

# Nature Study



A JOURNAL FOR THE ADVANCEMENT OF ENVIRONMENTAL EDUCATION

Spring 1970

Vol. 24, No. 1



America Starts the **CLEAN-UP**

The American Nature Study Society

# *The Path That Leads to Nowhere*

There's a path that leads to Nowhere  
In a meadow that I know,  
Where an inland island rises  
And the stream is still and slow;  
There it wanders under willows  
And beneath the silver green  
Of the birches' silent shadows  
Where the early violets lean.

Other pathways lead to Somewhere,  
But the one I love so well  
Has no end and no beginning —  
Just the beauty of the dell,  
Just the windflowers and the lilies  
Yellow striped as adder's tongue,  
Seem to satisfy my pathway  
As it winds their sweets among.

There I go to meet the Springtime,  
When the meadow is aglow,  
Marigolds amid the marshes —  
And the stream is still and slow —  
There I find my fair oasis,  
And with care-free feet I tread  
For the pathway leads to Nowhere.  
And the blue is overhead!

All the ways that lead to Somewhere  
Echo with the hurrying feet  
Of the Struggling and the Striving,  
But the way I find so sweet  
Bids me dream and bids me linger,  
Joy and Beauty are its goal —  
On the path that leads to Nowhere  
I have sometimes found my soul!

Corinne Roosevelt Robinson

EARTH DAY

EARTH WEEK

EARTH YEAR

EARTH DECADE

EARTH DAY

EARTH WEEK

EARTH YEAR

EARTH DECADE

Earth Day and Earth Week have come and gone. Will our concern for Mother Earth stretch into years and decades, or will it fade as time passes? If the job of preventing the impending eco-catastrophe is to be done, then our efforts and impact must build up, not diminish.

The American Nature Study Society attempted to do its part in support of Earth Day, 1970. Only time will tell what effect our efforts had. We devoted the Winter issue of NATURE STUDY to the Environmental Teach-In, printing an extra two thousand copies, which proved insufficient to meet the demand, requiring another thousand to be run off. The issue, containing ideas for environmental education at all levels from elementary school to adult education, was widely distributed to schools, clubs, and government agencies. Did you do your part? Restoring the ecosystem can only be done at the grass-roots level, with each person making sure that he is part of the solution rather than part of the problem.

### Outdoor Leadership Training Needed

Many schools are discovering the environment which has suddenly taken on a great significance. It is hard to fathom the thinking of educators who for nearly a half century have been unaware of the environment. Some behave as if there has been a sudden creation of the environment which to this time had not existed.

Basically, the outdoor movement is little more than bringing into play "The Nature Study Idea" of Liberty Hyde Bailey who founded the American Horticultural Society, and in 1908, the American Nature Study Society.

This sudden "discovery" that the environment is important has led to changes in the curriculum. Pessimism has been expressed, (we hope it is unfounded), that unless there is a radical change in the behavior, attitudes and background of teachers, a curricular change will be of little use.

The surge to the out-of-doors is in reality a rush to learn some ecology of which mankind is an integral part. Since man is a pervasive influence in the environment, the schools must have teachers who are trained in the ecology which the outdoors presents. Awareness of the elements in the environment comes only by suitable study of these elements. Lectures about the environment by people who cannot lead groups along ecological pathways in the outdoors is only a sham. Leadership must be knowledgeable, enthusiastic, and dedicated.

Local groups of ANSS must step up efforts to educate both their membership and the general public, as well as the teacher training institutions. Discovery by teacher training institutions that such education is needed does not necessarily produce experts of those who suddenly jump on the band wagon to provide it.

THE EDITORS

## Youth Is For Action

Ecology Action was the key to much of what went on at the science meetings in Boston last December. What was unique about this was the hundreds of youth who set the pace with critical questions about the environmental degradation America and the rest of the world are facing. The issue of Viet Nam was scarcely visible except as a background element.

Scarcely a year ago Ecology Action was formed at Berkeley. Since that time many chapters have been formed at colleges across the nation. Each is looking critically at the inaction of politicians to clean up the ecological degradation humanity is facing. Each is looking at the foot dragging by industry.

The degeneration is a crime man commits through his technology and through the apathy of those in a position to

do something. Youth has been disillusioned with the faceless society which has been lulled into complacency by the promises which technology held forth but did not deliver.

Certainly humanity does not want to go back to the good old days of the horse and buggy. But the supposed good life promised by the gadgetry of technology has not come. Industry which was anxious to market its products has fought every effort to curb the scatter of garbage from technology and industry. However, when crisis arises, and public pressure becomes great to clean up, industry sanctimoniously jumps on the band wagon and "me too" for clean up.

Youth today is stirring. They see the obvious lack of will and desire of the older generation to get going to clean up. Youth will not be patient. They will rock the boat. They see

(Continued on page 2)

# Udall Concerned About Ecological Crisis

*Following is an article by former Secretary of the Interior Stewart Udall about the growing ecological crisis throughout the world and particularly in the United States and other highly industrialized countries.*

Washington (NANA) — Where have all the flowers gone? the nation's students asked each time they sang this Bob Dylan song during the early sixties.

We have entered a new decade, yet the students persist in asking the same question, and more.

"Where has all the quiet gone?"

"Where have all the open green spaces gone?"

"Where have all the birds and mammals gone?"

"Where has all the sweet clean air gone?"

"Where has all the pure water gone?"

"Is man going there, too?"

And who knows where these things have gone: who cares and is willing to find them and bring them back?

The nation's students know, they care and are willing to commit themselves to the task of returning a natural and balanced ecology to the face of this earth.

They have begun to shift the focus of their attention away from the issues of the Vietnam war and the draft.

When the last discussion has ended today (Earth Day), when the last speech is delivered, the students hope that they will have drawn national attention to the acute problems we, as a nation, face.

Certainly, many people in this country are aware of some, or all, facets of the impending ecological disaster. It is on television or in the printed media almost daily.

But awareness and concern are not enough. What is needed is a national commitment for action. That means that not only students, or members of conservation, pollution or birth control organizations should act, but that each citizen should be committed and involved on an action level.

We require a coordinated national plan. That plan means action, and perhaps sacrifice, on the part of each and every citizen. The corner grocer, the small business man, the housewife, the

industrialist, the truck driver, the teacher must all share actively in the responsibility of facing the issues confronting us.

What is more right and proper than that the young lead us toward this national commitment? They have the biggest stake to win — or lose — in this, the greatest crisis mankind has ever faced.

Eminent scientists have sounded the alarm and are predicting the demise of mankind and his environment as we know it within a generation unless drastic action is taken immediately.

Indeed, society has already written the obituary for countless things in our natural environment as well as for man himself. Hundreds of species of birds and mammals have vanished. Ten to 20 million people starve to death yearly. Lake Erie is dead. There is not one place in the entire United States that is free from air pollution.

The very nature of the industrialized society the young people are inheriting holds the seeds of their ultimate destruction.

Dr. Rene Dubos, of Rockefeller University, has found that "the destructive impact on the environment increased geometrically with the increase in population and disposable income." That means each time we proudly proclaim a small increase in the standard of living, the gross national product (GNP) or the population, we are really creating a large increase in the exploitation of our limited natural resources, a large increase in industrial and human pollution and a large increase in the decay of the human condition.

We must also change from what Kenneth Boulding has called a "cowboy economy" based on production, consumption and waste to a "space age economy" based on stable population, maintenance of resources and dedicated to improving the quality of life. The quality of our life shouldn't be measured by the size of our car.

The young do not think that conser-

vation is irrational. That is why they have committed themselves and organized nationally for the college teach-ins on environmental problems.

I do not believe that conservation is irrational, and neither do thousands of other people in this country. Many of these concerned laymen have joined in organizing the first national congress on optimum population and environment, the first project of Congress on Population and Environment, Inc., to be held in Chicago June 7 to 11.

This unique congress will bring together for the first time more than 1,100 scientists and laymen in a concerted effort to examine the problems of the broken ecology and recommend action-oriented solutions on a national level.

A recent statement of policy issued by the Congress on Population and Environment, Inc., said that the first purpose of the congress is to avoid mere words and to initiate an action program to reclaim our world before it is lost forever.

"We are calling on the American people," the congress states, "to prepare themselves for the struggle of their lives; to reclaim their environment and control their reproduction. This will mean a re-orientation from an economy of waste to an economy of use, gigantic expenditures for death transformed to appropriations for life . . . if we are to preserve the privilege of a decent living environment for our children and grandchildren."

I hope that through the efforts and commitments of the first National Congress on Optimum Population and Environment and the first national environmental teach-in on Earth Day every individual in this country will become a concerned member of the "human community," that everyone will know where all the flowers have gone and that they will all be committed to making them bloom again.

---

affluence and the worship of the gross national product as a monster overloaded with its garbage which will smother the good life.

Belching smokestacks, dead and dying rivers and lakes, vast graveyards of autos, chemically poisoned soils which are dead to the life which through many millenia gave it richness, and densely crowded cities are far from allowing quality to human life. Youth desires quality of life and has found a new

strength to work for it in numerous organizations.

While earlier Viet Nam was an immediate issue, youth has discovered other features of confused society. While war is an ecological disrupting feature, youth groups have organized to work for improving the environment in other ways. Ecology Action which developed largely along the west coast, has spread elsewhere. ECOS at Chapel Hill has been a pattern for others. Friends of the Earth is flourishing.

# Harmonizing Man and Nature in Human Settlements

WILLIAM B. STAPP

School of Natural Resources, University of Michigan

*Rural*  
At the turn of the 20th century, the United States was a rural nation. Over 60% of our populace was living an agrarian life. During this period, man had direct daily contact with the land. He knew the moods of the land, its smell, its feel, its taste. However, he knew little of its science. If he misused the land, wasted it, despoiled it, he paid little penalty, for the land was plentiful and forgiving.

During this period our land was ravaged by the ax, plow, and uncontrolled fires. There were few legislative policies and action programs directed at resolving environmental problems. There was a dire need for a national movement to awaken the American public's attention to the great waste and destruction of our natural resources and to help man gain a respect for his land.

It was during this time that the American Nature Study Society was founded. Its fundamental purpose was to help develop in man an appreciation, understanding, and respect for the natural environment.

For over 60 years the ANSS has directed information and action programs toward helping man to attain an attachment to the land so that he could see what he has preserved and also what he has misused. The programs sponsored by the society have also helped man to more clearly understand that his welfare is dependent upon the proper use and management of our natural resources.

*Urban*  
As we enter the 1970's, we must realize that man is now urban. The land, once plentiful, is closing in around him. Large and middle-sized communities, many within complex urban regions, have evolved to where over seventy per cent of this country's population resides on one and one-half per cent of the nation's land surface. By 1980, eight out of ten Americans will probably live in an urban environment. Consequently, the independent rural-oriented living that once characterized this country's heritage is no longer a dominating influence in the lives of most Americans.

We must also keep in mind that our urban areas are being plagued with problems such as: lack of comprehen-

sive environmental planning, indiscriminate use of pesticides, community blight, air and water pollution, and the lack of nature and natural areas as integral parts of the fabric of urban life. While these problems are legitimate concerns of community governmental officials and planners, the responsibility for their solution rests, to a large extent, with citizens.

To an increasing extent citizens are being asked to make decisions that affect (directly and indirectly) their environment. Specifically, citizens make these decisions as they cast votes on community issues; as they elect representatives to policy-making bodies; as they directly act upon the environment itself. Citizens can be effective in influencing sound policy in other ways. They can ask informed questions, at the proper time, of the right people. They can serve on advisory and policy-making committees. They can support sound legislation directed at resolving environmental problems. To perform these tasks effectively, it is vital that the citizenry be knowledgeable concerning their biophysical environment and associated problems, aware of how they can help solve these problems, and motivated to work toward effective solutions.

Within the context of contemporary environmental problems and informed citizen action, what is the role of the ANSS? We might first look at the stated aims of our Society. The purpose of the ANSS is, "to help develop appreciation and understanding of nature through first-hand experience out-of-doors . . . to support the conservation of natural areas, and to encourage the use of them in nature education . . . and to improve the quality of nature interpretation in schools, parks, literature, and nature organizations."

The definition focuses on an understanding of "nature" and the preservation and interpretation of "nature and natural areas." However, should not one of our major aims be to integrate nature and natural areas into the fabric of both existing and developing human settlements? Perhaps, a focal point in this direction should be at beautifying our community environments through com-

prehensive environmental planning, cleaning up our lakes and rivers, and abating air pollution. This would enable the residents of our human settlements to obtain the full benefits of their surrounding land, water, and air.

## ANSS Must Face Fundamentals

I strongly believe that our organization must recognize and address itself to the most fundamental issues in the environmental crises—that is population increase and density. With every passing day, over 3,000 acres of land are becoming urbanized. By 1985, 65 million more people will reside in urban areas than in 1960. By 1985, 41 million of our 53 million youth between the ages of 5-17 will be living in an urban setting.

Does not the coupling effect of present population growth and increasing density threaten the very quality of human life? Are they not linked directly to environmental problems, such as: traffic congestion; water shortages; contamination of our water and airsheds; and the loss of habitats, beauty, and solitude?

Is there not a substantial gap between public needs for "nature" in our human settlements and public and private policies that relate to the development of them? It is apparent that residents of urban environments value natural amenities, but these values are not being expressed in many of the decisions made by our government and by private developers. As a result we are separating man and nature and not harmonizing them in our communities.

If we are going to weld man and nature in a creative manner in our human settlements, we need a clearer picture regarding the relationship between the physical environment and human performance and aspirations. We need to work closely with social psychologists and mental health researchers to obtain basic information regarding man's relationship to his total environment in order to incorporate the needs of Americans into the decision making processes of government and private developers.

## Humans Need Nature

Although we do not have answers to

questions such as how many trees and how much wildlife we need in an urban environment, Dr. Edward Stainbrook (Professor and Chairman, Department of Psychiatry, University of Southern California School of Medicine) has given us some insight into human needs and the natural environment. Dr. Stainbrook has stated that one of the great benefits of designing cities for space and openness and for providing walkways by which people may traverse distances is that the opportunity is created for persons to get out of the closed space of residential entrapment. Now if the pathways are made out into the physical and social space around the residential area, and if in that space there are also sufficient and accessible physical and social resources, then you have invited persons to come out of the closed, entrapped areas into the more resourceful, more self-esteeming and self-confirming environments of the world around.

We know that for the urban residents that have the financial means, the opportunity to leave the city and to visit natural areas is not a problem. But for those without the financial means the opportunity to leave the immediate environment is remote. Therefore, it is of vital importance to clean up our air and water, and to integrate nature into our human settlements in a manner that will maximize social benefits.

Dr. Stainbrook has also provided additional insight into the relationships between the physical and social environment. In a national symposium on "Man and Nature in the City," he cited the results of a recent study at a psychiatric hospital. The study concluded that much of what contributed to the impairment of people who lived for a considerable time in the chronic psychiatric hospital was the environment of the hospital itself. They were impairing people in the very act of trying to help them. They de-socialized persons and diminished their self-esteem simply by the way in which they structured their life experience within the hospital's social and physical space. The implications of this for human settlements are obviously great. They have to do with the self-fulfilling prophecies invested in an external environment of ugliness, delapidation, dirtiness, overbuilt space and the lack of natural surroundings. These characteristics of the surroundings constantly reflect back the low worth, the isolation, and the segregated rejection insistently communicated to the people who live there. In this sense the surroundings add to and confirm the negative self-appraisal which may also come from other ways of living in the contemporary society.

### ANSS Must Be Imaginative

If harmonizing man and nature in human settlements is imperative, and I believe it is, then the ANSS must work toward imaginative and feasible ways of accomplishing this objective.

This means that the ANSS should be more deeply involved in identifying, publicizing, and developing research projects, innovative programs and activities, and private and public policies that focus on the melding of man and nature in human settlements. Some areas that should be investigated are: 1) research on relationships between the physical environment and human performance; 2) programs and techniques for communicating environmental awareness and information to our citizenry; and 3) private and public policies regarding the establishment and preservation of nature and natural areas in human settlements.

The ANSS has always been a strong and dynamic organization. It has had outstanding leaders at its helm and an active and alert membership. It has consistently met the challenge of the times. Our Society must now take a position of strong leadership in helping to both identify and close the gap between public needs for nature in human settlements and our present public and private policies that relate to land development. We need to both speak out against private and governmental policies that degrade our environment and offer positive alternatives. We need to challenge anti-environmental policies and to voice our concern when we have evidence that our environment is being harmed. We must guide urbanization in a manner that will not destroy values that are recognized by our populace as being important. The battle for environmental quality must be fought at every level, and the ANSS must continue and strengthen its leadership role. We can create in America the kind of human settlements that we believe are right for America—but we must be willing to fight for a high quality environment on every front—at the national, state and local level.

### EARTH IS HOME

THERE IS ONE EARTH and it is where we live. It is where everything we know lives. The way some things live is fouling the earth for all life.

EARTH IS EVERYTHING the sky embraces, the ground we stand on, the air we breathe, the light we share; it is smells, colors, shapes, winds, cities, houses, oceans. Earth is not property, not tools, not resources, not the sum total of all beautiful vistas, not that plan-

et named "Earth." The astronomer studies one face of the earth, the environmentalist another, the geologist another, the exploiter another, the nature-lover another. All these partial glimpses come from the one face of the one earth which is home for everything we know, the earth we are, the earth we live, the earth we wake up to. And the earth whose face we now defile, powerless to do otherwise.

THE WHOLE EARTH is not the sum of these glimpses, nor is it some imaginary fiction, some vacant idea, some beautiful thought, some mere name. You know this one earth because you see it, breathe it, hear it, eat it, shape it, depend on it—and because you are of it. Does this knowledge govern our practice? Less and less, so long as we turn to partial knowledges at the expense of this *universal* knowledge.

PARTIAL KNOWLEDGE is partial power, but it is power nonetheless. Bacon knew that. Descartes knew it and hoped that all the parts would add up, so men would be masters over nature. Now we are powerlessly caught in the last moments of Descartes' dream. The propaganda of science and capitalism still boasts of their magnificent achievements—the paranoid delusion of modern man who knows the jig is up. Man was never so dependent upon nature, so prey to chance, so helpless or so homeless. The dream is over: the dream of freedom from nature, mastery of nature, control over nature, an end to pain and misery. The very ideas cannot stand up to what we know from everyday experience. We need a truer idea. Earth. Men are no more its masters than its victims, no more its *raison d'etre* than its accident.

MAN IS NOT ON TOP, he is caught in the middle of a single network of interdependency. When nature turned a grim face to man, when men in their natural state were thought to be murderous brutes, reason was thought to be man's tool for beating nature back and containing murderous impulses. Now nature presents all its faces, and earth is the one face of all; and reason is the one power man can exercise for everything in the earth's interdependent web. Reason is not just what distinguishes man from everything else, it is what allows him to be related with everything else. The earth needs man's study of ecology, but we don't have to wait for a last word in ecology before we take the first steps dictated by our knowledge that earth is home.

LET US HAVE POLITICS for earth, not a desperate conservationism content to save parcels of lovely, uninhabited

(Continued on page 16)

# TIPS for Environmental Education . . .

## Audio-Visual Aids and Audio-Visual Perception

HELEN ROSS RUSSELL

The phrase "audio-visual aids" suggests that their use should aid people in the ability to see and hear well. Unfortunately the opposite effect is frequently achieved.

In this age of television, family cameras, tape recorders and transistor radios, of music to eat by, study by and work by, senses become numbed and we look and listen without seeing or hearing.

In addition, many of the audio-visual aids which employ the use of a screen (and these are the only audio-visual aids in many persons' thinking) are authoritarian. They show and tell. They neither raise questions nor permit children to have the joy of discovery.

Carefully chosen and used sparingly and well, they add new dimensions to a lesson. A sound movie may often be run twice with excellent results — once with the sound track on, once with the teacher and/or students providing the sound. The person who did the sound track may be an expert, but he doesn't know your community, what you taught or plan to teach, or where your students are in terms of learnings and understandings. He has to be general. You can be specific in relating the material to the study at hand.

If students are involved in the talking, they must comprehend what is on the screen. If the "canned commentary" is used on the second round, students can be watching for new ideas introduced by the film and for further clarification of ideas introduced on the first showing.

### Audio-Visual Perception

To lead students to develop audio-visual perception, we must go beyond the usual audio-visual aids. Often the lack of good audio-visual perception is one of the problems of our age, and the two areas that should be combatting it are art and science. These subjects require careful observation — a seeing eye — and should encourage creativity and imagination.

### Keep a Journal

A good technique for developing audio-visual perception is keeping a journal. This should be a joint English-science venture, for good journal keeping is good writing. Action words, strong

nouns, similes, accurate description are the key to both. Compare:

*March 10:*

"Children were feeding the birds."

or

"The sparrows watched the children put the food out but the pigeons ate it right away."

or

"Twenty house sparrows huddled in the Hawthorn tree with their feathers fluffed against the wind waiting for the children to leave, while below them six pigeons arrogantly paraded up and down the stone wall and ate the cracked corn almost as fast as the boys spread it on the flat surface."

and

*April 30:*

"I saw a tiny brown bird today in the only tree at 136th Street and Broadway. At first I thought that it was a baby sparrow, but when I got close I saw that it had a red patch on its head like an Easter hat. While I watched it, it flicked its wings and sang a pretty song — much prettier than the sparrow's 'che, che, che.' What was it? And what was it doing in Harlem?"

There is much to be seen — even in Harlem — if one develops visual perception. A fifth grade in the Bronx watched a mockingbird eat a cupcake from their 4th floor window this winter. They didn't know it was a mockingbird — they only knew that they had been invited to the window to see what was going on and to learn all they could by watching. They recorded the experience with drawings — and made trips back and forth from desk to window to check on size and shape. When the mockingbird's flight after half an hour of activity revealed its white markings everyone was excited. The children decided to look for it after school, and to see what other birds they could find. The teacher gave them a choice: Everyone was to report on birds observed but the report could be a picture, a poem or a story. One girl wrote, "I saw a very funny bird. It was gray and walked down the tree trunk. I never saw any bird like it before."

Many other children reported new observations about sparrows, starlings, pi-

geons, blue-jays. Every child saw some birds where none had been observed the day before, simply because they had been invited to observe a slender gray bird from a grandstand seat!

I once had a student in Massachusetts describe a vine with clusters of blue flowers that looked like sweet peas. It was growing in the yard across from the college dormitory. A week later she came to class excited. The same vine grew in the yard next to her parents' home in New Jersey. She had passed it hundreds of times and never seen it. "In fact," she said, "I don't think I ever looked at the world at all until I had to keep a journal."

A twentieth century painter, Giorgio Morandi, once said, "To achieve understanding it is not necessary to see many things but it is necessary to look hard at what you see."

### Primary Audio-Visuals

Journal keeping requires the writer to "look hard." It deals with the primary audio-visual aids — the actual things. If the actual thing happens to be a living thing it captures the minds and enthusiasm of children as nothing else can do.

This was dramatically illustrated by and to a fourth grade teacher in a "disadvantaged area" in the Bronx when she gave her non-reading fourth grade class brine shrimp to observe. She put 7 children around the table with a glass bowl of the shrimp, a piece of white paper and a piece of black paper.

She told them that she would not answer any questions. They were to see what they could learn about brine shrimp just by looking at them. Any things they learned and any questions they thought of they could write on their tablets. She would write any word they needed spelled on the board if they asked her to.

The response was enthusiastic. First, informal comments, then written ones. When dismissal time came these children had to be torn from their observations and from their long voluntary lists of statements and questions.

"Look at them chase each other."

"They are different sizes."

"Look! A she is chasing a he."

"No, you dope, hes chase shes."

"It's leap year, Man, she must be chasing he."

"Some are fastened together."

"A little one and one with a little black button."

"Where are their eyes?"

"How many legs have they?"

"Look at them swim on their back!"

"They can't."

"They do."

"Why?"

"Must be something to do with light."

"Maybe if we use the black paper we can make it dark."

"Hold the bowl up so we can see what they do."

"Where do the babies come from?"

"Do they come from the little black button?"

"How do they breathe?"

"What do they eat?"

"Some are skinnier than others."

"Why are they hairy?"

I have seen the same kind of excitement in high school and college when students grow their own protozoa cultures, and then watched the activities of the many invertebrates under a microscope.

If every student in a class is asked to collect some water from a pond, a lake, a pool or stream and put into the water some dried grasses from the bank two weeks before the protozoa are needed, an interesting variety of organisms generally is available for class use. In areas with many bodies of water the class should be organized so samples come from various places. In areas where bodies of fresh water are scarce, samples should be taken from different sides of the reservoir or fountain or different places on the river bank. Only the most highly polluted or strongly chlorinated bodies of water will fail to produce any organisms.

Students enjoy collecting specimens. In rural areas this can be a good learning experience if proper techniques and rules of conservation are worked out and observed. In highly urbanized areas there is little to collect and the collectors are legion. Even so, Norway maple and Ailanthus fruits are usually available, and weeds grow in abandoned lots. Spring winds frequently break young twigs from the trees providing a "wind-fall" for the teacher who wants to teach buds and developing leaves. Sometimes a teacher can obtain some branches for classroom use from the Park Department or the Botanical Garden of a city.

### The Tree Puzzle

A tree jig saw puzzle can be an exciting way to lead to visual perception. Take a branch approximately 24 to 30 inches long from each of four different

trees. Cut them into enough sections to provide each child with a twig. Mix all the sections up in a box and have each child take one piece. Have them re-assemble the twigs on table tops. This takes a remarkably short time. In answer to the question "How did you know which piece your twig belonged to?" you will usually develop a list of the differences which are characteristic upon which identification is based.

In the beginning the difference should be marked as in: elm, beech, Norway maple, Horse chestnut; or ginkgo, plane tree, Norway maple, Ailanthus. For experts four maples, such as red, sugar, sycamore, and silver, can represent a challenge.

The proper placement of the section of the twig is based on growth patterns and is another area appreciated through observation.

Although biological specimens are hard to come by in the city, earth science ones are universal. Deserts and grasslands are easily studied on most school grounds. River systems may be observed with their tributaries, deltas, and lakes on school grounds and in gutters of city streets as well as in bare areas under trees. The patterns may be studied just after a rain; or children who have planned for a rainy day field trip and are properly shod and clothed will enjoy the experience of learning first hand in the rain.

Snow, too, can be useful in teaching sedimentary rocks, stratification and unconformities.

Classroom geology can also be supplemented in many places with field trips to a road cut or a rock outcropping.

There is no single road to audio-visual perception but anything that helps students to visualize, challenges them to look and listen and guides them in meaningful observation and imaginative problem solving will help them to use and to enjoy their senses to the full; and in so doing to develop new appreciations and understandings of the world in which they live.

### Erosion

There is little doubt that, given a state's natural resources and technological know-how, we could shape our physical environment into the epitome of beauty and harmony. The problem is not in the realm of resources or know-how; it is in the realm of the spirit and the minds of our citizens.

We as a nation, have not been willing to commit ourselves honestly to the acceptance of the criterion of nature's laws. Yet to healthfully survive, our civiliza-

tion demands that we operate within the understood rules of ecology and conservation.

The greatest problem we are faced with is that beauty must be real to the mind and spirit before it can exist on the land. We must face the failure of our public elementary and secondary schools to develop this aspect of good citizenship. Materialism has been the basic lesson plan for learning to live.

We suffer like no other nation from pollution of our natural environment and the erosion of man's spirit. Physically we enjoy the best of health, but mentally and spiritually we are victims of an eroded spirit and of a desecrated land. Consider the statistics on consumption of barbiturates, tranquilizers, tobacco, alcohol, and narcotics. Consider the mounting cases of heart disease, ulcers, cancer and mental illness.

Man in America has played hookey from the school of the out-of-doors too long. Ever since formal learning became mandatory, we have increasingly lost direct sensory contact with the school that is nature.

In most cases the stepping stones across this river of neglect have been inundated. Man cannot return to the proving ground where he was fashioned and lived successfully for a million years. Our society won't permit it!

Our fellow teachers would be the first to admit that most of us live in a sterile world of ignorance of our environment. More and more we deal with the things and trappings of teaching: bells, books, models, graphs, movies, TV. We operate in climate-controlled cubicles with hordes of students. We know very little at first hand of community planning, ecosystems, radiation, pollution, urban renewal, aesthetic appreciation, or the results of 2,000 school students flushing toilets twice a day or of 200,000,000 persons throughout the country doing the same thing. This ignorance is not bliss! We are poorly qualified to nurture and fashion the intellectual free inquiry of youth into their daily discovered outside environment.

We can be positive that Earth Day and the Teach-In will be a one shot affair in many schools. There should be ecological Teach-in every day of the year. This will present a challenge to both teachers and students that they do not reach the end of their string and find interest lagging. Back to the books, and charts and graphs and closed circuit TV. Is that what we want? Is that what we will have? A year from now will give some idea of what will have been accomplished.



# Sensitivity To Nature

Aldo Leopold, in his *Sand County Almanac* said, "Let no man jump to the conclusion that Babbitt must take his PhD in Ecology before he can "see" his country. On the contrary, the PhD may become as callous as an undertaker to the mysteries at which he officiates. Like all real treasures of the mind, perception can be split into infinitely small fractions without losing its quality. The weeds in a city lot convey the same lesson as the redwoods; the farmer may see in his cow pasture what may not be vouchsafed to the scientist adventuring in the South Seas. Perception, in short, cannot be purchased with either learned degrees or dollars" . . . But "On the back forty, we still slip two steps backward for each forward stride."

It is the colossal ignorance of the laws of nature "on the back forty" which is properly our consideration in the Nature Conservancy. And should we enlarge our policies to include this greatest challenge of all, it will take courage and time and hard work. To increase the knowledge of our own lay members beyond the sentimental, emotional approach, beyond the concept of human management to a true acceptance of the scientific fact of the community, of which man is only a part, but, because of his present dominance, an important part, is an even greater challenge than to save the land. Of what value to preserve the greenbelt, to secure wilderness areas, to set aside natural woodland for school use, if man can still nullify that value by his lack of protective understanding, of sensitivity, of communication with nature? . . .

. . . Ponds can change the entire ecology of a given community. But too often the swamp lands of our backcountry are passed by, yet here especially lies fascinating research sport. It was Tam Deering who wrote in 1966, "We think that woodlands, swamps, ponds — as nearly in their original state as possible, should be within easy reach of everyone, always, so man may learn of the long, long road over which life from the beginning, has brought to him, and through nature think in terms of cause and effect, for there he can see how essential to the whole world is the balance of nature."

It was to such swamplands that an energetic young teacher brought a busload of eager young 6th graders. For an hour they dashed about, shouting, throwing stones, trampling flowers. No respectable animal would have remained in the area. The teacher went home

feeling that he had taken his class for a field trip, thus meeting the requirements. But the wildlife research which could have been as exciting and absorbing as a football game, did not happen because of the ignorance and lack of understanding of the well-intentioned teacher. Interpretation, guidance, yes, but the basic requirement — sensitivity to nature and understanding of its meanings and of the nature of the student . . .

. . . The upsurge of outdoor education, environmental study, etc., must come in for intensive study, evaluation and change where necessary. Which means that before we begin research with our own members, we must cooperate with quality environmental studies; experimental outdoor laboratories and pioneer training centers for elementary and secondary teachers must coincide with our initial efforts. For if we confine our efforts in lay research to our own members, we may leave a vacuum, which will be increasingly filled by professionals dedicated to the belief that man is the manager of all natural areas for his own good, rather than as a partner in nature's processes. And with the asphalt jungles creeping in and out from city centers, there are too few elementary and secondary teachers with knowledge of nature's ways. Easy prey to economic pressures, they dimly recognize their need for training in new ways of learning in the out-of-doors, greater security in and sensitivity to the ecological changes which, in effecting biologic systems in a woodland or beach area, also affect man's life upon the earth. Again, time is running out. Too few professionals, too little time, inadequate skill in planning for and guiding the lay researcher; not enough understanding of the life processes around us and how to offer protection. It is more difficult to work out guidelines for this kind of learning; it takes more time than to prepare and deliver a lecture; there is more feedback; to meet the questions will require a whole new attitude and a sure skill. But the results hold a satisfaction unequalled, in addition to furnishing much needed data. There is also a spiritual growth in both child and adult student that is exciting, but to achieve these results, research must be more than cold figures. It must come alive. Can we do it? And could we possibly give some of the very able teenagers an opportunity on our project committees, with responsibility for guidance of younger children in the business of lay research? Perhaps this has been done

somewhere. It occurs to me that this might be a sure way to secure active teenage members, but there is another step in the process. No teenager will remain a member if our programs at member meetings are not geared, in part, to their needs, with time allotted for their contributions.

—From a presentation by Mrs. Tam Deering at the Nature Conservancy Annual Conference, Seattle, August, 1969.

—after *Conservation Vistas*, USDA

## Suppose

Suppose we had to pay

To see the glorious sunset's rays  
And the magic stars of the milky way,

Suppose it was ten *pescuas* a night  
To watch the moon's soft silvery light.  
Or watch a sea gull in its graceful flight.

How much would a flowery landscape cost?

Or a harmattan wind so full of drought,  
Or the rainbow's glory — so quickly lost?

How much wondering, would it be worth,

To smell the fresh brown fragrant earth  
In June and watch the miracle of new birth?

How much would we be willing to pay

For the laugh of a child at the close of day?

Suppose God charged us for these, one may say?

Suppose we paid for a glimpse of the hills,

For the song of rippling mountain rills,  
And the hue of the mating birds?

Think about it . . .  
All these things God gives us free,  
And Oh, what a poor return for these  
We give at night on our bended knees  
Forgetting Thanksgiving — mumbling  
many a more please.

Ignoring the needs of others many a score,

What do we do?  
We just beg the Master for more . . .  
and more . . . !

Suppose we had to pay?

OFOSU-APPIAH, Ghana

About one in every two dozen archers were successful last season in taking a deer. A total of 1,407 deer were taken by bow and arrow with 33,356 special archery stamps sold, according to the State Conservation Department's Division of Fish and Game.

# Promotion of Nature Study

## By Eugene Swope, M.D., 1910-1915

RALPH W. DEXTER

Historian, American Nature Study Society  
Kent State University, Kent, Ohio

Through the early part of the Twentieth Century much of the sound work in the field of natural history was done by physicians. While this is no longer true, with only exceptional cases in modern times, we owe a great debt of gratitude to those early medical men who pursued natural history as a hobby and made a genuine contribution to the advancement of natural science and the promotion of nature study. In the second decade of the Twentieth Century, a Cincinnati physician, Dr. Eugene Swope, was an important leader in promoting nature study on both the state and national level.

Dr. Swope was noted for his public lectures on birds and served as the Field Secretary for the Ohio Audubon Society with headquarters in Cincinnati. He was the founder, publisher, and editor of *Nature and Culture*, a monthly serial devoted to natural history and conservation of natural resources. This was first issued in June, 1910. It sold for 10¢ a copy, or \$1.00 a year, and attained national circulation. Beginning with July, 1912, Dr. Swope incorporated his project as The Nature Publishing Company.

The motto on the mast head of the publication read "One touch of nature makes the whole world kin." Dr. Swope can be credited with an early concept of ecological relationships in which all facets of nature are interrelated. The subtitle of his publication read "Conservation, Restoration, Elevation," which were the three objects of this monthly bulletin.

While conservation of nature in general was the theme, special emphasis was given to the conservation of birds. The slogan, "Save the birds or lose the trees" frequently appeared in the bulletins. In advertising his publication, Dr. Swope often repeated that "*Nature and Culture* — is for the purpose of keeping you in touch with the youthful spirit of the out-of-doors world, the eternally young; for the purpose of helping you see the beautiful and wonderful in your own environment, and to grow in its knowledge." Another favorite slogan of his was, "To know Nature and Man is the sum of earthly knowledge."

Featured in the bulletins were occa-

sional biographies of outstanding naturalists. One such article, for example, was devoted to Anna Botsford Comstock with a digest of her work in nature study. Mrs. Comstock, wife of Dr. Henry Comstock, Dean of Cornell Entomologists, was a leader in the Cornell group of naturalists under Liberty Hyde Bailey, father of the American Nature Study Society. Mrs. Comstock was editor for the "Home Nature-study Course" leaflets, and her best-known work of a popular nature was her famous *Handbook of Nature Study*.

Dr. Swope as Field Secretary for the Ohio Audubon Society, which held monthly meetings in the Cuvier Club building in Cincinnati, traveled throughout Ohio promoting nature study and organizing Audubon Societies in schools and communities. After publishing five volumes of his *Nature and Culture*, he found this labor interfering too much with his profession, and felt that the direction of the publication should be turned over to a professional person. The publication was gradually taken over by the Cleveland Bird Lovers Association and renamed *The Blue Bird*, under which title it was published, and the emphasis was strengthened, for the study and protection of birds, although general nature study was not neglected. Dr. Swope continued as an editor and publisher until 1915, when the Cleveland group took over the entire task of publication. The new sponsors continued publication until 1920.

This project in nature study, while it lasted for only ten years, was an important link in the development of the Nature study movement in North America.

### GOOD READING

*S/S/T and Sonic Boom Handbook* by William A. Shurecliff. Schenkman Publishing Co. Inc., Cambridge, Mass.

Shurecliff's main opposition to the proposed supersonic transport is the inevitable sonic boom, the very sudden, loud, unexpected noise which produces a set of symptoms called the startle syndrome. Major sonic booms are inevitable because to date the FAA has de-

clined to set any limit on sonic booms. The "bang zone" would cover a large portion of the country, causing damage to buildings, air, people, wilderness areas and animals. The S/S/T would not save the 5% of the population using them that much time, and would be more dangerous because of fire, hail, lightning, high speeds, poor visibility, poor maneuverability, and cosmic radiation. The proposed S/S/T is a boon-dogle.

— Melissa Cannon

\* \* \*

*Biology or Oblivion* by Brian Hocking. Schenkman Publishing Co. Inc., Cambridge, Mass.

Hocking believes that biology is the ultimate science, and in knowledge lies our answers, while in ignorance of its basic lessons lies our ultimate destruction. Biology cannot be taught only from books and second-hand knowledge, but must be taught through experience and experiment. Our misplaced values are evident in the fact that even today it is still possible, and probable, for a biologist to receive training in the physical sciences which are basic to biology, but it is rare for people trained in the physical sciences to have similar training in biology. Hocking discusses the basic principles of evolution, genetics, and ecology and the contributions of earth, air and water to biology, the study of life.

— Melissa Cannon

\* \* \*

*Teaching Science With Everyday Things*

by Victor E. Schmidt and Verne N. Rockcastle. McGraw Hill Book Co. 167 pp.

Quoting from the preface of this excellent work gives a clear statement of the scope and intent which the authors aimed for. "This small book is designed to be of practical help to teachers, particularly those in the elementary school, and to college students who are preparing to teach. It requires no previous background in science, nor does it call for special or costly equipment. But it does assume a willingness to try new things, to explore the fascinating world around us, and to seek answers in observations and experiments instead of merely accepting what others say. Above all, it asks, on the part of the reader, a desire to help children to do all these things."

"... The material that is presented deals with things close at hand — things that children can watch and touch and try for themselves — and this material hardly requires abstract formulas and complex terminology.

# NEWS & NOTES on environmental education . . .

## Interest in Environment Grows

The growth in numbers of those who are interested in the environment is an encouraging sign. The degradation of the environment has presented a serious problem to people everywhere. There is concern, however, that this problem is receiving much attention, but getting too little action toward its solution.

Technology has put strong claims to the honor of creating an affluent society. Technology has likewise created a throw-away society wherein everything is merely used, then thrown away. The resulting wastes pollute our roadsides, our water, the air and our soil. Even our very mental equilibrium is deteriorating from the constant bombardment from all of these.

Skillful advertisements have propagandized the people, brainwashing them into thinking they need new models of everything. Obsolescence built into everything assures a market for what advertisements tell the public is better, cheaper, more beautiful, and more usable, and to replace the old. We have great material abundance but this is of both the new and of the cast off masses of "outdated" obsolescent garbage which is suffocating us.

The degradation of human life is most pronounced. Spiritual values have been eroded among people of all nations. Affluence has not given a quality of life and the serenity people crave. There is only deep dissatisfaction. The tons of tranquilizers, pot and all the other gunk which people are urged to consume to "feel better" and to find tranquility of mind is not a cure but a symptom of something that is wrong.

Struggling to be civilized is a farce if we destroy our environment, pollute our air and water and soil, erode the spirit and degrade humanity.

Some say we have set up such an accelerated erosion of our cities that the point of no return to sanity for the seething, confused, disillusioned people has passed. There is doubt whether the aroused public which wants not only preservation of some bits of remaining less abused environment, but of reclaiming that which seems beyond hope can accomplish its desires.

Despair is occasionally tempered with hope. Hope looks to the establishment to pull people out of the morass. Will it be done?

## Biology Changing Emphasis

Biology teaching in America is taking a flip. In the decade just passed, the great surge in biology was for a while toward emphasis on molecules, the atom, DNA and protons. There was much play on the gadgetry of technology. Emphasis was centered on making the public aware and knowledgeable of what science is and what its goals were. These are all worthy in themselves, but America has awakened to a reality that the human environment was decaying under the onslaught of the technologists and their co-workers.

From a letter dated February 25, 1970 from the National Science Teachers Association announcing the annual meeting we quote the following:

"The urgency of a new view of the world—its social structure, its ecology, man's future—and the involvement of science and technology in that future are reflected in the meeting theme "Science Teaching Toward a World We Want."

Technology, the hand maiden of science, has given us a wonderful gadgetry with which to grace our living. This has involved a highly sophisticated approach to the use of resources of all kinds. The repercussions of the activity of technology has been the releasing of a vast chemical sludge into our air, water and soil, and DDT is not the least of these.

Sulfur dioxide, mercury, lead, fluorine, and all the other pesticides and herbicides are everywhere. Environmental degradation on every hand has resulted. Less than a half century ago, Chicago could boast that it had over 300 days which were cloudless. Today the situation is reversed. A quarter century ago plane pilots could locate communities by the slight smog cover over them. Today the filth poured into the air as byproducts of automobiles, steel, copper and chemical industry, and from dusts raised from immensely expanded farm lands where once there had been dustless sod is uniform over the landscape filling the gaps between communities.

The price paid for the gifts of technology is a degraded environment of billboarded highways, contrails which grow into a cloud filled sky, of automobile graveyards, and increased emphysema, watering eyes, highways which destroy good farmland and an exploding population.

What kind of world do we want?

## Earth Day Every Day

Earth Day, April 22, came and went. Some had predicted that on some of the thousands of college and high school campuses there might be disruptions. But there were none of note. With one voice the young generation vowed that we need a better world and worked hard to learn more about the problems and to teach others. Many feel that the idea of Earth Day must be a continuing affair, and some groups which had organized are working to keep the spark of activity fanned.

Earth Day signified that there was an explosive growth of awareness of the fact that man's environment was being degraded to dangerous levels. There was an awareness that like the satellites which were sent to the moon and back, the earth was a closed system, and every living thing had a part to play to maintain the environment in which, through many millenia, man and the other organisms had developed an interdependence which must be maintained.

Rising population and a rising technology have produced pollutants which were interfering even with the production of oxygen by plants, not only on land, but in the sea as well.

While physical effects from some of the pollutants have been noticed when concentrations became too heavy, the psychological effects become more insidious long before physical effects are observed. Such a psychological disturbance as the sight of a beer can, soft drink bottle, plastic cup, cardboard carton, tinfoil wrapper and other garbage an average of less than ten feet apart at the edge of our highways and streets is frightening. What will happen if the increased pollution comes at twice the rate of technological development or the growth of the Gross National Product?

NATURE STUDY invites short, terse statements of concern and suggestions of solutions to our environmental dilemma.

## Comment

The following comment was made by Thomas D. Barrow, Director, Humble Oil & Refining Co., Houston, Texas shortly after the Santa Barbara oil spill: ". . . to date the offshore oil industry has been in the red. It must have a favorable atmosphere if it is to continue. I would hate to see the United States destroy such an essential industry by unwise political action."

A large segment of the public is in-

dignant over the oil spill near Santa Barbara and more recently in the Gulf of Mexico. Is the economy in operation by eliminating safeguards an effort by the oil industry to take it out of the red? Isn't such economy a price to be borne by the public in destroying beach areas, in dead birds, in ruined shell fish and related offshore food industries, and in ruining of sport fisheries. Why does the oil industry continue offshore activities if it puts them in the red?

Is it proper to consider that an apartment house being built has put the builder in the red because rent is not yet coming in? How hazardous should the building process be to the general public until such time as rents take the builder "out of the red?"

The Gas and Oil Journal, Feb. 17, 1969 points out that "This nation's economic future demands that its marine resources be developed." It is clear that the oil industry, by the manner of operation, is causing ruin of other marine and shore industries. Does it want to have exclusive say of the method of operation which damages other industries?

### Solons Okay Bill on Oil Spilling

Washington (UP) — The House Wednesday cleared 350 to 0 and sent to the President Nixon legislation that would make oil and shipping companies pay the cost of cleaning up of oil spills in most instances.

The bill would also eventually bar pleasure boats from discharging raw toilet sewage and curb thermal, or temperature pollution caused by nuclear power plants.

Approved Wednesday was a compromise between previously passed House and Senate measures. The Senate endorsed the compromise Tuesday by a vote of 80 to 0.

The pair of unanimous votes reflected the heavy political support in Congress for making companies responsible for oil spills pay the cost of cleaning them up. Although the approach has been under consideration in Congress for two-and-a-half years, enthusiasm for it picked up appreciably with the rash of well publicized ship and off-shore rig spills. The legislation would set stiff criminal penalties for anyone failing to report an oil spill, provide a \$36 million federal fund to finance cleaning up and require firms that cannot prove the spill was an act of God to reimburse the government for costs up to \$14 million. The curb on raw sewage discharge would not take effect until at least three years for newly built boats and five years for existing vessels.

Salt Lake Tribune, March 26, 1970

### What is Pollution's Priority?

Senator Frank E. Moss (D-Utah) in speaking to an audience in Utah on Earth Day stated that "The President wants to spend 70 times as much on military as he does on pollution. On this Earth Day, let us ask ourselves whether some foreign military threat is 70 times greater than our domestic threat to our environment."

Senator Moss made an analogy between the people on Earth and tenants on a landlord's property. "Some of us are worse tenants than others, but unless you live in a cave, you, too, are an undesirable tenant."

"If we don't mend our ways and clean up, the landlord will terminate our lease," he said.

He said that ecological legislation and rhetoric is popular now, but expressed fears that funding would be difficult. "Could we (the entire Congress) be for the same thing? The answer will come when we move from rhetoric to money, from legislation to enforcement, from convenience to sacrifice.

"We still need money, enforcement and sacrifice to control pollution. Until we reorganize the federal structure which deals with natural resources and the environment so it can perform today's tasks in this field efficiently and effectively, we are simply spinning our wheels — duplicating, overlapping, wasting effort — and failing year after year to deal with man's total environment as a whole.

"It is a kind of folly that permits the corps of engineers to plan a \$100 million flood control project in the Rio Grande watershed of New Mexico while upstream in the watershed there is extensive erosion which is causing sedimentation that will move downstream, unchecked, to fill up the reservoir, while the Soil Conservation Service of the Department of Agriculture and the Bureau of Land Management of the Department of Interior debate their jurisdictions." Both services would be under the Department of Natural Resources and Environment.

"The government's attitude toward industrial polluters must be reasonable but tough. Although government should listen to the problems of industry, it shouldn't take the dire prediction of industry at face value. For example, I'm sure that if HEW had asked the soft drink industry how long it would take to produce a cyclamate-free diet drink, no doubt the answer would have been 'years'. Well, HEW didn't ask, but just three weeks after the cyclamate ban, cyclamate-free drinks were on the market."

— The Daily Utah Chronicle  
April 23, 1970

### Awareness Through Involvement

Someone has described a naturalist as one who calls to our attention things we have seen all our lives but never noticed. The primary objective of interpretation is to create a sensual and personal AWARENESS! To be aware one should develop a personal identity with the environment. To develop such awareness there must be some knowledge of the environment for it is here that awareness begins. Definitions, facts, mere knowledge — these do not necessarily create awareness. We must have a feeling for the environment. We must have involvement with the environment. Tasting, smelling, feeling, seeing, hearing, wondering — these are the avenues for developing involvement.

### All One Species

I think we've reached a point of great decision, not just for our nation, not only for all humanity, but for life upon the earth. I tell my students, with a feeling of pride that I hope they will share, that the carbon, nitrogen and oxygen that make up 99 percent of our living substance were cooked in the deep interiors of earlier generations of dying stars.

Gathered up from the ends of the universe over billions of years, eventually they came to form in part the substance of our sun, its planets and ourselves. Three billion years ago, life arose upon the Earth. It seems to be the only life in our solar system. Many a star has since been born and died.

About two million years ago, man appeared. He has become the dominant species on the Earth. All other living things, animal and plant, live by his sufferance. He is the custodian of life on Earth. It's a big responsibility.

The thought that we're in competition with Russians or with Chinese is all a mistake, and trivial. Only mutual destruction lies that way. We are one species, with a world to win. There's life all over this universe, but we are the only men.

Our business is with life, not death. Our challenge is to give what account we can of what becomes of life in the solar system, this corner of the universe that is our home, and, most of all, what becomes of men — all men of all nations, colors and creeds.

It has become one world, a world for all men. It is only such a world that now can offer us life and the chance to go on.

— DR. GEORGE WALD  
from *Population Reference Bureau  
Selection No. 27.*

## Humanity Needs Nature Centers

Dr. Joseph J. Shoman, Director of the Nature Center Planning Division of the National Audubon Society outlines some ideas for developing a conservation conscience—a conservation ethic. He says that "I believe that common sense gives us a clue—that an ethic is an attitude and as such is really belief, and beliefs transmit themselves into behavior. An attitude or belief is something a person acquires or builds up, something one learns.—Disciplined behavior must be learned."

There is a great hunger among the American people for opportunities to learn about their environment. They realize that their attitudes toward the environment under the pressures of affluence have not given them a quality environment. There is a longing to learn about the elements in the environment such as the birds, flowers, butterflies, trees and the mammals. Their excursions into the outdoors for family campouts, or weekend hikes in fields and woods or along stream or lake shores shows a world filled with trash. Somehow this does not fit into their idea of a good life.

To better understand what the elements are in the environment, there has grown great popularity in nature centers, outdoor museums, and nature trails.

"How can we make our planet more habitable?" Shoman asks.

"The answer," he continues, "if there is one, I perceive, must somehow, in some way rise out of the spirit of man and out of a developing awareness of his rightful role on earth. And this can come only through the proper disciplining of man's actions and through such long, well-established formats as careful upbringing and sound education.

"The nature center concept is aimed at the urban dweller and hopes to do just this. It is in a sense a new approach to the development of environmental awareness for millions of urban people everywhere."

Many critical areas in America have no semblance of nature centers which are focal points for developing the awareness people want and need. "A nature center," Showman states, ". . . is an outdoor focal point, a facility, an institution, where community citizens (especially the young) can enjoy a segment of the natural world and learn about the interrelationship of living and non-living things, including man's place in the ecological community. Thus the nature center can become a viable tool for the development of environmental awareness and perhaps lead to the development of a land-life ethic. Surely, it offers us a hope and seems worth trying."

## The Wildlife Index

DONALD J. ZINN, *President  
National Wildlife Federation*

"The Wildlife Index is fair and looking bleak. Approximately 40 bird and animal species became extinct in the past 150 years, and 89 more are now on the Endangered List.

"Isn't it strange that there are now more deer in the United States than any time in history? That small game animals including rabbits, squirrels, pheasants, quail, grouse and dove are thriving?

"There's no small message in the fact that only the healthy condition of most game species keeps the total wildlife picture from being a disaster. It is also true that even these wildlife species are under serious attack by continued shrinking of natural habitat, pollution and pesticide poisoning.

"When you add it all up, it makes you hurt to think that the richest, most powerful, most advanced Nation in the history of the world is losing the battle against degradation of its natural environment."

—Utah Sportsman April 1970

## Polar Bears are Endangered

The International Union for Conservation of Nature and Natural Resources (IUCN) has been given the responsibility of compiling scientific research data on the great white polar bears which is an endangered species.

The increasing economic development along the Arctic land masses presents a danger to this animal from oil spills, over hunting for hides and "sport" and the reduction of its range by man's encroachment.

Studies involve various methods of tagging, tattooing, fur dyeing and exchange of information among signatory nations. In addition, information will be sought on food studies, behavior, DDT concentration and movement by radio telemetering.

The ANSS is an affiliate of the IUCN and will look forward to the results of this study.

## Conservation Summit Available

Roger Tory Peterson has been named Dean of the Conservation Summit being held by the National Wildlife Federation in Estes Park, Colorado, July 20-25. Eight hundred people rushed in their reservations in surprising haste when this all-week outdoor ecological-nature study activity was announced.

A staff has been selected to conduct

about 20 different activities ranging from geology, campcraft, water pollution, alpine geology, to nature walks and creeps and nature art.

Stanley and Dorothea Mulaik have been engaged to lead the nature creeps. Observations and interpretation of the commonplace will note activities of ants, the web building of spiders, oddities of flower adaptations, micro-geology, insect activities, weathering effects on the ground, differences in north and south exposure around a rock, and other readily available phenomenon.

Participants will learn the meaning from these two naturalists of the truth that a naturalist is one who calls attention to things we have *seen* all our lives, but which we never *noticed*.

## Western Section Meets

The Western Section of the ANSS has an excellent program for the three day session as an affiliate of the Pacific Division of the American Association for the Advancement of Science. Meetings are scheduled at the University in Berkeley.

A slide showing by western photographer-naturalist members will be held in the evening of June 22. A series of papers will be presented during the day on the 23rd.

Dr. Arthur Nelson and Mary L. Jefferts have planned a field trip to include some of the numerous natural areas in the Bay Area.

Western members in particular are urged to attend these meetings which will involve many aspects of the environment-ecology-natural history complex.

## The Seeing Eye

Looking at ecosystems must be more than the discovery of facts. There must be interpretation. There must be an emotional involvement with the environment. Margaret Farrand explained the role of an interpreter in her *The Seeing Eye*:

A curve in the road and the hillside  
Clear cut against the sky.  
A tall tree tossed by the autumn wind  
And a white cloud drifting by.  
Ten men went along that road  
And all but one passed by.  
He saw the hill and the tree and the  
cloud  
With an artist's mind and eye.  
And he put it down on canvas  
For the other nine men to buy.

# Abandoned Cars and The Environmental Crisis

LEONARD I. ABRAMS

Conservation today has become something more than a group of fresh-air enthusiasts bent on saving some open space and a few animals to remind our great-great-grandchildren of what the world used to look like.

It has become a matter of human survival.

Quite literally man is choking himself to death.

During the past 100 years of industrial progress, the major countries of the world have been stripping the earth of its natural resources; fouling the atmosphere with noxious, lung-damaging soot and fumes; poisoning rivers and lakes with sewage and industrial waste; and spreading their steel and concrete cities over more and more of the green spaces upon which the regeneration of our oxygen supply depends.

In short, we are overloading our planet's capacity to cleanse itself, and if the trend is not reversed, the world may well become unfit for human habitation.

Even now, our thoughtlessness is endangering the other inhabitants of the earth. Fish are dying in lakes and rivers that we have poisoned. And the old joke about living in the city and being awakened by the sound of birds coughing is no longer so funny.

There are some encouraging signs. Man is beginning to talk about the dangers of pollution and over-development. We are beginning to see the enactment of laws and regulations governing air and water pollution. But these small beginnings lack the one ingredient essential to success—a firm commitment to restore and maintain the quality of our environment.

Cleaning up the mess we've made will take years; but it must begin now. We in the American Iron and Steel Scrap Processing Industry are all too well aware of the problems that waiting can bring.

## Nobody Listened

For years, as the steel industry's new steel making techniques and processes lessened its reliance on automotive scrap, we warned that there would be problems. Nobody listened.

Then almost overnight it seemed, there was the "Abandoned Car Crisis." Suddenly the public became aware that the rotting hulks of abandoned automo-

biles were cluttering our city streets and marring the landscape in rural areas. Automobile graveyards, with junk cars piled as high as a four-story building, suddenly became cause for concern. The situation has now reached a point where every single day, 2,500 Americans park and walk away from automobiles for which they have no further use. They do so because they have no alternative. And they have no alternative because nobody paid attention to the early warning signs.

## Lack of Foresight

In many respects, the abandoned automobile is typical of man's thoughtless lack of foresight in the use of his environment.

Besides contributing to the "uglification" of our rural areas, the abandoned car's broken glass and jagged metal edges present a serious hazard to small children who cannot resist its appeal as a playground.

The abandoned car is also a tragic waste of valuable ferrous metals resources.

The experts tell us that we really don't have to worry; iron ore supplies are plentiful and we won't run short in the "foreseeable" future. Once upon a time they probably said the same thing about coal in Appalachia.

The fact remains, however, that every ton of ferrous metal scrap used in steel making conserves up to one and a half tons of iron ore, a ton of coke, and a half ton of limestone.

Besides, what sense does it make to go on stripping the earth of its natural resources when perfectly acceptable raw material is not only available, but is actually creating other problems by its very existence?

The Institute of Scrap Iron and Steel recently adopted a new policy statement on the position of abandoned cars. Essentially, it is a call for action by all involved—the scrap processing industry, the steel makers, the automobile manufacturers, and Federal and local governments—to direct their efforts to achieving the total recycling of iron and steel scrap from obsolete automobiles.

## Achievable Goal

It is an achievable goal provided it is attacked cooperatively and with a real commitment to get the job done. All the

elements of a solution exist; the real problem is one of economics.

The American scrap processor has the equipment and the technology to turn every junked auto in the nation into high-grade scrap that steel makers can use in the manufacturing of high-quality steel.

However, the new steel making technology, combined with rising labor, processing and freight costs, have put iron and steel scrap at a disadvantage. As a result, some steel mills and foundries are using pig iron and imported iron ore while domestic raw materials rust in our streets and fields.

Considering the problems created by excessive wastage of valuable iron and steel, this may well prove to be an economic mistake for which future generations will pay dearly.

But our descendants will pay even more dearly if we do not act now to counteract past misuse and neglect, and work vigorously for a cleaner, healthier world.

The abandoned car crisis is a valuable object lesson. The problem is primarily economic and can be solved by economic means.

But what happens if water pollution "suddenly" becomes too much for New York City's purification system?

Can we really afford to wait until emphysema or some other crippling disease becomes endemic to our major cities?

The early warning signs are up. We must heed them before it is too late.

*The preceding article is one contained in a publication of the Institute of Scrap Iron and Steel, Inc., 1729 H. Street, N.W., Washington, D. C. 20006. This organization is interested in the aesthetic as well as the economic problems posed by the abandoned automobiles.*

## Experience is Needed

Joseph Wood Krutch writes in "The Demise of Natural History," Sept-Oct. 1967, Audubon, that "What natural history provides and biology does not is an experience of rather than mere knowledge about the living universe outside of man . . . This means among other things that it would be well if we would inquire whether or not our local schools include in their science courses some natural history as well as laboratory biology. We need a generation that has not stopped with "knowledge about" but has learned to share . . . the perennial joy and consolation which nature can provide."

# Nature Explorers

CATHERINE DOBBIN EVENSON

*Lewis and Clark College, Portland, Ore.*

The lives of the early nature explorers and collectors of specimens on our continent were filled with hardships, danger, excitement and drama. The men were dauntless individuals, bold and brave in their quest of natural specimens. Oftentimes the physical hardships which they had to endure were extreme. Sometimes the encounters with unfriendly or hostile natives tested their courage to the limit.

The names of those men are borne by many of the plants and animals seen commonly in the environment today. The scientists who described the specimens sent back to them from the wilderness honored those hardy individuals by incorporating their names in some of the Latin binomials of the new species or genera described. Unfortunately, the botanists and zoologists who sat in the comfort of their laboratories or studies, as they worked eagerly over the plants and animals sent from the wilderness of the New World or of the Far East, or wherever the place might be, often chided the collectors for not sending specimens in better condition. They seemed to have little idea of the unspeakably adverse conditions under which the collections had been made. In reality it was a wonder that any of the specimens were fit for study, a fact which becomes obvious to one reading the journals of some of the early collectors.

We today, as teachers and camp naturalists, can help our students, from the primary to the adult level, tie the history of the past to the present, and to learn and appreciate some of the natural history around them by acquainting them with the lives of the men whose names are heard in the lists of the fauna and flora. We can bring back to this generation through the eyes of those past explorers a vision of the wilderness as it existed in our land a hundred and more years ago. Hopefully, we can instill in these souls of the present the desire to preserve the most that is possible of what little there is left of that world of Archibald Menzies, Meriwether Lewis, David Douglas and John Townsend. Perhaps we can lead the new generation to see that in the wilderness which remains, there is still excitement in being a nature explorer as one makes discoveries of things which are new to him as an individual.

Choose to become acquainted first with the men whose names are borne by

the fauna and flora of your locality. Following are a few of the many examples from my own region.

West of the Cascades and Sierras, where the bedrock is exposed and the soil scarce, a tree of striking appearance attracts attention. With its newly-sloughed shreds of dark red bark, lying at the base of the smooth orange-brown trunk, with its glossy evergreen broad leaves and clusters of urn-shaped wax-textured flowers gracing the crown, the Madrone, *Arbutus*, or *Arbutus menziesii* commands notice. Not far away, but where the soil is deeper, is a stand of the majestic Douglas Fir, *Pseudotsuga menziesii*. Under the fallen rotting log or resting in the damp moss on top is a delicate smooth-skinned brownish salamander, the Oregon Eschscholtz Salamander, *Ensatina eschscholtzi*. Growing in the garden is a bed of bright orange California Poppies, *Eschscholtzia californica*. Quivering in the windblown spray from the falls of the gorge are the dainty white Mist Maidens, *Romanzoffia sitchensis*. High on the precipitous bluff of the fog-shrouded coast mountain clings the showy, bright rose cluster of *Douglasia laevigata*, a member of the primrose family. Among the Douglas Firs mingles the graceful Pacific Dogwood, *Cornus nuttallii*, resplendent in its white wedding gown of blossoms in spring, blushing red with its leaves and berries of fall. Over the forest floor scampers the dusky-hued chipmunk, *Eutamias townsendi*, and singing in the trees above is Townsend's Warbler, *Dendroica townsendi*. East of the mountains where the rain is scarce, struggles from the scant soil amidst the lava rocks of the arid plateau, the Resurrection Flower or Bitter Root, *Lewisia rediviva*, raising its pinkish-white array of petals to the hot sun. Near by is the pink ragged-petalled *Clarkia pulchella*. Dispersed over the plateau or among the scattered Ponderosa Pines, there blooms in profusion with tiny yellow rose-like blossoms the Antelope or Bitter Brush, *Purshia tridentata*.

What personalities lie behind those names commemorated by these plants and animals? From where did those men come? When and where did they make collections? What adventures did they encounter?

## Menzies with Vancouver Expedition

Archibald Menzies, a Scotchman by birth, came from a family of gardeners

and botanists. In the gardens of the old ancestral home, Castle Menzies, he received his first lessons in botany. Later he entered the Royal Botanic Garden of Edinburgh as a botany student, and at the same time studied medicine at the University. In the years that followed he pursued his interest in botany, but also entered the Royal Navy and served on several ships as surgeon. A voyage and collecting trip to Nova Scotia and another around the world, during which he briefly touched on the northwest American coast, made Menzies a logical choice of the British Government to accompany Captain Vancouver in 1790 on his global voyage. In the fall of 1792, the expedition made explorations in the area of the Straits of Juan de Fuca, Georgia Straits, Vancouver Island and Puget Sound, the latter named for Lt. Puget, who accompanied the party.

Menzies listed and described as faithfully as he could the hosts of plants he was seeing on every side. Unfortunately, the common names which he recorded in his journal meant little, for he called those plants by the same names as the similar species he had seen on the east coast of America some years before. The madrone, which was named for him later by Pursh, he called the Oriental Strawberry Tree.

He described the country which he saw in glowing and poetic terms. For example: "A Traveller wandering over these unfrequented Plains is regaled with a salubrious and vivifying air impregnated with the balsamic fragrance of the surrounding Pinery, while his mind is eagerly occupied every moment on new objects and his senses rivetted on the enchanting variety of the surrounding scenery where the softer beauties of Landscape are harmoniously blended in majestic grandeur with the wild and romantic to form an interesting and picturesque prospect on every side."

The natives, some of whom referred to the men of the expedition as "Poo Poo men," due to the sound made by the muskets, varied in their attitudes toward the explorers. Fortunately, no extreme situations arose. Menzies realized how fortunate he had been when he had touched on the coast five years previous to the Vancouver expedition. At that time two young daughters of an old Indian chief had shown so much "civility and kindness" and "solicitude" for his safety, that he was afterward very grateful. They had often warned him most earnestly of the dangers to which his botanical rambles in the wood exposed him. When he seemed inattentive to their entreaties, "they would then watch the avenues of the forest when I entered to prevent my receiving any insult or ill us-

age from their countrymen. But it was not until after I left that I became sensible how much I owed to their disinterested zeal for my welfare by knowing more of the treacheries and stratagems of the Natives on other parts of the Coast."

Menzies was able to send home to England many seeds which were reared in Kew Gardens and added valuable plants to the great collection there. He took some living plants in cold frames built on the deck of the ship, and had quantities of herbarium specimens. It was many years before some of them were described and recorded, and perhaps some were never described. In his later years he received numerous botanists who were interested in seeing his specimens, and inspired many with his enthusiastic descriptions of the great floral wealth that awaited in Western America.

### The Lewis and Clark Expedition

When President Jefferson was contemplating sending an expedition across the continent, he was interested in having among the personnel someone who could take note of the plants and bring back specimens and seeds. He was especially interested in knowing of things which would be practical for cultivation.

Meriwether Lewis was a botanical enthusiast, although untrained, and before starting on the expedition across the continent in 1804, he was sent to Philadelphia to consult with members of the American Philosophical Society as to what information to bring them. Later, on his expedition, he proceeded to "describe as well as my slender botanical skill will enable me" and with his incomparable phonetic spelling, the many plants and animals which were seen. Clark, too, made many entries with similar chaotic spelling. They collected specimens, some of which were sent back to the East before the expedition crossed the Rockies, others of which were cached for the winter and subsequently lost to high water, and the final collection made during the last six months of the return journey.

Interestingly enough, Lewis apparently seldom collected specimens of trees and shrubs he described in his journal, and the specimens he *did* collect he wrote very little about. He got back to the East with about one hundred fifty dried specimens, all but about one dozen being new to science. There were six distinct new genera. The accomplishment was really remarkable, considering that both Lewis and Clark were untrained scientists, and had as their major responsibility the safety of

some fifty persons who endured incredible hardships.

Some of the seeds taken back were planted by President Jefferson, some by Philadelphia horticulturists. In spite of the curiosity of eager botanists, the plants were grown in strictest secrecy for several years so that Lewis might have full scientific credit when the book which he hoped to write should appear. However, he hired the botanist, Pursh, an emigrant from Europe, to start making drawings to go into the book. Lewis came to his tragic death in 1809 before the book was written. In 1811, with a threat of war in the air, Pursh departed for London, evidently taking a whole set of Lewis' dried specimens with him. At any rate, in 1814 he published his *Flora americana septentrionalis* containing the descriptions of the plants.

Among his contemporary botanists, Pursh was known to be a rather unscrupulous opportunist. He naively stated in the introduction to his *Flora* that he made a point of seeking out those who might be useful to his purpose. He praised his patrons in their knowledge, expressed sympathy in their not having been able to bring their own work to completion, and stated how valuable he himself had found their material, with no explanation as to how he obtained authority to use it.

To the Bitterbrush, included in the Lewis collection, Pursh gave a generic name which, it developed, had been used previously. Consequently, in 1817 another botanist, De Candolle, renamed the plant *Purshia*.

### Russian Exploration

In 1815 Count Romanzoff, grand chancellor of the Russian Empire, sent out an expedition under Kotzebue to explore the Russian possessions in America. In 1816 it reached San Francisco Bay. In the party were the naturalist, Von Chamisso, and the ship's physician, Dr. Eschscholtz. They made collections then and during a later expedition in 1824, along the coast of California and Oregon, and took back to Europe many specimens.

David Douglas arrived in the Oregon country in April, 1825, on a Hudson's Bay Company ship which had made its eight-month journey around the Horn from England. He made his headquarters at Fort Vancouver on the Columbia for the two years of his sojourn. Again he came to the country in 1829 and stayed for a period of time.

Douglas was sent out by the Royal Horticultural Society and was requested to bring back especially seeds of things which could be grown in England. The monetary reward for his efforts was a

mere pittance. For instance, the entire cost of the expedition including his remuneration was £ 40. During his last three years in America, his whole expense for food and all while amongst the Indians, amounted to £ 66, including a wager of £ 5 lost to an Indian Chief. One species of shrub alone, it was said, justified the entire expense of the expedition, the beautiful red-flowering currant (*Ribes sanguinum*) which soon embellished the gardens of Europe.

Douglas traveled widely over the country, by foot and by canoe, oftentimes in company with a Hudson's Bay party, sometimes by himself. In the sun, the wind and the rain he traveled. Weary and footsore at night, often being too tired to put up his tent, he would take care of the preparation of his specimens. He found great difficulty in trying to dry them when the rain was steady. Sometimes his canoe would overturn and specimens became wet through or lost completely in the surging river. On occasions when it was necessary to swim a river, he would wrap his more valuable articles in oiled skins and place the pack high on his shoulders to try to keep it from the water. On one occasion after he had fallen into a nearly impenetrable ravine and lain senseless for some time in the cold and wet, he wrote in his journal, "When my people in England are made acquainted with my travels, they may perhaps think I have told them nothing but my miseries. That may be very correct, but I now know that such objects as I am in quest of are not obtained without a share of labour, anxiety of mind and sometimes risk of personal safety."

As Douglas traveled south in the Willamette Valley, he found among the Indians a large pine nut which they kept in their tobacco pouches. He learned that the seeds were gathered at the end of summer, dried, pounded, and baked in a sort of cake, considered a great treat. The tree also yielded a sugar-like substance which the Indians gathered and used in seasoning in the same manner as sugar in civilized society. Douglas was greatly desirous of getting cones, seeds and gum from the tree, but learned that it grew farther to the south. He was unable to proceed farther at that time, but the next season did return and, enduring great hardships, found the long looked for tree, the sugar pine, *Pinus lambertiana*, hitherto unknown to science. He took the dimensions of the largest one he could find blown down, and wrote them in his journal in case, he noted, that he never got back to tell his friends. The total length of the tree was 215 feet, and at 3 feet from the ground it was 57 feet 9 inches in cir-



cumference. The long cones, 14½ inches or longer, were only on the very largest trees, and "hung from points of the branches like sugar-loaves in a grocer's shop." In order to get them down, he had to shoot them off. He had knocked down three, when eight Indians appeared, seemingly unfriendly. They began sharpening flint knives and stringing bows. Douglas cocked his gun, and holding it in one hand, pulled from his belt a pistol which he held in his left hand. He stood thus for ten minutes, until the leader made a sign for tobacco. Douglas indicated he would give it to them if they went to get him some cones. As soon as they were out of sight, Douglas picked up his three cones and few twigs and made a quick retreat to his camp, where he lay all night, without a fire, constantly expecting an attack.

One time as he stopped for breakfast at Day's River, on the Columbia, he had an annoying encounter: "An Indian standing by me managed to steal my knife, which was tied to my jacket by a string. I offered a reward of a little tobacco for its recovery, without effect. As I commenced a search, I found it secreted under the belt of one of the knaves. When detected, he claimed the premium, but as he did not give it on the first application, I paid him and paid him so well, with my fists that he will I dare say, not forget the *Man of Grass* for some days to come."

At the end of Douglas' second journey to the Northwest, in 1833 he went to the Sandwich Islands. The following year at the relatively young age of 36, he came to his untimely end there. The accident was described in a letter written by missionaries to the British Consul in the Sandwich Islands. Douglas had been walking in an area where there were pits dug as bullock traps. He had been warned of them, and had safely passed those which were directly in the road, but had evidently gone off to one side to observe another. He must have slipped and fallen in, and whether there was already a bull in it, or whether the bull fell in later is not known. At any rate, Douglas was found there trampled and gored to death.

The publication of his journal came some eighty years after he had written it. It had been deposited with the Royal Horticultural Society all of those years, and under their auspices, the faded handwriting was read as best it could be, and the book published in 1914.

Douglas neither discovered nor described the Douglas Fir for science, but it is through the tree's common name that we are most frequently reminded of the valiant collector.

### Nuttall and Townsend

Thomas Nuttall, a professor of botany at Harvard University, had received plant specimens brought back from the West by the Wyeth expedition in 1833. His interest in the new country was instantly aroused, and he requested a leave of absence from the university in order to accompany Wyeth on a second expedition in 1834. The authorities would not grant his request, however, so he resigned his professorship in order to make the trip West. With very little difficulty he persuaded his friend, John Townsend, a Philadelphia physician, ornithologist and naturalist to accompany him. It was the latter who kept the detailed journal of the trip, and through it one learns of some of the hair-raising experiences which the two had.

Often, Townsend, trudging through the mud and wet to the skin, thought of his grandmother's admonition to the "boys" as they were leaving home — not to get their feet wet and always to sleep in a dry bed! These things were the least of their worries.

Townsend's descriptions of their adventures, of the landscape, of birds, of natives and their living conditions are superb. His word pictures make one feel as much in awe with the beauty, or as repulsed by certain situations, as he must have been at the time.

He collected his specimens diligently, but sometimes not very happily. For instance he spoke of the beautiful wild parrots seen as the men proceeded up the Missouri River. The birds flew around them in screaming flocks as if to chide the travelers for invading their territory, ". . . the splendid green and red of their plumage glancing in the sunshine, as they circled and whirled within a few feet of us, had a most magnificent appearance." As the ornithologist fired among them to obtain specimens, they "huddled closer together, as if to obtain protection from each other, and as their companions are falling around them, they curve their necks, and look at them fluttering upon the ground, as though perfectly at a loss to account for so unusual occurrence. It is a most inglorious sort of shooting; downright, cold blooded murder."

Townsend was often aghast at the wanton waste resulting from the slaughtering of the buffalo, when perhaps only the fleeces, the tongue, and an occasional marrow bone were taken. Thousands of pounds of "delicious and savory flesh, which would delight the eyes and gladden the hearts of any epicure in Christendom, left neglected where it fell, to feed the ravenous maw of the wild prairie wolf, and minister to the excesses of the

unclean birds of the wilderness."

The men enjoyed making pets of some of the wild animals. For a time they had a young antelope which they christened Zip Coon, and which they carried in a small basket of willows, packed on to the back of a mule. One day, unfortunately, the mule on which he rode got her feet fastened in some lava blocks, and in the struggle to extricate herself, fell violently into the pointed fragments, broke the delicate little leg of Zip Coon, bruising and hurting him so that from sheer mercy, he was ordered killed.

Another day, Townsend captured a large buffalo calf by means of a noose around its neck, and with the rope made fast around the pommel of the saddle, he dragged the beast into camp. A cord fastened to a stake then held the calf no time at all. The "rugged little fellow scoured out of camp" with Townsend in hot pursuit. Townsend fell flat into a ditch, scrambled up again and soon seized the end of the rope. The belligerent young beast then turned and dashed full force against his captor's breast, knocking Townsend to the ground. Again the man scrambled up, recaptured the calf and pulled and pushed him into camp. The fruit of the victory was hardly worth the effort, for "his stubbornness would neither yield to severity or kindness," and the next morning Townsend gave him his freedom.

The men tried to keep young grizzly bears, no larger than puppies, but even at that age they were "cross and snappish" and "dangerous to handle." Consequently a grizzly cub usually met with "little mercy . . . when his evil genius threw him in the way" of the party.

The encounters with full grown grizzlies were numerous and often rather terrifying. With their great bulk and stamina they defied death, and were sometimes brought down only after considerable havoc had been wrought.

There were times when thirst and hunger stalked the party, as when they entered the arid plains "covered thickly with jagged lava and twisted wormwood." Excessive heat and parching thirst tormented men and horses alike. The only food was dried meat on which they "chewed like biscuits" as they traveled. The men sucked "bullets, pebbles of chalcedony or of smooth obsidian . . . in an endeavor to assuage their burning thirst." The pulverized lava rose in a cloud of dust that irritated parched mouths and blood-shot eyes. Fortunately, a water hole would come into view, or some stray animal which could be killed, before anyone suffered loss of life.

Townsend was fascinated by a custom which prevailed among at least a dozen

tribes of Indians of the Columbia River, that of "flattening, or mashing in the whole front of the skull, from the superciliary ridge to the crown." He observed the methods used by the various tribes in executing this process, and one day "saw a young child from whose head the board had just been removed. It was the most frightful and disgusting looking object I ever beheld. The whole front of the head was completely flattened and the mass of brain being forced back, caused an enormous projection there. The poor little creature's eyes protruded to the distance of half an inch, and looked inflamed and discolored as did all the surrounding parts. Although I felt a kind of chill creep over me . . . there was something so stark-staring, and absolutely queer in the physiognomy, that I could not repress a smile . . ."

Townsend was very anxious to procure the skulls of some of these Indians for scientific study. Usually when he was near a burying ground he refrained because of the difficulty in which his associates might be involved, should the sacrilege be discovered. However, late in his stay on the Lower Columbia, near Ft. Williams, he saw as he wandered through the woods "a canoe, deposited as is usual, in the branches of a tree some fourteen feet from the ground. Knowing that it contained the body of an Indian, I ascended it for the purpose of extracting the skull; but upon examination, what was my surprise in finding a perfect embalmed body of a young female in an excellent state of preservation." He determined to take possession of the whole thing, but at a more auspicious moment. At the bewitching hour of midnight he went in a small canoe which he beached opposite the mummy tree. Removing his shoes and stockings, he proceeded the hundred yards to the tree. Ascending the trunk, he carefully lowered the body to the ground by a rope, and then carefully hoisting the mummy to his shoulders, bore it to the canoe. Back at the fort he deposited his prize in the storehouse, and "sewed around it a large Indian mat, giving it the appearance of a bale of guns." He thought it unwise to take the mummy on board the boat to Vancouver when he returned the next day, but asked ". . . Mr. Walker at Ft. Williams to stow it away in the hatches of a little schooner, which was running twice a week between the two forts. On arrival of the vessel, several days after, I received, instead of the body, a note from Mr. Walker, stating that an Indian had called at the fort, and demanded the corpse. He was the brother of the deceased, and had been in the habit of visiting the tomb of his sister every year.

He had now come for that purpose, from his residence near the 'tum-water,' and his keen eye had detected the intrusion of a stranger on the spot hallowed to him by many successive pilgrimages. The canoe of his sister was tenantless, and he knew the spoiler to have been a white man, by the tracks upon the beach, which did not incline inward like those of an Indian."

The Indian made out his case so clearly that Mr. Walker could not deny the presence of the corpse in the house. It was consequently delivered to him, along with a gift of several blankets for appeasement, and ". . . the poor Indian took the body of his sister upon his shoulders and as he walked away, grief got the better of his stoicism, and the sound of his weeping was heard long after he entered the forest."

Thus Townsend did not get one desired specimen. However, he and Nuttall did collect many plant and animal specimens as a result of their expedition.

Nuttall went on to the Sandwich Islands for a time, then back to California, and finally sailed around the Horn on the *Alert*, on the return part of the voyage written about by Dana in *Two Years Before the Mast*. Townsend sailed on the barque, *Columbia*, in November of 1835, at which time he wrote in his journal ". . . and now for home, dear home again!"

One could go on and on with fascinating stories of these and other men. Read if you can the original publications of the journals of some of the intrepid explorers. Unfortunately, often these books are difficult to observe, as they are now kept behind locked cupboards in the libraries owning them. There are many secondary sources, however, and a search of your libraries will undoubtedly yield adequate numbers.

\* \* \*

Douglas, David. Journal of his travels in North America, 1825-1827. Royal Horticultural Society (London). 1914.

Eifert, Virginia S. Men, birds and adventure. Dodd Mead, 1962.

Eifert, Virginia S. Tall trees and far horizons. Dodd Mead, 1965.

McKelvey, Susan Delano. Botanical exploration of the trans-Mississippi West 1790-1850. The Arnold Arboretum of Harvard University, Jamaica Plain, Mass. 114 pp. 1955.

Menzies, Archibald. Menzies journal of Vancouver's voyage, April to October, 1792. Ed. C. F. Newcombe. Memoir V. Archives British Columbia. Victoria, B. C. 1923.

Townsend, John Kirk. Narrative of a journey across the Rocky Mountains, to the Columbia River. In: Thwaites, Reuben Gold, ed. Early western travels, 1748-1846. 21:105-369. 1905.

## What People "Want"

"The future of the land is what the people want of it." This is fallacious because what the people want is usually what technologists, housing developers, highway builders, army Corps of Engineers, chamber of commerce and other insidious sources tell people what is "good" for them — what people want and "we" have it.

Our polluted environment was used for many decades as a holy indicator of the progress of civilization and the result of extracting "the good life" from the earth. Today the masses of people have become aware that they were not having the fulfillment of the dream of a good life — a quality life. Polluted air, polluted water, polluted soil, foods polluted with chemicals, their own bodies being loaded with the products and by-products of the chemical industry.

The public has finally assumed the responsibility to fight for a quality environment. The young people in the high schools and the colleges are becoming aware that everything in the environment is not at its best. The ecosystem is *in*. In the meantime some startling figures can be quoted.

The catfish in Lake Okeechobee in Florida have 55 ppm of DDT when 5 ppm is the allowable maximum. The cross-Florida barge Canal conceived by the Army Corps is economically bad, for land use it is awful; ecologically it is disastrous; psychologically it has severely disturbed a large segment of our population because of its seeming boondoggle.

A land use study is seriously needed in America, and this should not be made by the Army Corps, or the Highway builders, or housing developers, or chambers of commerce. This should be the province of human ecologists with grounding in landscape architecture and human psychology.

## Harmonizing Man and Nature

(Continued from page 4)

nature. Let us say no to the parcellers; earth is cities, too.

A WAKING POLITICS is not easy and is not good for General Motors of middle America. A waking politics is not made from the *lumen naturalis* of man's mind, it is made in the open, in the light of earth and speech and interdependence.

THE MODERN PERIOD IS OVER. Anyone who looks up from the book of nature knows that. Shall we start talking about what comes next?

Carleton Dallery  
Philosophy Department, Tufts University

# Nature Study

## The journal of the American Nature Study Society

*Editor:* STANLEY B. MULAİK, Zoology Department, University of Utah, Salt Lake City, Utah 84112.

*Associate Editor:* JOHN A. GUSTAFSON, R. D. 1, Homer, N. Y. 13077.

*Audio-Visual Editor:* Paul V. Webster, Bryan City Schools, Bryan, Ohio 43506

*Officers:* President: Mrs. J. Lewis Scott, 208 Camberwell Drive, Pittsburgh, Pa. 15238

President-elect: Crayton Jackson, 340 Sun Street, Morehead, Ky. 40351

First Vice-President: John I. Green, Department of Biology, St. Lawrence University, Canton, New York 13617

Second Vice-President: Kingsley L. Greene, 48 Sullivan St., Cazenovia, N. Y. 13035

Secretary: Mrs. John Geisler, Milewood Rd., Verbank, New York 12585

Treasurer: John A. Gustafson, R. D. 1, Homer, New York 13077

*Representative to AAAS:* John A. Gustafson, R. D. 1, Homer, New York 13077

*Historian:* Ralph W. Dexter, Kent State University, Kent, Ohio 44240

*Directors: Class of 1970:*

Mrs. Esther Fagan, 15 Fair Haven Lane, Richmond, Virginia 23228

Kent Roseberry, State University of New York, Oswego, New York 13126

Helen Ross Russell, 159 Orient Ave., Jersey City, New Jersey 07305

Paul Webster, Bryan City Schools, Bryan, Ohio 43506

Adele Wilson, 2400 Virginia Ave. N.W., Washington, D. C. 20037

*Class of 1971:*

Edwin A. Mason, South Great Rd., Lincoln, Mass. 01773

Ruth W. Melvin, 8535 Winchester Rd., Carroll, Ohio 43112

Robert M. McClung, 91 Sunset Ave., Amherst, Mass. 01002

Martha F. Sykes, Route 4, Sharon, Conn. 06069

Herbert S. Zim, Box 34, Tavernier, Fla. 33070

*President, Western Section:*

Dorothy Platt, 2853 South 23rd East, Salt Lake City, Utah 84109

NATURE STUDY is published quarterly in March, June, September and December by the AMERICAN NATURE STUDY SOCIETY, and is sent to all members and subscribers. *Deadlines for copy:* January 25, March 25, June 25, September 25.

Concerning subscriptions, change of address, and membership: address the treasurer.

Concerning requests for back issues, TIPS, and other information: address the secretary.

Concerning manuscripts, notes, letters for publication, and membership news: address the editor.

Reprints of articles may be obtained within six weeks after publication by placing order with the editor. Cost of reprints is \$4.00 per page for 100 copies and \$1.00 per page for each additional hundred copies.

*The opinions expressed in this publication are those of the authors. Articles may be reprinted provided credit is given.*

AEK NATURE STUDY SOCIETY  
rs. Jon. ler, Secy.  
lewood R  
rbank, New York 12585

John J. Patalino  
Mill Road  
Dingman's Ferry, Pa. 18328

Non-Profit Organization

U. S. Postage  
PAID  
Indiana, Penna.  
Permit No. 200

## *Psalm of the 20th Century*

*The world is my oyster, I shall not want.  
My poisons spray down on green pastures.  
It pleases me to spoil the clear waters  
That used to restore my soul.  
I dredge out the paths of the rivers for my wallet's sake  
Yea, when I drive through the valley in the shadow of  
smokestacks  
I will see no beauty, for they're always with me.  
I'm blasting a highway before me, as if nature were my  
enemy.  
I'm anointing the seas with oil — my tankers run over.  
Surely smog and pollution will follow me all the rest of my  
life  
And I will crawl in the mess of my making, forever. Omen.*

JAY JARRETT, Naturalist  
Pine Jog Conservation Edu. Center  
West Palm Beach, Florida

# The American Nature Study Society

*Invites you to join us in promoting Environmental Education*

Send in this membership form to J. A. Gustafson, R. D. 1, Homer, N. Y. 13077.

- SUSTAINING MEMBER ..... \$ 5.00  
 CONTRIBUTING MEMBER ..... \$10.00 up  
 STUDENT MEMBER ..... \$ 3.00

All members receive NATURE STUDY quarterly.

Name .....

Address .....

Zip .....

(Membership in ANSS is tax deductible)