight in some manner or degree into the nature of things. We experience, through the imaginative sensible apprehension of the appearances of things, the conviction that we are being brought into contact with the supersensible, the universal, the transcendent, even the eternal.*

I believe one can see the compatibility between this statement, a synthesis of eminent philosophic comments on aesthetics, to the aesthetic attitude as outlined by Berndtson. Increased contemplation or insight arriving out of the aesthetic experience is, it appears, a pivotal or significant aspect. However, let us leave, for the moment, this short discourse on the aesthetic dimension and turn to examples of how we, as interpreters, can nurture the innate sense of beauty in our diverse audience.

Frank Lloyd Wright, one of the most creative architects of this century, had an almost unsurpassable grasp concerning the infinity of color and design in nature. "Hunt for the gray-green lichen," Wright would plea, "clinging almost unnoticed to the rock! If you want to know the law of life, study the seashell's countless variations on a single theme: survival in a world of ceaseless movement."<sup>6</sup> Understanding nature's unique blend of

beauty with structural design, Wright<sup>16</sup> wrote:

*One of the loveliest and most efficient plants is the morning glory, with five corrugated blades radiating upward from the stem, held together by tissue-thin curved sheets. Yet this is not for beauty alone. The morning glory's great moment comes when a bee makes a sudden crash landing in its open mouth. The little flower, being "built" to handle impact stresses through its corrugations, takes the blow easily, and delivers pollen according to plan.*

As interpreters we have a responsibility to stimulate individuals to greater appreciation and understanding of the natural world and life in general. To facilitate this Wright would urge us to develop within our audience a basic understanding of design in nature through such examples as: symmetry in flowers, the almost unbelievable hexagonal pattern and delicate tracery of snowflakes, the ever larger geometrically perfect air chambers of the chambered nautilus, the spiral or helical pattern of many conifer cones, or the branching of silhouetted trees.

When man first expressed himself in a visual medium, the tools used and designs or objects portrayed were taken directly from nature. Resultant paintings and rock carved reliefs, referred to as petroglyphs, often depict, sometimes intricately and precisely, animals or abstract designs relating to a natural object<sup>6</sup>

As time went on, observation and artistic representation developed further as artists, utilizing the aesthetically fertile world about them, combined elements of line form, space, texture, and color with such design principles as repetition, balance, rhythm, and proportion. Yet, man's artistic expression has its genesis in the earth and universe.

Opportunities are everywhere in the largely natural world of interpreters; never pass an opportunity to use pattern on a turtle's shell, stress spirals on a weathered tree, delicate curves of the emerging fern, rhythm of surf† and fall-

\* See the January, 1975 issue of *National Geographic* for a recent pictorial review of cave art in France.

† On a recent beach walk we came upon a unique symmetric pattern in the sand. The beauty led, in this instance, to the physical circumstances surrounding its development, high tide and its recession.

\* Adapted from a paper presented at the Annual Meeting, Association of Interpretive Naturalists, Natural Bridge, Virginia, April 8-12, 1975.



ing leaves, undulating flight of birds, a symmetrical branching of a gnarled and ancient oak or the evanescent colors on the ocean's edge at sunset. The latter is so universally appealing that perhaps interpreters need do *no more* than provide for these opportunities to happen and then share the experience. All this and more may well foster an openness to thought and mentally give rise to associations as yet undiscovered in the mind of our audience.<sup>11</sup>

Although association with other art forms (dance, music, sculpture, literature) may enhance our aesthetic sensitivity and awareness of the natural world, I would like to confine my remaining thoughts to a rather specific area – haiku poetry.

Perhaps few other poetic forms than haiku, an ancient Japanese expression, relate so well the aesthetic relationship between man and environment. Like so many aspects of the east its origins are lost in the dimness of antiquity. Kenneth Yasuda<sup>17</sup>, in his work on the essential nature and history of Japanese haiku, comments that poetic experience seems to have sought this form of expression from earliest periods. An examination of the history of Japanese poetry shows haiku-style expression, which gradually developed into a crystallized form, noticeable, to a remarkable degree, in all periods. Examples of this poetry appear about 700 A.D. though most scholars date its origin to the 13th century emanating from tanka, a longer poetic form.

By the 16th century this expressive art consisted of seventeen syllables arranged in alternating lines of 5-7-5. During the 17th and 18th centuries haiku gained widespread popularity through the writings of Matsuo Basho. In 1679 he wrote one of his most famous poems:

*On a withered branch  
A crow has settled –  
Autumn nightfall<sup>9</sup>*

Here we instinctively feel:

- The darkness of an autumn evening
- A tree standing alone against the darkening sky
- A sense of loneliness – a solitary crow perched on a withered branch

H. G. Henderson<sup>9</sup> in *An Introduction To Haiku* relates that of all the early poets Basho seems to incorporate these qualities:

- a great zest for life
- a desire to use every instant to the uttermost
- an appreciation of natural objects
- a feeling that nothing is alone, nothing unimportant

- a wide sympathy for all life
- an acute awareness of relationships of all kinds

Kikaku with Basho composed the following in a field one autumn day:

*Take a pair of wings  
From a dragonfly, you would  
Make a pepper pod.*

“No,” said Basho, “That is not a haiku. You kill the dragonfly. If you want to compose a haiku and give life to it, you must say –”

*Add a pair of wings  
To a pepper pod, you would  
Make a dragonfly.<sup>17</sup>*

Following Basho, his most famous pupils became known as the “ten philosophers” and carried on his tradition. The next great writer is Buson who wrote in the latter part of the 18th Century and is known as the other “pillar” of haiku. Where Basho was gentle and wise, Buson is brilliant and many-sided.

*The mountain grows darker,  
Taking the scarlet  
From the autumn leaves.<sup>2</sup>*

Finally, we come to Issa, perhaps the *best loved* of all the classical poets. Issa's writing went into the early 19th Century and it is his humanness, “the opening of his soul” which endears him to all who have read his work. An example:

*Snow having melted,  
The whole village is brimful  
of happy children.<sup>4</sup>  
Grasshopper –  
Do not trample to pieces  
The pearls of bright dew.<sup>2</sup>*

In the latter poem note Issa's unwillingness to disturb even a transitory or evanescent form of beauty, and a sensitivity to the scale of an insect's world. This, then, is a portion of the well-spring from which haiku flowed.

One may well ask if haiku is only for those who have a natural gift for writing. The answer is an unequivocal *no*, for this poetry is within the realm of all.

*The day is cold and wet.†  
How the wind blew –  
The grass and flowers.*

Age 6

*The flowers are dead  
On this icy winter day  
They will live again.*

Age 9

*Flowers are dancing  
In all their lovely splendor  
Just to fade away.*

Age 10

\* My interpretation is that Basho meant the wings to be symbolic and made of any inanimate material.

† Poems by individuals I have worked with directly, or indirectly through teachers.

*Lovely bird of song  
Sitting on the old brown stump  
Please don't stop singing.*

Age 11

*Twinkling stars above  
Rise with the moon at sunset  
And glow until dawn.*

Age 12

*Beside the awesome snow-slide  
A tiny forget-me-not stands –  
Untouched.*

Age 14

*Do not weep red leaf,  
Your death brings much beauty to  
Cheer ugly waters.<sup>9</sup>*

Age 16

*Gentle evening breeze  
Only the aspen leaves  
Signal a response.*

Adult

*A moth is fluttering in a quiet pool  
The silence is suddenly erupted  
Another link is completed.*

Adult

Most of the poems are not within the classical haiku framework of seventeen syllables; however, initially that is not important, for the real value of creating a haiku lies in the following:

- Heightened awareness
- Deepening of thought
- Maintaining contact with and sensing the miracle of life
- Places man in proper perspective – of nature not apart

Rachel Carson<sup>5</sup> in *The Sense of Wonder* adds significantly to the last point – “If facts are the seeds that later produce knowledge and wisdom, then the emotions and the impressions of the senses are the fertile soil in which the seeds must grow.”

It is important to note that involvement with other forms of literature certainly may contribute to attainment of the above values. An excellent example is the poetry of Robert Frost carefully discussed by Wheat<sup>15</sup> and Gustafson<sup>8</sup> in a past issue of *Nature Study*. Gustafson seems to have related the essence of poetical expression when he states: “All poets, or at least good ones, have a universality and oneness in their philosophy which is akin to ecological thinking.” Perhaps this oneness or seeing the whole is the *sine qua non* of important thought. In the lasting work *Faust*, Goethe, the German poet and philosopher, provides us with an unparalleled example: “Wie alles sich zum Ganzen webt

\* This poem was written by a student I did not work with and was brought to my attention by a colleague. It is a remarkable example of insight into coexistence of beauty and degradation.



# Enrich Your Outdoor Program with Obis

LINDA DELUCCHI  
OBIS Staff Biologist

A group of girl scouts meeting after school were involved in an OBIS activity investigating animals living in a neighborhood creek. The leader had challenged the girls to choose one organism, to find out how it moved, and to speculate on how this movement helped the animal survive. A measure of the success of the activity came at the end of the hour when one enthusiastic girl inquired, "Is this creek open on the weekend?"

*Animal Movement in Water* is just one of 52 activities developed by the OBIS project to give youngsters 10-15 years of age firsthand experience in observing and investigating living things in the outdoors. The overall goal of OBIS (Outdoor Biology Instructional Strategies) is to foster in youngsters an appreciation for and knowledgeable understanding of the interrelations that exist in outdoor environments, particularly man-managed environments.

Supported by the National Science Foundation, OBIS is unusual in that it designs activities for the non-formal edu-

cational sector, outside of the traditional school classroom. Community sponsored youth groups such as Scouts, YMCA groups, 4-H clubs, after school science or ecology clubs, church groups, environmental education centers and camps make up our target populations. These free-choice situations where youngsters choose to participate are most appropriate for outdoor investigations.

In designing outdoor activities, the OBIS staff operates under several guidelines. (1) We assume the activity leader will be a non-biologist. Background information on the biological concept of the activity must be clearly stated. We must provide explicit information on necessary preparation and materials, the plan of action, and what to expect from the youngsters in order for the leader to feel confident in taking the groups outdoors. (2) The activity sites must be accessible and readily available in most parts of the country. A neighborhood creek, a vacant lot, an urban park, the school playground, or a backyard are all appropriate sites. (3) Activity equip-

ment for the most part must be simple, available in local stores, inexpensive or homemade. (4) The time frame for most



*Camouflaging model animals is preparation for the team hunt in Invent an Animal.*

Eins in dem andere wirkt und lebt."  
"Just as everything unites to form a whole  
a single aspect works and lives in the others.

Other artistic forms show a similar universality, e.g., composer Aaron Copland's *Appalachian Spring* symbolizes the cyclical renewal of green leaves and associated animal life.

Finally, the relation of haiku to an aesthetic dimension is significant. As with other arts it shares their essence—a striving to communicate on the deepest level, a searching to relate experience, i.e., the meaning of life. Haiku may well be the embodiment of this idea: "A haiku moment is a kind of aesthetic moment—a moment in which the words which created the experience and the experience itself can become one . . . for in this state man and his environment are one . . ."17 Discussing literary and art theories in Japan, Ueda<sup>14</sup> refers to a pervasive aspect of all creative art and quotes Basho:

*There is a common element permeating Saigyō's lyric poetry, Sōgi's linked verse, Sesshū's painting, and Rikyn's tea ceremony. It is the poetic spirit, the spirit that leads one to follow the ways of the universe and to become a friend with things of the seasons. For a person*

*who has the spirit, everything he sees becomes a flower, and everything he imagines turns into a moon.*

Through symbolism, Basho exhorts us to be sensitive to the beauty in our world and by so doing perhaps we may aspire to higher levels of comprehension concerning our relations with the earth. In a similar vein Richard Guggenheimer's<sup>7</sup> stirring discourse, *Creative Vision*, on the relations between art and life, discusses "seeing whole," an immense value accruing from creative or integrated vision. If, as he believes, art and related aesthetics can help man out of egocentricity toward higher harmonies and comprehension of life, then more, indeed much more, than pleasure and awareness has been served.

Much of our interpretation, indeed most, has commonality with aesthetics. We have abundant opportunities, through all of the arts and the beauty of nature itself, for heightening individual awareness, yet, beyond the awareness is a way of looking and thinking—a way that helps us discover our bond with all life. Significantly it may be found in the commonplace, that which is within reach of all.

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activities is one hour. We assume one leader will be working outdoors with about 15 youngsters. Both of these approaches are flexible. Some activities require a few weeks (several one-hour sessions) to complete and some activities are easily done with a larger group. (5) Perhaps the most important guideline is that each activity takes the discovery approach to learning and provides a hands-on investigation. The activity must be both fun and challenging to involve both the youngsters and the leaders.

Our efforts have resulted in OBIS Trial Editions Set I and Set II, each a packet of 24 activity folios and 3 leader folios. Each folio is one high-interest activity, which may be used as an independent outdoor experience. Or, several folios may be sequenced to form a module focusing on a specific habitat, biological concept, or investigative technique. Included in some folios are equipment cards for designing tools for outdoor investigations and action cards with individualized challenges for the youngsters.

Through simulations, games, creative crafts, experimentation and direct observations, OBIS activities help youngsters experience and understand such concepts as habitat, environment, trophic relationships, adaptation, recycling, population, and community.

Let me illustrate with a few examples. *Animal Movement in Water* focuses on the concept of adaptation, a feature or behavior of an organism that increases its chances of surviving and reproducing. *Invent an Animal* is another activity dealing with adaptation, in this case adaptive coloration. The youngsters survey a site for potential habitats for an imaginary animal. They are provided with paints and animal body parts (old vegetables painted white) and challenged to make a model of an animal that is camouflaged from its enemies by blending into a specific habitat. The activity turns into a contest as one team searches for the camouflaged animals of the other team. An extra twist comes into play as the teams put on colored gel masks and see if their models still blend into the habitat. Trophic relationships are presented in *Food Chain Game*. In this simulation, the youngsters assume the roles of grasshoppers, frogs and hawks (popcorn serves as the producer level here) and play a game of tag. While they are "eating," the "animals" must avoid "being eaten" (tagged), simulating the actions involved in a food chain. By manipulating the rules, the youngsters strive for some kind of balance in their food chain (in this case to make the tag game last a full five minutes.)

Our latest effort is the OBIS Trail



*"How far can a beach hopper hop?" is one of the side shows in the OBIS Hopper Circus.*

Module, four activity folios dealing with the impact and construction of a foot trail.

There are several features of OBIS that set it apart from other outdoor education programs. The activities are actually developed with youngsters. Their candid responses and reactions to our new ideas help shape these ideas into finished activities.

Another unique feature of OBIS is its flexibility. The activities can easily be adapted to different age levels, specific interest groups and a variety of outdoor environmental settings. OBIS users tell us some activities have been adapted for use by mentally retarded and physically handicapped children at summer camp, for developing oral language skills of migrant workers' children and for inner city children participating in an elementary school outdoor enrichment program offered by the local Junior League. OBIS also has been used with family groups participating in a park and recreation program as well as by a mother enjoying the backyard with her seven-year-old son.

OBIS is designed primarily to enrich existing programs. It leaves a great deal of room for leader creativity within its overall scope. OBIS users, particularly teachers, feel this is one of the strong points of the program. Finally, OBIS differs from many other outdoor programs in that it is fun — fun for youngsters and oldsters alike. OBIS tends to break down inhibiting barriers, whether they be age, language, or cultural barriers, so that people can enjoy sharing with each other in the out-of-doors.

In order to gather feedback and let potential users learn about OBIS, we have established volunteer OBIS Resource Centers across the country that

provide information, sample materials, and in some cases, training workshops. The Resource Center Directory is available free of charge from OBIS. Also free is the OBIS Newsletter, which is published quarterly and keeps users up to date on new OBIS developments.

To sensibly manage our natural resources we must have a basic understanding of the ecological relationships involved. Let's help prepare our youngsters of today for their future task!

For more information write:

OBIS  
Lawrence Hall of Science  
University of California  
Berkeley, CA 94720

*Note on cost of materials:*

OBIS Trial Edition Set I  
\$8.50 plus postage and handling  
OBIS Trial Edition Set II  
\$9.50 plus postage and handling

### Case Honored

Associate Editor Marshal T. Case was recently named "Outstanding Educator of the Year" by the Fairfield, Conn. Jaycees. The Distinguished Service Award was presented by Mr. Harry Ackley, who referred to Case as a "molder of youth," recognizing him as one of the nation's leading environmental educators. Under Marshal's leadership, the Connecticut Audubon Society has developed programs for schools in inner cities, for retarded youngsters, and for persons with physical handicaps. He serves as adjunct professor of biology at the University of Bridgeport, and is a research associate at Tufts University and on the Bahama Island Ecological Research team. His ANSS colleagues extend congratulations to Marshal for this fine award.



# GOOD READING for Environmental Education and Interpretation

BEN HALL

*Thunder in the Rockies: Echoes From The Wilderness* by Richard F. Fleck. Ill. with one photograph and 6 black and white drawings. The Thoreau Fellowship, Old Town, Maine. 1975. 40 pp. Paperback. \$1.00.

This is a young man's account of a season spent as a ranger in the Rocky Mountain National Park. His real business was not with the crowds of tourists he was hired to enlighten about the mountains; rather, it was his own personal quest, to which he devoted all the free time (two days a week) at his disposal. He sought to experience the mountains in the way the Indians did, so different from the experience of white men. His book bears witness to how well he succeeded.

Fleck's disenchantment with our technological "progress" shines through his words, again and again. For example, when he writes,

"A line of cars inched along Trail Ridge until they crossed the tundra and dropped out of sight. Why didn't anyone get out of those steel shells?—another commentary on man's relationship to our green mother earth."

I have never met Richard Fleck, but I am sure he would be an ideal companion for walking in the mountains and forests. You could, from this little book of his, compile impressive lists of trees and birds and mammals that he saw or heard, and recognized. He is also alert to the inanimate aspects of nature: sights and sounds and odors. He was well fitted, by his information and his attitudes, to get the most out of the wide diversity of environmental situations that was within convenient reach of his ranger headquarters.

As his story progresses we hear less about his work with his groups of tourists and more about his own explorations, alone or with one or two congenial friends. He describes his outings to Long's Peak, the Grand Canyon, the Never Summer Mountain Range, the Great Sand Dunes, Pueblo Bonito, Laramie Peak, and other places, in a way that makes you wish you had been there with him.

It is to be regretted that the author could not have found a better vehicle in which to publish this booklet. The extremely small type will prove tiring to many eyes; and misprints are too numerous to be overlooked. In spite of these shortcomings, *Thunder in the Rockies* has a vitality that holds the reader's attention. It deserves to be read attentively.

*Birds of North America: A Personal Selection* by Eliot Porter. Ill. with 80 full-page photographs by the author, in full color and black-and-white. A and W Visual Library, New York. 1975. 140 pp. Paperback. \$8.95.

I had known of Porter as an excellent photographer of wilderness scenes but was unaware that he had made such fine photographs of birds. These are concerned in considerable part with the nesting and breeding habits of wood warblers. Now bird lovers can obtain in this book an excellent selection of these photographs together with an eminently readable text. There is a fine balance between illustrations and text. It is not merely a picture book, accompanied by a superficial text. The reader will return again and again to the pictures, but will also find the text well worth careful study. It is rich in information about the behavior of birds and the techniques of photographing them.

The major problems posed by the photographing of wood warblers are how not to disturb the nesting activities of the birds, and to get the camera near enough to the nests, which in many cases are in the tops of tall trees.

Porter's solutions to these problems are ingenious in the extreme. A platform was in some cases built in the tree, or a tower was set up beside it. When these methods did not work, the branch or top of the tree bearing the nest was cut off and re-attached at a lower level, within reach of the photographer and his camera. Thus he was able to get pictures under circumstances that most persons would consider hopeless.

There is a passage in the Introduction that shows Porter to be that rare combination of artist and scientist. "For me," he writes, "a love of birds developed along lines not usually regarded as justifying a fulltime profession. I have always been a great deal more affected by the beauty of birds than by the mysteries and unanswered questions concerning their classification and behavior. From time to time I have found myself concerned with bird behavior, but not with the single-minded dedication of the scientist. I soon discovered that the most satisfactory outlet for expressing my excitement over birds was the camera. . . ."

Porter's disclaimer of expertise in the subject of bird behavior is over-stated; reading the text of this book makes it clear that his long experience in watching birds has yielded him a rich harvest of information. In my own opinion,

Porter deserves high rank as both photographer of birds and as observer of them. There is no inevitable conflict between the two.

Altogether, this is a beautiful book. The color printing is excellent. The page size (8½ by 11 inches) is great enough to do justice to the full-page illustrations, but not large enough to be clumsy to handle. There is a well-chosen bibliography and an index. Anyone to whom birds are a major interest, should have a copy. \* \* \*

*Harvest of a Quiet Eye: The Natural World of John Burroughs*, with color photographs and text selections by Charles F. Davis, and an Introduction by Edwin Way Teale. Tamarack Press, Madison, Wisconsin, 1976. 168 pp. \$20.00.

On the jacket of this attractive book there is printed as flattering a criticism as a writer has ever received. A school-boy correspondent wrote to Burroughs: "I got one of your books through the mail marked on the wrapper *second-class matter*. I have read it and it is first class matter. The binding and the get-up may be second class, but the matter is first class."

Like Burroughs's young critic I have read the book that is the subject of this review, and found it first class. I would, however, apply the term not only to the matter of the book, but to "the binding and get-up" as well.

There are 43 full-page color photographs. There are in addition many black-and-white photographs that form an interesting commentary on Burroughs's life. The text comprises 9 full essays by Burroughs, plus brief quotations that serve as captions for the color plates. These are well selected to furnish a good exposition of the philosophy of the naturalist and the quality of his writing.

The chapter entitled *Native in a Rare Sense* gives a concise sketch of Burroughs's life. In it, the words of the biographer alternate in an effective manner with passages in italics, selected from the writings of Burroughs. The Introduction by Edwin Way Teale makes another valuable contribution to the book.

*Harvest of a Quiet Eye* is a good introduction to Burroughs. It will also appeal to those who have not read any of his works in a long time, for he is well worth re-reading. His interests, mainly in the fields of natural history and literature, were far-reaching, and he wrote well about them. His writings have withstood the test of time.



# NEWS and NOTES for Environmental Education . . .

## CEA Conference in Portland

The Conservation Education Association Annual Conference will be held at the University of Portland, in Portland, Oregon, August 15-19, 1976. The conference theme is "Education's Role in Land Use Planning."

These CEA conferences are well attended and one of the major events in environmental education throughout the year. Persons interested should plan to make reservations as soon as possible.

## Helen Ross Russell Receives Eva L. Gordon Award

The American Nature Study Society is honored to present the 1975 *Eva L. Gordon Award* to *Helen Ross Russell*, teacher and author, who has enriched the field of environmental education by her gifted and inspiring writing.

Her many articles and books, among them *Ten Minute Field Trips*, *The First Book of Buds*, *City Critters*, and *Foraging for Dinner*, attest to her ability to write for all age groups on a wide variety of subjects.

Helen Russell's innovative approach — learning through inquiry and direct experience — makes her work particularly valuable as a tool for teaching. Her lucid style adds another delightful dimension to her work.

Helen Russell's influence in helping to create true environmentalists extends in ever widening circles. For this, she deserves our praise and thanks.

## Back Issues Wanted

ANSS has entered into an agreement with Xerox/University Microfilms of Ann Arbor, Mich. to put on microfilm all copies of *Nature Study* and its predecessor, the *ANSS Newsletter*, from 1947 to the present. Editor John Gustafson was able to provide copies of all of the issues except two. Persons having a copy of either or both of these early issues should contact Dr. Gustafson as soon as possible. The missing issues are *Winter, 1947* and *Summer, 1947*.

After filming, the issues will be returned to the owners.

Xerox/University Microfilms provides a valuable service in making available back issues of journals which are otherwise out of print or unavailable. Persons interested in obtaining back issues of *Nature Study* should contact Xerox/University Microfilms, 300 N. Zeeb Road, Ann Arbor, Mich., 48106.

## Melvins Receive Award



John and Ruth Melvin of Carrol, Ohio were inducted by Gov. James A. Rhodes into the Ohio Conservation Hall of Fame on December 11, 1975. Ruth Melvin, past president of ANSS, also received a citation from the Ohioiana Library for contributions to Ohio.

John and Ruth Melvin had contributed to conservation in Ohio as individuals and as a team. They are the second husband and wife team to be inducted into the Ohio Conservation Hall of Fame. Ruth has taught geology, done professional Girl Scout work, served as vice-president of the Ohio Academy of Science Conservation Section and authored "Guide to Ohio Outdoor Education Areas" and "Ohio Environmental Education Areas." Her husband has been a professor of geology at the Ohio State University, State Geologist of Ohio for ten years and Executive Officer of the Ohio Academy of Science for fourteen years.

We congratulate the Melvins on achieving these well-deserved honors.

## Wyoming Study Tour

Lorado Taft Field Campus announces a study tour in the state of Wyoming, starting July 24 and returning August 14. Participants will camp in the out-of-doors and will participate in boat trips on white water, mountain climbing and the study of the natural history of Wyoming. Emphasis will be upon the physical science aspects of the environment, geology, water, meteorology, soil, glaciation and the biological relationships in these environments. Those interested should contact Dr. William D. Stark, Lorado Taft Field Campus, Box 299, Oregon, Illinois 61061.

## Man-Environment Impact Conference

Five associations concerned with the environment in the province of Ontario, Canada are jointly sponsoring an International Conference on Education and the Environment, scheduled for Toronto, November 24-27, 1976. Recognizing that the ecology "fad" may have passed, but that the problems of our relationship have not, it is time now that policies and actions leading to the recovery and maintenance of the quality of environment should be developed immediately. This conference will attempt to focus on the means by which environmental concerns can be integrated into the school curriculum. Upwards of 3000 persons are expected to attend these meetings. The following topics and themes will be discussed: *Environmental Ethics; Pollution; The Canadian North; Energy; Recreation; Transportation and Resource Management*.

For information about this important conference, contact Craig Copland, Chairperson, c/o Faculty of Environmental Studies, York University, 4700 Keele Street, Downview, Ontario, Canada.

## Wild and Colonial Weekend

ANSS, with the Audubon Center in Greenwich, Conn., co-sponsored a wild food and colonial uses of plants weekend on May 22 and 23. The weekend included field work, preparation of wild foods, evening activities, exhibits and Kodachrome slides of other plants. This is one of several such weekends being run this spring by Dr. Helen Ross Russell. ANSS members in other parts of the country might offer similar workshops, which have proven very popular and fill a real need in today's environmental education emphasis.

## Gustafson Buys Slingerland-Comstock

ANSS members will recall the loose-leaf pocket notebook material published by the Slingerland-Comstock company, of Ithaca, N.Y., long associated with the Cornell Nature Study people. E. Laurence Palmer bought the company many years ago and then sold it upon his retirement to Mrs. Lempi Parsons, who sold it to John Gustafson recently. Gustafson intends to revise the materials and add new titles, hoping to make this company a valuable asset to the nature study and outdoor education professions.





# 1976 North American Regional Seminar on Environmental Education

*Organized by*

THE ALLIANCE FOR ENVIRONMENTAL EDUCATION



The 1976 North American Regional Seminar on Environmental Education will be held in St. Louis, Missouri, from October 5 through 8, 1976. Emphasis of the Seminar will be focused on environmental education needs in Canada and the United States. Conducted by the Alliance for Environmental Education, the Seminar will be one of eight regional meetings to be held throughout the world.

The Seminar will be open to 400-500 participants. Five central themes will run throughout the 3-day meeting: (1) Non-Institutional Environmental Education (in the community, business, industry and government); (2) Environmental Education Through the Media; (3) Environmental Education for Colleges, Universities, and Adult Education; (4) Environmental Education for Grades K-12; and (5) Action Strategies to Improve Environmental Education.

The Seminar has been designed to encourage and facilitate maximum participation of everyone who attends. Much of each day's activities will involve seminar participants in dialogues most pertinent to their individual backgrounds and interests. Forums are planned for the end of each day's discussions to afford a meaningful sharing of conclusions and recommendations.

Over 50 exhibitors will be available to discuss with seminar participants their environmental education materials, their organizations, or their environmental technology.

In 1972 the United Nations sponsored a Conference on the Human Environment at Stockholm, Sweden; that conference led to the 1975 Belgrade Workshop on Environmental Education in Yugoslavia. At Belgrade, 120 international experts in environmental education shaped goals and guidelines for review at eight regional seminars. At each seminar experts

will react to the recommendations of the Belgrade Workshop in the context of regional needs and resources. Their review and conclusions will be considered at a 1977 world conference of education ministers. Thus, each regional seminar will address local needs and will also influence policy making necessary for implementation of environmental education.

The Seminar has several primary objectives. The meeting will bring together environmental education experts from Canada and the United States to consider current issues and problems in environmental education. The Regional Seminar will provide a means for reviewing, evaluating, and developing implementation plans for relevant recommendations of the Belgrade Workshop on Environmental Education. Finally, a number of action programs in environmental education will be reviewed, including both UNESCO-sponsored pilot projects and on-going environmental education programs within the region.

The Seminar experience is planned to be an enriching one for each participant. Those who attend will have an opportunity to become more aware of the current "state of the art" in environmental education. They will also be able to make important contributions to policy recommendations to be considered in 1977 at the ministerial level. They will be able to meet with environmental education experts from Canada and the United States, and discuss problems and issues with them in an informal setting. They will discuss environmental education materials and technologies with over 50 exhibitors. And finally, they will be able to share their views with other participants who are equally concerned about the improvement of environmental education.



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# The American Nature Study Society

Invites you to join us in promoting Environmental Education

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