

Nature Study



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Photo by Baldauf — see p. 4

Listen . . . to the Earth

The American Nature Study Society

For Peace For Justice For the preservation of Earth!

A DECLARATION OF INTERDEPENDENCE

As we survey our crowded planet — plundered; polluted; war-ravaged — we recognize the devastating effects of unbridled national sovereignty upon the 'unalienable rights' of man.

The pursuit of happiness becomes ever more difficult, and international anarchy has placed the life and liberty of every man in constant jeopardy.

We, therefore, call for a new relationship between nations and new world institutions to ensure the survival of man in a harmonious habitation of Earth. In so doing, we reaffirm the principles laid down by our founding fathers almost 200 years ago.

"We hold these truths to be self evident; that *all* men are created equal; that they are endowed by their creator with certain unalienable rights; that among these are Life, Liberty, and the pursuit of Happiness; That to secure these rights, *governments are instituted among men* deriving their power from the consent of the governed . . ."

And furthermore:

That having partially secured these rights through government at the municipal, state, and national levels, it is now necessary to institute a *government for the world community to end war, to curb the lethal pollution and over-population of our planet, and to solve other problems affecting, to a vital degree, the rights and welfare of all mankind.*

And that such a world government, whether established through a transformation of the United Nations, a world constitutional convention, or other legal means, should be democratic and federal in form, thus preserving the diversity of human society and reserving for the nations and their governments, jurisdiction over their own internal affairs.

Toward these ends, like our founding fathers before us, "We mutually pledge to each other our lives, our fortunes, and our sacred honor."

The American Movement For World Government, Inc.
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E. LAURENCE PALMER

1888 - 1970

Dr. E. Laurence Palmer, Professor-Emeritus at Cornell University, died on December 18, 1970 at the age of 82. He had been in failing health for several months, although maintaining his lively interest in nature education and the condition of the world to the end. Dr. Palmer served as fifteenth president of ANSS, in 1935-36. The author of many articles and books, he will be remembered for his "Fieldbook of Natural History," a truly astounding encyclopedia of natural history information. For many years he was education editor of **Nature Magazine**, writing some seventy educational inserts over a span of three decades. He became widely known for his work in carrying on the **Cornell Rural School Leaflet**, begun at the start of the century by Anna Comstock and L. H. Bailey. The following tribute is written by one of Dr. Palmer's former students, Dr. Helen Ross Russell.

There are many things that might be said about E. Laurence Palmer, as was amply demonstrated by his former students and colleagues when they turned the program of the American Nature Study Society luncheon on December 29, 1970 into a period of reminiscence and eulogy. But perhaps the most fitting tribute one can pay to this man is to ask, "Why did he influence us so strongly?" "What made him a successful teacher?"

First, E. L. Palmer *knew his subject*. He knew the specifics in the field: the plants, the animals, the rocks, the geological and meteorological forces; but more than the specifics he knew and recognized the interrelationships. He was a conservationist; an ecologist before the word ecology was discovered.

He stubbornly held on to the name nature study, not just because of its heritage from people like Liberty Hyde Bailey, Anna Botsford Comstock and James Needham, but because he was convinced that only through knowing

the whole of the natural world and recognizing its interrelationships could a good program of science and conservation be built.

One did not need to be around Dr. Palmer long to know he also *loved his subject*. His excitement on the day when the carnivorous butterfly flew in and deposited its eggs in an aphid colony has become almost legendary, but his enthusiasm on any field trip was obvious. The pattern and interrelationships of the natural world were a constant source of joy to him.

Equally obvious was his pleasure in sharing not only knowledge but the joy of discovery. In short, he *loved to teach*. His teaching, by choice, was conducted in the field, but it could occur anywhere: in his office, in a car, even in a classroom. To a large extent teaching for him was inquiry, a technique he inherited from Agassiz and used well. He seldom *told* you—he *asked* you questions which made you search for the answer by observation, reasoning, experimentation.

He *believed that communication was important*. He was equally critical of educational gobbledegook and scientific jargon which shut out the uninitiated and interfered with understanding. He pushed his students to write with clarity. Education, he maintained, was not demonstrated by using big words but by the ability to communicate one's specialized knowledge to the non-specialist without watering it down or resorting to triteness, anthropomorphism or teleology.

He *arranged for his students to meet leaders in the field*. How well we remember some of these occasions: seminar sessions with Cornellians from other departments and with some of the retired greats, a visit to Liberty Hyde Bailey's home, an invitation to attend a



(Photos by R. B. Fischer)

conference program, an invitation to "come tell what you discovered in your research" to a visitor who had come to see what he was doing.

He *expected his students to take professional responsibilities*. He introduced most of us not only to ANSS but to AAAS, NABT, AIBS and other conservation and science organizations; and he told us that membership was not enough: that everyone of us at some time or other should be willing to serve on committees, to hold an office, to write for a non-profit journal without pay; and he set an example in this for all of us to follow.

He *knew his students and we knew him*. There were times of disagreement, times when he seemed to demand more than was reasonable, times of the kinds of frustrations that plague the lives of all graduate students, but each of us was always a person dealing with another person who gave teaching us and working with us priority in his schedule.

Our legacy from Dr. Palmer is great — so is our responsibility.



Environmental Education and Educational Changes

Following are the remarks of Dr. John Hug during an Environmental Education panel discussion held on September 17, 1970. This presentation indicates Dr. Hug's philosophy on environmental education developed from many years of study, experience and first-hand knowledge of environmental education theories.

* * *

Teaching methods have not changed in hundreds of years. The only educational change that has taken place has been in the proportion of time given over to each of the various teaching methods. The environmental education movement will not introduce new teaching methods—it merely will reorder their importance and, therefore, the amount of time devoted to the various methods.

Success of the environmental education movement will depend on the re-education of all educators and all citizens to accept willingly the sweeping educational changes that will be required to make use of what we already know about the learning process.

In order to indicate the impact environmental education will have on education, we must characterize education in general and then environmental education in particular. Education, as we know it today, is characterized by these statements:

Education has been going through a process of specialization for hundreds of years;

Education has been concerned mostly with improving the efficiency of teaching what is known;

Education has moved continuously from individualized instruction to mass education;

Education has never been for now. Always for the future;

Education systematically and persistently has chosen

- Inhumaneness over humaneness
- Competition over cooperation
- Conformity over uniqueness.

These five statements may seem harsh but—in the overall, long-term view—accurate. The inertia of educational institutions easily is observed and the fight to bring about educational change has met with little and scattered success.

What has been developing recently in the field of environmental education seems to show great promise for greasing the wheels of educational change.

Earlier, curricular change movements have failed in this regard because the value system on which they were based did not require a change. Environmental education not only requires a reordering of educational methods but also requires citizens, parents, educators and students to adopt a whole new value system. Environmental education is characterized by these statements:

Environmental education is an integrating curricular force;

Environmental education uses knowledge to solve real and current problems;

Environmental education requires involvement from the learner;

Environmental education is based on the idea that "everything is hooked together";

Environmental education emphasizes humane relations between all men;

Environmental education encourages creativity and the acceptance of difference;

Environmental education requires a value system that emphasizes quality of life over material affluence.

Environmental education cannot become another subject to be added to the curriculum. It needs a whole new learning environment, a whole new educational structure, to flourish properly.

Five recommendations are offered to get us off to a good start. To accomplish them will require bold decisions, positive and energetic public information programs, and a reordering of priorities in the use of public and private funds.

First, teacher education institutions must make it possible for education students to participate in first-hand environmental education activities both as a learner and as a teacher under sensitive, emphatic instructors. The institutions must move today to get students out of the sterile classroom and into the real environment, both natural and man-made.

Second, both public and private schools must carry out vigorous in-service education programs that are based on the premise that learning takes place best in an atmosphere of trust, cooperation and humaneness. The acquisition of environmental knowledge must be a by-product of the learning process, not the end. Superintendents must free teachers from regular classroom assignments so in-service programs will benefit all teachers and, consequently, all students.

Third, incentives must be found to encourage creative teachers to try out new programs in environmental education.

Fourth, the various segments of the community including business, industry, agencies, organizations, citizens and educators must find cooperative ways

— To learn about their environment;

— To identify existing and potential problems;

— To work at an equitable solution of the problems.

Fifth, educators and citizens must change their present value system which only demands from students excellence in the three R's and the other traditional school subjects. Educators and citizens must want schools to develop unique, whole, cooperative, emphatic and creative men and women who are capable of using the vast storehouse of knowledge and technical know-how to solve society's problems.

Basically, educational methods (or, more clearly, the learning processes) are known well. What is needed is a commitment by everyone to use this knowledge to teach humans rather than subject matter.

Sputnik forced the educational system to produce people with lots of knowledge and know-how, and we got to the moon. The environmental crises hopefully will force the educational system to produce whole, concerned, thinking people with a new value system who can solve the horrendous problems foisted upon us by the technological monster we ourselves have created. If we do, we may inherit the earth.

— Reprinted from *Water, Land & Life*

* * *

Conservation education and nature study are intimately intertwined when one studies the aims and results where they are successfully presented. Each is not complete without the other, so that broadly based conservation education will be more than a study of symptoms pointing to phases of abuse of our resources and to the measures adopted to correct the abuse. In like manner, broadly based nature study is more than a study of the "birds and bees and pretty flowers."

Without an understanding of nature study and conservation education, there is a great threat to our resources. Apathy of the public must be removed. This apathy grows out of ignorance of the basic elements which underlie the phenomenon of interplay of interrelationships among the factors which make up our natural environment. Nature study is striving to remove that ignorance.

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ENVIRONMENTAL EDUCATION COURSES

CARL J. BAJEMA
PAUL HUIZENGA
RONALD WARD

Students need to learn how to rationally discuss the emotionally loaded political and social problems associated with the management of our environment. Michael Scriven in his paper "Simple Simon's History Won't Do" argues that:

"... the capacity to react rationally and sensibly and not just emotionally and selfishly to an emotionally charged issue — where one's own interests are clearly involved in a way that is not the same as that in which other's interests are involved — is a skill which needs to be learned, which needs to be practiced, and which is far more important than anything else we ever learn or practice."

The three authors of this paper have grappled with the problems of how controversial topics could be rationally discussed in a classroom setting, how maximum student participation in the discussions could be attained, and how to prevent the instructor from dominating the discussion of controversial topics while teaching a Human Ecology course.¹ The approach to the discussion of controversial topics that the authors adopted goes a long way toward solving the three major problems faced by teachers when discussing emotionally loaded environmental issues.

At Grand Valley State College, each discussion section of the Human Ecology course is comprised of about 25 students. At the first meeting of the discussion section a controversial topic is assigned for each subsequent meeting during the term. The class is then divided into four groups of approximately 6 students each and each group is assigned two dates during the term when it will be responsible for debating the assigned topic for that date. The procedure followed in the 50 minute discussion section is:

1. Members of the debate group scheduled for a particular date are notified at the beginning of the class session which side of an issue they must defend or argue. Therefore, each participant must inform himself of both sides of the issue and be prepared to speak on either side.

2. Each member of the group speaks

1. The course, designed for non-biology majors has been described in the March, 1970 issue of **CUEBS News**.

for a maximum of four minutes on the assigned topic.

3. After the prepared statements have been presented, panel participants engage in open discussion for five-ten minutes, still maintaining their assigned positions.

4. The discussion is then opened to the whole class. At this time the panel participants may speak on either side of the issue.

5. Students are evaluated on the basis of their performance with respect to both the topics they are assigned to debate and the open discussion of topics that follow the debates during the remaining discussion class periods of the term. Students are expected to voice their opinions, ask for explanations, or give an explanation; however, students are not graded on the basis of their opinions.

Many of the students have told discussion instructors that this was the first time that they ever had to study and be prepared to defend both sides of a controversial issue. The students become very cognizant of the role that value systems play in the decision-making process. By giving them the opportunity to formulate and evaluate opposing views in an academic setting, educators can help students learn how to rationally discuss emotionally loaded political and social problems associated with the environment.

The following is a selected list of controversial topics being discussed in Human Ecology classes at Grand Valley State College this year:

Introduction: Assignment of Topics, Discussion of "Progress."

Is birth control (sexual abstinence, contraception, abortion) natural and moral?

Is nuclear energy the answer to man's energy problem?

Should the ultimate population on the earth be based on how much food can be produced?

Is competition bad and can competition among men be eliminated?

Should society limit the number of children a couple may have to replacement level (approximately 2 per couple)?

Does conservation require a scholastic society?

Is man a territorial species?

Should man direct his own evolution? (Can be rephrased, Should man practice eugenics?)

Can we attain Utopia and do we want to live in Utopia?

In view of all the problems associated with the internal combustion engine should the U. S. government ban or severely restrict the use of such engines by 1984?

Is death control (public-health measures controlling infectious diseases, medical prolongation of life, mercy killing, euthanasia, and suicide) as practiced by man natural, and moral?

Do 200 million Americans constitute too many Americans?

Given the health problems associated with smoking tobacco should the U. S. government ban smoking advertisements and intensify its anti-smoking campaign?

Are socially aberrant behavior patterns (such as crime, mental illness, sexual deviancy) affected by population growth and increasing population density?

Should a national system of environmental safeguard taxes be instituted?

Should the federal government subsidize Boeing in its production of an SST?

Should the government institute a program of zero population growth by 1980?

Should conservation interests receive a greater voice in governmental decision-making?

Was Rachel Carson right with respect to pesticides?

Can modern technology prevent a world-wide famine?

Should "developed" nations ship food to "underdeveloped" nations?

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The Visit

I have wandered over field
And through forest.
I have returned
To tell you
(Excuse me if I didn't hurry)
How easier it is
To be lonely by
Myself.

— ERNEST SPAINHOWER

TIPS for Environmental Education . . .

THE FROGS HAVE IT

DR. RICHARD J. BALDAUF
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We are always concerned about informing the student on ecology, the environment, because this is where the action is . . . this is where the endangered species are . . . this is where we find threatened America. And ecology is a complex subject—the inter-actions between life and environment. How can we study an ecological unit in nature and in the live museum? Let's look at a temporary pool of water formed from spring rains: it's a closed system, small enough to be observed easily, and it's present everywhere during the spring season.

cover photo) which are used to amplify the sound produced by the vocal cords—a true vocalization used to attract a female. We can identify the species merely by recognizing the call, and by following the sound we can find the animal. The vocalization is distinct for each species; thus, the male of one species attracts the female of the same species for breeding purposes. The probability of hybridization is therefore greatly reduced.

The males call and the females respond. Once stimulated by each other's presence, the pair goes into amplexus—

next rain replaces the lost water. Remember, the eggs were deposited in a temporary pool of water in the spring—a period which brings many drastic temperature changes. Temperature shock can occur and it can kill eggs and developing embryos. The gelatinous insulation reduces the possibility for such losses.

The eggs require water; they also require a certain period of time to develop and to hatch. The tadpoles develop and finally transform into little froglets. All of this takes place in water and the process can be seen. It's the



Collecting frog eggs in a temporary pond.

Temporary pools of water are very important to the ecology of an area and they provide the habitat for many different kinds of organisms. Among them, of course, are the frogs that use the pool as a breeding site. How does a frog go about its business of breeding? What happens after breeding occurs? Well, it's quite simple, understandable, and a useful exercise in teaching children. Let's review the story.

Aestivating and hibernating frogs, perhaps deep in the ground, are awakened by the higher temperatures and by the rains of spring which soak down through the soil. Once awakened, many species of frogs move into a temporary pool of water. The males possess vocal sacs (see

the male rides on the back of the female and releases sperm to fall onto the eggs she is depositing in the water. External fertilization, then, is the general rule among the frogs and toads. The eggs, now penetrated by the sperm, possess an extremely thin covering which absorbs water to swell to many times its original volume—instant jello. This gelatinous covering protects the developing eggs and embryos in several ways.

Remember, the eggs were deposited in a temporary pool—one which may lose its water by evaporation before the next spring shower can replenish the supply. Under such circumstances the gelatinous covering provides a limited supply of water, hopefully until the



Toads in amplexus.

formation of an animal, the beginning of life!

You must admit that it's difficult to watch the egg of a fish in nature, or to watch the development of a reptile, a bird or a mammal. The eggs of these animals are not readily available for such observation. However, the eggs of amphibians, and in this case of frogs and toads, can be observed in the field and in the classroom. The children can see these eggs, and with the help of a dissecting microscope they can see the first signs of cleavage, they can see the yolk plug stage, they can see the neural groove appear and disappear as it sinks down into the embryo to become the future central nervous system. They can

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see the first movement in these developing animals, the external gills of a newly hatched tadpole, and the blood coursing through the branchial vessels. They can see the gills overgrown by the opercular membrane which, in many species, provides an opening on the left side of the animal. This left-handed spiracle serves as the exit for water which passes through the mouth and over the now-hidden gills.

Even the most casual observation of a growing tadpole will reveal the developing hind legs which show remarkable growth in just a few days. Why not the front legs? Because they, as the gills, are covered and hidden by the opercular membrane. But sooner or later even the front legs appear . . . the left one first! Why? Because it has an "easy out" through the spiracle. First the elbow sticks out and then the whole left front leg pushes outward and ruptures the membrane. The opercular membrane disintegrates and finally the right front leg is also exposed.

The tadpole is now ready to transform. The tail shrinks, the mouth enlarges, the gut shortens, the colors change, the gills disappear, and the lungs start to function. At that moment the changing tadpole sticks its head out of water and takes its first breath! What a magnificent process . . . and not at all

stand in the middle of a small pond to listen to the frogs and to see them breed. The temporary pool is a study area. Another one is the classroom, where you can maintain the frog eggs and watch them develop. In fact, that's the essence of this whole story . . . you can see it! Now that *you* see it, give the kids a chance.

* * *

The Maintenance of Frog Eggs and Tadpoles

These directions are intended to help the teacher and student give the proper care to living frog eggs and tadpoles for the purpose of learning about the beginning of the formation of an animal.

The species to use. The teaching objectives can be met only if the student can witness the whole process, from deposition to tadpole transformation. Therefore, careful selection of the species is important. The usual kinds of frogs found in permanent bodies of water (bullfrogs and leopard frogs) will not be suitable because of their extremely long tadpole life. Instead, one must use those kinds of treefrogs and toads which have a shorter tadpole life. All of the species of *Pseudacris*, *Acris*, and *Bufo* are satisfactory; some species of *Hyla* (*H. crucifer*) are also fast developers and suitable to the study. In

with caution. If your presence or activity causes the frogs to stop calling, stand still in the water and wait—they will usually resume calling within a short time. The desire of the frog to call is correlated with temperature, humidity, and rainfall. Thus, under certain conditions it is easier to find the chorus and to watch them call and breed. Once the frogs are located, stand in the water or at the pond edge and wait and watch with the aid of an occasional beam from a flashlight. (Each person should have a flashlight.) With luck you will soon be able to locate calling frogs with vocal sacs inflated, frogs in amplexus, and frogs in the process of depositing and fertilizing eggs. Don't get anxious—just watch and learn.

How to collect the eggs. You will probably find the eggs attached to submerged vegetation. Depending on the species of frog, the eggs may be strings, in groups of several eggs, or in big clumps. It is better to select eggs you have seen deposited by a female in amplexus, because the chances are good that these eggs have just been fertilized and this allows for precise time records on development. Locate a group, clump or string of eggs attached to or wound around a piece of submerged vegetation. Break off that part of the plant



Toad's eggs—just laid.



Frog's eggs at cleavage stage.

unlike the evolution of terrestrial vertebrates.

All of this takes place in water. It involves dissolved oxygen, a food supply, an optimum temperature and pH. It is indeed a web of life from the egg to the transformed tadpole, in an ecosystem that is available for study and interpretation.

How can the study be made? Well, you'll never see more enthusiasm among children than when you allow them to

all cases, you will usually be correct in choosing a species found breeding in a temporary pond in the early spring.

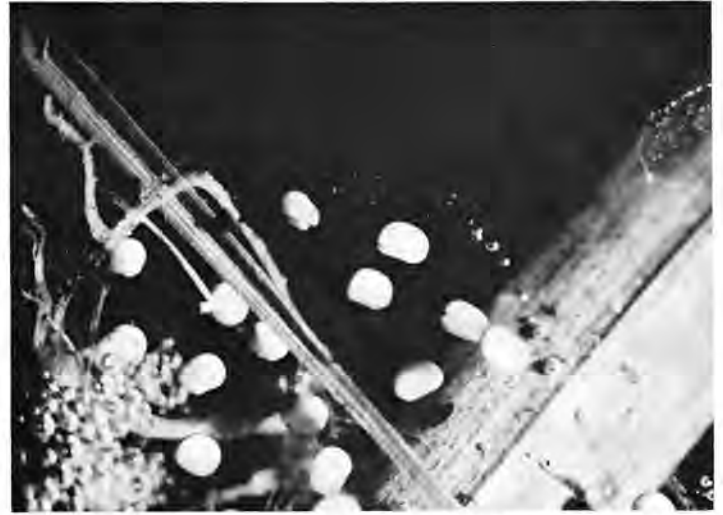
How to watch the frogs. The early breeders utilize temporary pools of water as breeding sites. You must learn to recognize frog calls and then ride around in the country until you hear a chorus of frogs. The calls will lead you to the breeding pond. These frogs are calling because of their desire to breed. The breeding pond must be approached

bearing the eggs and transfer it to a container with some pond water. Sufficient water should be taken to cover the eggs, but no more than that! The eggs and an extra supply of water should be taken to the classroom immediately. Collect not more than about 50 to 100 eggs. That's enough for any class; more eggs will demand more oxygen and this complicates later maintenance!

Keep them in a flat pan. A problem with laboratory studies involving aquatic



Frog eggs showing yolk plug.



Frog embryos showing neural (nerve) groove.

animals concerns the oxygen supply. Follow directions and eliminate this problem. Use a clean, shallow enameled pan measuring about 6x12 inches. Elevate one end of the pan about one inch and add pond water. The tilted pan allows for a variation in water depth — about one inch at one end to zero at the other. Place the eggs in the pan so that they are just covered with water. Thus, the tadpoles may select the preferred depth and the transforming frogs may leave the water within the confines of the pan. The relatively large surface area of the water allows for the exchange of oxygen and carbon dioxide between the liquid and the air.

Water quality. The water lost by evaporation must be replaced daily to maintain the same depth. Water from the original pond may be used for this purpose, provided it is fresh. However, tap water can be used. Water from the city water supply contains chlorine, but this can be eliminated in several ways: (1) allow a shallow pan of tap water to

set for 24 hours, during which time the chlorine will leave the water in the form of a gas, or (2) "treat" a small container of tap water by forcing air through it for about five minutes. This can be done by using a large medicine dropper or, better, by using a kitchen bulb-type meat baster. (Pet shops sell a commercial preparation which removes chlorine from water, but I prefer the natural method. Adding chemicals to water might leave the wrong impression with children.)

Feeding. Tadpoles do not eat when they first hatch. This is the time when the gills are visible externally. In a few days the gills are covered by the opercular membrane and the tadpole is ready to eat. The tadpole you use will eat plant material. A daily "meal" of fresh algae will suffice. Algae can be found on almost any piece of submerged vegetation in that pond you pass on the way to the classroom. Baby food spinach is also good, but this causes unnecessary cleaning problems. In any case, old food

and tadpole droppings must be removed from the water each day. This is easily done with a medicine dropper or with a bulb-type baster.

Your daily duty. Clean out the bottom of the pan by removing old food particles and tadpole droppings. Add water to maintain the water depth. Add food.

The midnight watch. You will be watching early breeders from temporary ponds, and this means fast development. Much happens immediately after the eggs are fertilized. Eggs fertilized at night may develop to the yolk plug or neural groove stage by the next morning! Spend as much time as possible by watching the eggs — either with a magnifying glass as the eggs lie in the pan or by placing a few eggs in a watch glass for examination under a dissecting microscope with magnifications of 10 to 15 times. A compound microscope is not suitable. Eggs should be returned to the pan after examination.

Have fun and learn — the kids will!



Newly hatched tadpoles showing external gills.



Tadpole showing developing hind legs.

GOOD READING

Nature Study for Conservation, by John W. Brainerd. Macmillan, New York; Collier-Macmillan Ltd., London. 1971.

Seventy years ago, Liberty Hyde Bailey, the first president of the American Nature Study Society, described nature study in these words:

"Nature may be studied with either of two objects: to discover new truth for the purpose of increasing the sum of human knowledge; or to put the pupil in a sympathetic attitude toward nature for the purpose of increasing his joy of living. The first object . . . is to make investigators and specialists. The second object is . . . nature study . . . and its purpose is to enable every person to live a richer life, whatever his business or profession may be. Nature study, then, is not science. It is not knowledge. It is not facts. It is spirit. It is an attitude of mind. It concerns itself with the (person's) outlook on the world."¹

In the intervening years since these words were written, nature study did indeed become science education and, to some extent, conservation education. Its spirit was buried under mountains of facts and boxed in by the walls of the schoolhouse. It is to Bailey's credit that he foresaw these trends, but that he also predicted that nature study would survive:

"Nature study will endure, because it is natural and of universal application. Methods will change and fall into disrepute; its name will be dropped from courses of study; here and there it will be encased in the schoolmaster's 'method' and its life will be smothered; now and then it will be over-exploited; with some persons it will be a fad; but the spirit will live."²

Now, at last (and hopefully in time), nature study is once again assuming its rightful role. Those who know John Brainerd know that he is a person who values spirit highly. He has been extraordinarily successful in putting persons into "a sympathetic attitude toward nature for the purpose of increasing his joy of living." His years of experience in doing just that are distilled in the pages of this remarkable book. It is subtitled "A Handbook for Environmental Education," which it is. Among the flood of eco-books coming off the presses, it is a refreshing breeze of practical

ideas which will motivate us to a broader outlook on the world and our relationship to it. Its use will lead, not to just more knowledge *about* nature, but to a deeper experience *with* nature; meaningful experiences which will result in attitudes of respect and reverence for the natural world. If the Earth is to survive the presence of Man, such respect and the responsible behavior which will grow out of it must be the rule, not the exception.

The American Nature Study Society is proud to be the sponsor of this book—a book in the tradition of Bailey, speaking to a generation alienated from, but unable to survive without, Nature.

* * *

Teaching For Survival, A Handbook for Environmental Education, by Mark Terry, foreword by Garret Hardin. Ballantine Books, N. Y. 1971.

This little book is crammed with imaginative and useful ideas which, when put in practice, will breathe life and spirit into environmental education. Mr. Terry is a young man without the hang-ups so typical of many educators, but he is able to glean from the past that which speaks to our need and condition today. ANSS members will appreciate the reference to Liberty Hyde Bailey in the introduction, and, like Bailey's "Nature-Study Idea" of seventy years ago, Terry proceeds to point out how every aspect of the curriculum, every facility in school and out, may be used in environmental education. More important, he spells out the need for environmental education—not solely to produce an educated electorate or to foster an appreciation of nature, but to make clear to all of us that "we are nature ourselves and are participants in the natural world."

Part One of the book points out the fact that there is no dearth of environmental education—we all teach in and about *some* environment. Part Two deals with the uses of the school—classroom, school, and district. Part Three covers the range of subject matter and how we, as observers, interpreters, or users, can re-direct all subject matter to environmental concerns. There is a concluding chapter on "Teaching for Survival," followed by an extensive bibliography. In his reference to *Nature Study* in the bibliography, Mr. Terry has this to say:

"*Nature Study* has a long history, *Environmental Education* is a new publica-

tion. Whether either will make important contributions to the development of environmental education during the next few years probably depends mostly on the quality and participation of their readership. With their editorial machinery ready and waiting, it is up to teachers to help them become useful tools by using these journals as forums for ideas in environmental education."

* * *

"*What Every Woman Should Know and Do About Pollution, A Guide to Good Global Housekeeping*," by Betty Ann Ottinger, a paperback-sized grass green book, printed on recycled paper, is the housewife's answer to what she can do about pollution. 1970.

In an easy-to-read, punchy style, the author, wife of the Democratic candidate for the U. S. Senate in New York, has compiled a list of practical suggestions for the people who make most of the consumer decisions in this country—Mrs. Housewife.

She appeals to women as housewives to weigh the environmental effects of everything they load into the grocery cart, as mothers on how they shape the attitudes of their children about the products of affluence and as the 52 per cent of the electorate which decides on who the leaders are going to be.

The title is catchy and you can read the book in about an hour-and-a-half.

Jean Craighead George Receives 1970 Eva L. Gordon Award

Each year the American Nature Study Society gives the Eva L. Gordon award to an author of children's science literature whose works exemplify the high standards of accuracy, readability and appeal to young people that Eva L. Gordon stood for.

In these days when ecology has become a household word it is most appropriate that the 1970 award be given to Jean Craighead George.

Her more than twenty books about animals in such varying habitats as the Everglades, an alpine slope in Alaska, or a small town on the Oletangy River of Ohio are delightful stories that not only meet all the high standards of this award, but also stress the many interrelationships between living and non-living things.

A child who reads these books cannot help but begin to appreciate these interrelationships which are vital to all life and to gain ecological concepts which are basic to making wise decisions about both the living and non-living aspects of our environment.

1. Bailey, L. H. "The Nature-Study Idea," 3rd Ed. 1909. Macmillan Co., N. Y., pp. 4-6.

2. Ibid, p. 6.

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Our culture is not insured of survival. It can pass away as completely as that of Babylon. If it does survive, it will be because somewhere are people and institutions which gather up the excellence of the past and transmit it by contagion to the new generation. — Arthur E. Morgan

Control economic conditions, they say, and you have determined the course of history. To some extent this is true. We cannot live without a place on earth to live and without food and shelter. But what we are very slow to learn is that food and clothing and shelter are not living, but only necessary conditions for living. — Arthur E. Morgan

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AMERICAN NATURE STUDY SOCIETY

Constitution and By-Laws
(Revisions accepted by the Council,
December, 1961 and December, 1965)

The American Nature Study Society was organized at New York City in 1908 with Liberty Hyde Bailey as first president. Its purpose was to provide a professional society for nature leaders and teachers, and to promote nature and conservation education programs. It was incorporated in Washington D. C. in 1938.

Article I -- Name and Purpose

1. The name of this organization shall be the American Nature Study Society.
2. The purposes of the Society shall be to promote nature and conservation education and avocation -- by conducting meetings and field excursions; by producing and distributing publications; by contributing to appropriate publications of other agencies; by cooperating with organizations having allied interests; by encouraging members to contribute consultant services and to assist in the training of teachers and counselors in nature leadership; and by engaging in such other activities as shall have been authorized by the Council.

Article II -- Membership

1. Any person interested in any phase of nature study is eligible for membership.
2. a. The classes of membership shall be: Patron, Life, Annual and others decided upon by the Council. Members shall have such rights and privileges and shall pay such dues and fees as are stated in the By-Laws.
b. Payments by Patrons and Life members shall be invested, the interest alone to be expendable as determined by the Council.

Article III -- Elected Officers and Terms of Office

1. The officers shall be a President, a President-Elect, a First and a Second Vice-President, a Secretary, a Treasurer, and elected Directors in such numbers as authorized by the Council.
2. The President-Elect and the two Vice-Presidents shall be elected annually, for a one-year term. The President shall be the previous President-Elect. The Secretary and The Treasurer shall be elected for two-year terms, on alternate years.
3. Half of the Directors shall be elected each year, to serve for two-year terms and shall not be eligible for more than two consecutive terms.

4. The duties of the Officers shall be those customary to the respective offices and as further defined in the By-Laws.

Article IV -- Committees and Appointed Officers

1. The appointed officers shall include the representative to the American Association for the Advancement of Science, the Editor of Publications, and such others as authorized by the Council.
2. A Nominating Committee, a Publications Committee, and such other committees as are deemed necessary shall be appointed.

Article V -- Governing Bodies

1. The governing bodies shall be the Executive Committee, the Board and the Council.
 - a. The Executive Committee shall consist of the President, the Past President, the President-Elect, the First and Second Vice-Presidents, the Secretary, the Treasurer, the Editor and the representative to the American Association for the Advancement of Science.
 - b. The Board shall consist of the Executive Committee and Directors.
 - c. The Council, in addition to the above mentioned, shall include the representative of each eligible Section and Affiliated Groups, and the Chairmen of Committees.

Article VI -- Meetings

1. An annual national meeting, as an Affiliate Society, shall be held at the time and place of the meeting of the American Association for the Advancement of Science.
2. Other meetings may be authorized by the Council and arranged for by the Executive Committee.
3. Sectional meetings may be held at times and places designated by the individual sections.

Article VII -- Sections

1. Any group of ten or more active members of the American Nature Study Society may, upon application to and by vote of the Council, become an authorized local Section.
2. Each Section shall elect a voting representative to the Council and certify such election to the Secretary of the Society.
3. Each Section shall elect its officers for such terms as it shall prescribe, and shall hold its meetings and conduct its affairs, subject to the provisions of this Constitution and By-Laws, and to any special provisions hereinafter established by the Council.

Article VIII -- Affiliated Organizations

1. The Council of the Society is authorized to arrange affiliation between the American Nature Study Society and other organizations which have allied interests.
2. Organizations which have allied interests may become affiliated with the American Nature Study Society by action of the Council as herein-after provided.
3. An affiliated organization shall elect a voting representative to the Council and certify such election to the Secretary of the Society.

Article IX -- Nominations and Elections

1. The Nominating Committee shall make nominations for the elective officers of the Society as provided in the By-Laws.
2. Elections shall be by a mail ballot. The ballots shall be distributed and counted as prescribed in the By-Laws.

Article X -- Publications

1. The Board or Publications Committee, subject to approval by the Council, may authorize such publications and policies pertaining thereto as are deemed appropriate and necessary.

Article XI -- Parliamentary Practice

1. Business shall be conducted according to Roberts' Rules of Order.

Article XII -- Amendments

1. Amendments to this Constitution or its By-Laws recommended by the Council may be adopted (1) by a two-thirds vote of members attending the annual business meeting, if announced to the membership by November 15 of that year; or (2) by a two-thirds majority of those returning ballots mailed to all members.

Article XIII -- Headquarters and Archives

1. The headquarters and archives shall be at a place designated by the Board.

BY-LAWS

Article I -- Duties of Elected and Appointed Officers

1. President. It shall be the duty of the President to lead the Society; to preside at meetings of the Council, the Board, and the Executive Committee; to appoint all officers and committees as specified in Article IV of the Constitution; to advise and stimulate all officers

of the Society; and to exercise other customary duties of the office of the President.

2. President-Elect. It shall be the duty of the President-Elect to prepare himself for the presidency the following year by working closely with the President; to assume the duties of President when the President is absent or is unable to act; to advise the membership chairman in the promotion of both quality and quantity of membership; and to carry out such other duties as the President may designate.
3. First Vice-President. It shall be the duty of the First Vice-President to organize and be responsible for the program for the Annual Meeting; and to assume the duties of the President-Elect should the President-Elect be absent or unable to act.
4. Second Vice-President. It shall be the duty of the Second Vice-President to promote cooperation with affiliated organizations; and to assume the duties of the First Vice-President should the First Vice-President be absent or unable to act.
5. Secretary. It shall be the duty of the Secretary to keep minutes of meetings of the Council, the Board, and the Executive Committee; to correspond; to distribute ballots and memoranda to the membership; to maintain all official documents of the Society except those deposited in the Society's archives; to maintain lists of officers and members and of Sections and Affiliated Organizations with their election and appointment; and to supply the American Association for the Advancement of Science and the International Union for the Conservation of Nature and Natural Resources with requisite information.
6. Treasurer. It shall be the duty of the Treasurer to handle the routine monetary receipts and disbursements of the Society; and to manage other financial matters according to the direction of the Executive Committee.
7. Editor. It shall be the duty of the Editor to edit Nature Study.
8. Directors. It shall be the duty of the Directors to assist according to their abilities in promoting the objectives of the Society; to participate in the Annual Meeting of the Board and the Council, and in other meetings called by the President; and to work as individuals for the general good of the Society.

Article II -- Responsibilities of the Governing Bodies

1. The Executive Committee. The Executive Committee shall transact that business of the Society not specifically subject to the approval of the Council, and which cannot be postponed until the next meeting of the Council.
2. The Board.
 - a. The Board shall arrange for all meetings of the Society authorized by the Council.

- b. The Board shall transact that business of the Society specifically subject to approval of the Council which cannot be postponed until the next meeting of the Council.
 - c. The Board shall hold at least one session during the Annual Meeting of the Society.
3. The Council.
- a. The Council shall be responsible for the transaction of all business of the Society.
 - b. The Council only is empowered to change membership dues and fees, to authorize meetings of the Society and affiliation with other organizations. The meetings of the Council shall be open to all members of the Society.
 - c. The Council shall hold sessions during the Annual Meeting of the Society. These shall be open to all members and five members of the Council shall constitute a quorum. Any business of the Council may be transacted by mail, but a two-thirds vote is required for any proposition submitted.
 - d. The officers of the Society shall hold the same office in the Council.
 - e. The Council shall consider any new business introduced by any of the members, sections, or affiliates at the business sessions at the Annual Meetings.

Article III -- Representative to American Association for the
Advancement of Science

- 1. The Representative to the AAAS must be a Fellow of the AAAS.
- 2. The Representative acting under direction of the Board or Council of the Society shall represent the American Nature Study Society in the Council of the American Association for the Advancement of Science. This officer is appointed by the President with the approval of the Board.

Article IV -- Membership Dues and Privileges

- 1. Annual Member.
 - a. Dues for annual members shall be decided upon by the Council and shall be payable in advance to the Treasurer.
 - b. Annual members shall receive Nature Study and other general communication, and shall have the privilege of subscription to any periodical offered by the Society.
- 2. Life Member. Any person who contributes the life membership dues as determined by the Council shall be a Life Member and shall thereafter be exempt from dues, but shall enjoy all the privileges of an annual member. (The current Life Membership dues have been set at \$100.)
- 3. Patron. Any person contributing one thousand dollars (\$1,000) within a period of one year to the permanent funds of the Society shall be a Patron and shall enjoy all the privileges of an annual member and shall be exempt from dues.

4. Members whose dues remain unpaid after due notice from the treasurer shall be dropped from the active roll, and shall forfeit voting privileges.

Article V -- Nomination and Election of Officers

1. The Nominating Committee shall be a rotating committee of three persons each appointed by the President for a three-year term with one member retiring each year. The member serving the third year of his term shall be chairman of the committee. The Committee shall be announced in Nature Study with an invitation to members and to the Council to submit names for consideration.
2. The Committee shall make nominations for those officers and directors as are necessary. All candidates must be active members and must agree to serve if elected. The nominations shall be completed in time for inclusion with brief biographical notes in the Autumn issue of Nature Study or by such other means as the Board may determine.
3. The Secretary shall mail a ballot to each active member at the time specified by the Board.

Article VI -- Publications

1. The publications of the Society shall include the official organ of the Society issued at least four times a year and such other publications authorized by the Council.

Article VII -- Business Meeting and Quorum

1. At the Annual Meeting of the Society there shall be at least one session for the whole membership for the transaction of business matters, including reports from the Council and any business which may be introduced by members.
2. The presence of twelve members in good standing at any such meeting of the Society shall constitute a quorum.

HISTORY The society was organized and held its first meeting on January 2, 1908, at the University of Chicago, under the leadership of Prof. M. A. Bigelow of Teachers College, Columbia University. Liberty Hyde Bailey, Dean of the College of Agriculture at Cornell University, was elected the first president that same year. It has met annually with the American Association for the Advancement of Science, of which it has been an affiliate society since 1926. It has been a member organization of the International Union for Conservation of Nature and Natural Resources (IUCN) since 1963.

With the formation of the Society in 1908, it assumed responsibility for the publication of the Nature Study Review, which had been published since 1905. In 1924 Nature Study Review was merged with Nature Magazine. After the merger of Nature Magazine with Natural History in 1960, the Society expanded its Newsletter into the Journal Nature Study in 1965. The Society has participated in the publication of a number of yearbooks and nature study helps: the "First Yearbook of the American Nature Study Society" in 1924, "Nature Education in Elementary Schools" in 1925, and most recently it sponsored John Brainerd's "Nature Study for Conservation" in 1971.

THE NATURE STUDY IDEA At the turn of the century, Bailey and other writers emphasized that the principal goal of nature study was to "put the pupil in a sympathetic attitude toward nature for the purpose of increasing his joy of living...and to enable every person to live a richer life...." In the race to exploit nature that has occupied most of mankind during the twentieth century, it may have seemed to many that this objective was irrelevant. The stirring of humanity's eco-conscience in the waning decades of the century is bringing us back again to the realization that our attitudes toward nature - the personal and collective relationship which we must have with Mother Earth - is the key to our survival; indeed, to the survival of the ecosystem itself. The purpose of the Society is to make it possible for every person to have those meaningful experiences with nature which will develop an awareness of our participation in nature and our dependence upon it. Out of this awareness will come the motivation and action which will bring Man into harmonious relationship with the natural world.

The American Nature Study Society welcomes into membership all who share its ideals and wish to be "involved" in nature and environmental education.

OFFICERS OF THE SOCIETY - 1971

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Wildlife in Our Parks

JAY KAPLAN

It was a moderately warm night in the middle of August. My two friends and I had just returned from one of the evening campfire programs presented nightly at Yosemite National Park. It had been an interesting program, discussing the history of the park and some of its problems. Since it was a clear warm night, and we were rather tired, we decided to forego pitching our tent in favor of spreading our sleeping bags out on the ground. It seemed as though I had been asleep for only a few minutes when I was awakened by loud shouting. Poking my head out of my sleeping bag, I came face to face with a huge black bear, who was casually strolling through our campsite. Paying no attention to me or to anyone else, he made his way to the campsite next to ours where he sat down at a picnic table and proceeded

done. Or it can adapt itself to live with man.

Adapting to a life with man does not necessarily mean an animal must become tame. Many people feel that if an animal doesn't run away from them, the animal is no longer wild. This behavior is not tameness, however, but a series of conditioned behavioral actions through which the animal is usually rewarded with food. The relationship between animals and people can thus be likened to a triangle with food in the middle. People bring food into the park and leave it where the animals can get it. People will even tempt animals with food in order to get a closer look at them. In this manner, many animals learn to associate man with food.

Several problems arise from this association. In the long run it benefits

pick it up. Mama bear, never far behind, will not appreciate such action, and it is in a person's best interest to watch the cubs from a safe distance.

From time to time we read about a bear attacking people for apparently no reason at all. Even if there seems to be no provocation, however, some reason can usually be found. For example, when people feed bears, they usually don't feed them grade-A meat, but anything they happen to have. This may include leftovers from lunch, candy, popcorn, or other less than nutritious foods. Over a period of time this will rot the bear's teeth. As their teeth decay, and begin to hurt, bears may become short-tempered. These bears must be transported to uninhabited areas; however, they may be so used to deriving some of their diet from people that



to finish the food that those people had neglected to put away. Evidently satisfied, he stood up and lumbered off into the night.

When I look back upon this experience, it seems rather amusing. At the time, however, I was far from amused. Unfortunately, this is not an isolated incident, but occurs almost nightly in several of our national parks. The evening program I attended in Yosemite dealt primarily with the impact of crowding. Perhaps this is the major problem in our parks, but the problem of how to deal with park wildlife ranks a close second.

As more and more people jam our parks, an animal can do one of two things. It can avoid man by moving to the remotest corners of the park, as the bighorn sheep and mountain lion have

neither the animals nor the park visitors. Perhaps the best example of the "tame" wild animal is the roadside bear. Normally these bears will do little more than tie up traffic, as people stop their cars to feed the bears and take pictures. However, bears have been known to attack if they are threatened. Unfortunately, people do not always realize when they are threatening a bear. Making loud noises or sudden gestures, or getting between the bear and its access to the woods, may frighten it. Placing oneself between the bear and food is not a good idea. It is unsafe to taunt bears. Animals that have come to expect food will become annoyed if food is offered and then not given to them. Most important of all, park visitors should not show an interest in bear cubs. People often feel a bear cub is harmless and will try to pet it or even

they will return to populous areas. If their teeth become very bad they cannot eat and must be killed.

Bears are not the only animals that suffer as a result of contact with humans. A trail guide at Oregon Caves National Monument told me that the ground squirrels in the area of the park headquarters are so dependent upon man as a source of food, that they will starve after the tourist season unless they are fed regularly.

In order to solve these and other problems in our parks, we must first decide on what we mean by the concept of a national park. There are two schools of thought regarding the status of our national parks. The first, and also the older, says that the parks were established primarily for the protection and the improvement of some of our

outstanding natural features and scenic areas. These are to be saved for the future, as last bastions of nature against the continual inroads made upon our open spaces by urban and industrial advancement. The second school dictates that the primary purpose of parks is for the enjoyment of the people. In deference to this school, parks are now set aside for various forms of recreational activity.

The first of these schools favors the wildlife; the second favors the tourists. In the end it is the wildlife that loses out. People can verbally express the way they feel, animals cannot. They can do so only through their actions. It is Park policy to warn people not to feed animals. Park leaflets and signs posted throughout the parks also emphasize this point. Unfortunately, many people do not heed this warning, and the park rangers can't patrol everywhere. As a result, accidents sometimes occur and a tourist, an animal, or both, may be severely injured.

What can be done? It is difficult to enforce regulations on vacationers out to have a good time. Tourists must be made to understand that park rules regarding animals are there for their own safety. People should be prodded to attend lectures about park animals. They should be told not to leave food out at night, but to lock it in their cars. Park rangers might check campsites to make sure this is done. Not only bears, but raccoons, skunks, and other animals will be attracted to the smell of food unless it is put in relatively airtight containers.

People should be told not to throw leftovers in the garbage cans. This is a favorite spot for hungry animals. Most parks chain their garbage cans to the ground; however, animals often manage to get inside them anyway. Parks should have one separate garbage facility at a distance from the campground, specifically for food wastes.

Another problem that could be alleviated is that of pets in the parks. Dogs especially are a problem and should be prohibited. They are a threat to smaller wildlife and a chained dog has little chance against a bear, should the bear attack it. In addition, dogs may be a nuisance to neighboring campers.

If a bear should come into your campsite at night, a barking dog is sure to excite him. If you stay where you are, the chances are that the bear will not bother you. In fact, people have been known to actually chase a bear out of their campsite without being attacked. I would not recommend this method. If you are worried about bears, ask a

ranger. He may tell you to make a tin-can trap outside the campsite. Stringing tin cans to the trees will scare the bear away if he should walk into them.

If park visitors would attend programs on the park wildlife, many of their fears and uncertainties would be cleared up. Urban people, especially, are often worried about snakes, scorpions, mountain lions, and a host of other things. A lecture about the wildlife will not only increase their knowledge, but will benefit the wildlife as well.

It will be up to park users to help protect the wildlife in our parks. No matter which of the two schools of thought on parks is employed, the wildlife cannot be abused if it is to remain. The national parks are some of the last refuges left to our wildlife. Let us protect them for future generations to enjoy.

Herbicides

The lawn connoisseurs are at it again . . . and you have a number of choices. The easiest is to ignore all the furor about weed-free carpets and let the lawn grow "naturally," which not only eliminates weeding and fertilizing, but also conserves water. Planting a lot of trees slows down the grass growth, muffles the noise pollution and provides more privacy.

If you really like grass, a well fertilized lawn will prevent weeds from becoming established or choke them out. The few weeds that survive can be eliminated by hand. But if you're in a hurry because the weeds seem to be taking over, be very cautious about using chemical weed killers. Herbicides can cause hazards to our environment and us, so there are certain precautions which should be taken in their use.

Absolutely avoid any herbicides containing 2, 4, 5-T (2, 4, 5 trichlorophenoxyacetic acid) which causes birth defects in mammals. The Department of Agriculture has put a partial ban on this product, but it can still be found on the market in certain forms. Other products contain paraquat, arsenites, methanearsonates, dicamba, simazine or erboon which have been judged too dangerous for home use. A tiny taste of many of these herbicides can cause death. Others that are less hazardous are: 2, 4-D and silvex but these too must be used with extreme caution. Additional information can be obtained in an article on weed killers in the June 1970 issue of *Consumers Reports*, and in several USDA booklets including *Lawn Weed Control with Herbicides*, *USDA Home and Garden Bulletin No. 123*.

The following is a list of acceptable herbicides as published in *Consumers Reports*. Those not mentioned have been judged too dangerous for home use. If you *must* use a herbicide, choose one of these, follow the directions carefully and use the smallest amount possible.

Pre-Emergent Weed Killer

DCPA Products

Acme Garden Weed Preventer
Acme Garden Weed Preventer Spray
Best Garden Weeder
Heritage House & Garden Weed Preventer
May-Way Garden Weed Preventer
Science Garden Weeder
Squire Applegate Crabgrass Killer

Trifluralin Products

Greenfield Preen, The Weed Preventer
Security Eze Garden Weed Killer

EPTC Product

Stauffer Chemicals Eptam 2,3 granular

Diphenamid Products

Greenfield Dymid Grass and Weed Control
Tuco Enide Dichoudra Weed Control

Siduron Products

Du Pont Topersan Siduron Weed Killer
Rockland Crabgrass Preventer "T"

Amiben Product

Weedone Garden Weeder

Lawn Weed Killers

2, 4-D Combination Products

(Contain Silvex except where noted)
Acme Weed-No-More Lawn Weed Killer
Agrico Dandelion and Broadleaf Weed Control
Antrol Jet Stream Weed Bomb-2, 4-D plus Dichlorprop
Antrol Jet Stream Killer
Antrol Squeeze'n Weed
Antrol Wide-Stream Chickweed and Clover Killer
Farmingdale 2, 4-D, plus 2, 4, 5-TP Silvex Dandelion Killer
Greenfield Dandelion and Broadleaf Weed Killer, granules, aerosol
New Era "Squeeze-Weeder"
Ortho-Weed-B-Gon
Patco Weedkill
Sears Lawn Weed Killer — granules

2, 4-D Products

Black Leaf Spot Weed Killer
Ferti-lome Dacamine Weed Killer
Finelawn 2, 4-D Weed Killer
Garden Care Products 2, 4-D Lawn and Weed Dandelion Killer
Ortho Weed-B-Gon Bar
Patterson's 2, 4-D Amine Weed Killer
Pop-in Weed Control Packets
Raid Weed Killer
Weedex Wonder Bar

Silvex Products

Black Leaf Clover and Chickweed Killer
Farmingdale 2, 4, 5-TP Chickweed Killer and Clover Killer
Finelawn 2, 4, 5-TP Chickweed Killer
Ortho Chickweed and Clover Killer
Weedone Chickweed Killer

Nonselective Weed Killers

Destruxol Nonselective Contact Weed Killer
Weedone Poison Ivy Killer
Du Pont Ammate X Weed and Brush Killer
Green Light Dowpon Grass Killer Bar
Sears Grass Killer Bar

Empty Handed

HARLAN G. METCALF

*Professor Emeritus in Recreation Education
State University of New York, College at Cortland,
Cortland, N. Y.*

One of my hobbies is hunting with the bow and arrow. So, during the hunting seasons for deer and rabbit, a part of my limited leisure is spent roaming fields, woods, hills and swamps carrying bow and arrows. In spite of my great enthusiasm for the sport of bowhunting I seldom "come home with the bacon," whether of the deer or rabbit variety. Some folks constantly wonder why I continue bowhunting season after season, with rarely anything to show for the time spent. They wonder why I am willing to get up in the cold darkness of 5:00 A.M., stay in the open all day, rain, cold or snow, and return at night dead tired — and empty-handed.

The truth of the matter is that I *do* return tired, but with a tiredness that brings on sound sleep. Actually I return refreshed, relaxed, uplifted in spirit, and with a deep contentment born of happy thoughts and beautiful memories. I not only enjoy the good fellowship of my hunting pals and a superb lunch, but I bring back the sounds of the wind whispering through pine needles in many varied plantings, the rustling of leaves on certain beeches and oaks not yet blown barren, the startling noise of squirrels on the ground when you are hoping for larger things, the barking of squirrels in the distance, the shriek of bluejays, the explosion of ruffed grouse, the distant music of a beagle-hound on a hare's trail, the top-flight classical music overhead of wild geese with their conductor leading them, their notes swelling from pianissimo to forte followed by gradual diminuendo as they fade from sight in the distant mist. Painted firmly in my mind's eye is the picture of an energetic chipmunk about the business of extracting sweet meat from the winged seed of a sugar maple, a fat cotton-tail rabbit hopping to a new bed, the brilliant contrast of the red-barbed and rugged stalks of blackberry bushes against the grey background of dead grasses where deer had harvested their green leaves; vertical white streaks on sumac, aspen, willow and other shoots where a buck deer had worn off the bark while polishing his antlers. I revelled in the friendly courtesy of chickadees "tipping" their caps from the top nock of my bow or from the branch of a shrub two or three feet away, and the golden-crowned kinglet that bowed to

show his regal crown, no further away than the chickadees. I saw a red fox stalking through the woods, and later another one frolicking in a meadow when he thought he was safe and unobserved. Later I located the den of that fox steeped in an aroma I will long remember. Through woods too dense for a shot I observed a wise buck sniffing and occasionally stamping one foot, and when a changing gust of wind confirmed his suspicions, spook away bidding me goodbye with a flaunting flash from his big white tail. I watched a hairy-woodpecker making noisy inquiry as to who might be at home in a big hollow beech tree.

How I wished for a color camera on a sky-blue-day on top of a mountainous hill as I tried to plant in my mind's eye the breath-taking beauty of the patchwork quilt of infinite shades of green and purple and pink on the distant hill-sides. To the windward on a dark day I bring back a different beauty in shades of gray and white; the distant fog slowly but steadily unrolling towards me, relentlessly blanketing everything in its increasing and thickening opaqueness.

Finally, I bring back the glory of the sunrise as I make my way to my morning stand, and hours later drink in the gathering beauty of the sunset from my evening stand. This is the signature from God's hand at the close of a life-packed day.

Did this bowhunter without his deer come home "Empty-handed"?

To Leaves Fallen After An Autumn Rain

We find them on the path
As we go tramping
In the aftermath.

They cling to our heels
And dampen our shoes —
As hard to ignore
The harder to lose.

I'm wet as the leaves
I've trodden below
And out in a storm
But haven't let go.

— ERNEST SPAINHOWER

Membership Directory Published

Included as an insert in this issue is a new Membership Directory. We hope you will make use of it to get ANSS members who live nearby to join with you in sponsoring field trips, environmental education workshops for teachers, or whatever else you feel you would like to do to further the cause of education in the natural environment — whether it be urban or rural. State or regional sections of ANSS have been established in a few places (Utah is the notable example), and the effectiveness of the Society would be enhanced if each part of the country had informal but active sections. Dr. Helen Russell, second vice president, will help you in this effort. Write to her at 44 College Drive, Jersey City, N. J. 07305.

Welcome New Members

Joseph Ante, Indianapolis, Indiana
Richard A. Baldauf, College Station, Texas
Kristin Bergfeld, New York, New York
Prof. Frederika Blankner, Chicago, Illinois
Alfred W. Carlson, Toms River, New Jersey
Mrs. Harry D. Daugherty, Camp Hill, Pa.
Earl E. Dawald, Decatur, Indiana
Ecology Action Club, Pasadena, California
James R. Fazio, Ithaca, New York
Rev. H. James Ferguson, Groton, Mass.
Michelle Fisher, Champaign, Illinois
Frankford Township School, Branchville, New Jersey
Greenfield Community College, Greenfield, Massachusetts
Heidi Hughes, Chatham, New Jersey
Dr. and Mrs. Allen Irwin, Sendai, Japan
Donna N. Jacobs, Oak Ridge, Tennessee
Kent Intermediate School, Grand Rapids, Michigan
Ethel Klingerman, Moorestown, New Jersey
Deane F. Lavender, Ithaca, New York
Martha Lussenhop, Madison, Wisconsin
Elmer F. Magnussen, Hyattsville, Maryland
Richard Manly, Oakland, New Jersey
R. Bruce McLeland, Hawthorne, New Jersey
Hugh McMillan, Salisbury, Connecticut
Karl Menninger, Chicago, Illinois
Nancy Pearlman, Santa Ana, California
Belinda S. Perry, Conshohocken, Pa.
Burrell L. Pickering, Wright City, Missouri
Franklin Pierce College, Rindge, N. H.
Resource-Use Outdoor Education Center, Perry, Florida
Dr. Thomas J. Rillo, Sewell, New Jersey
Richard L. Robinson, Lockport, New York
Mrs. Warren Ross, Vancouver, Washington
Uldis Roze, New York, New York
Robert P. Russell, Jr., Wilmette, Illinois
Capt. and Mrs. Robert S. Smith, Anchorage, Alaska

Nominate Schools "Doing Things"

We would like to publish a regular feature on "Schools Doing Things in Environmental Education." Members are urged to nominate schools, sending in a brief description of the program. Schools selected will then be asked to submit a full report for publication. Send your nominations to either of the Editors (see inside back cover for addresses).

Why Go Fishing?

PAUL M. KELSEY

Why go fishin'? Presumably to catch fish, though some wives may suspect that it is more to get out of cleaning the cellar or doing some other task she thinks should be done. To look at some fishing spots along the shore, you might suspect that some of the previous occupants of the site had been there more to drink beer than to catch fish.

Some fishermen claim that it is the only way that they can find undisturbed peace and quiet to think. "Peace and quiet" plays a large part for, to many people, the greatest value from fishing comes in the escape from the tensions and anxieties of our modern life. The fish is an excuse, and welcome gravy if they are fortunate enough to get one.

To say the fish isn't the prime reason for going fishing may be blasphemy, but facts speak for themselves. Ten percent of the fisherman catch 90 percent of the fish. The remaining 90 percent of the fisherman must find something to keep them going, or the number of fishermen wouldn't continue to increase. Hot summer days, when most families must take their vacations, are the poorest for fishing. This must mean that Mr. Average Fisherman often comes home empty handed.

During fishing doldrums, if you don't have something important to think about, you can find plenty to watch if you learn to keep your eyes open. To let your mind wander from your line to what is going on around you may cost you a fish once in awhile. The pleasure and peace of mind you will get from observing the actions of other inhabitants of the area will go a long way toward restoring your soul so that you can face the work-a-day world again.

Good fish ponds, particularly warm water ponds, attract many types of life which can be fascinating to watch even if you can't call them by their proper names. Real life dramas can take your mind off worldly problems, and that is probably why you go fishing in the first place.

The Little Green Heron fishing the water at the edge of the cattails is the picture of patience. A frog's head parts floating vegetation just out of reach. Almost imperceptively one long leg is moved forward, its neck tenses and coils then, faster than the eye can see, the heron lashes forward and has the frog in its bill. Several gulps later, the bulge that was a frog disappears down the

long neck and the heron resumes its quiet watchfulness.

Each form of wildlife has its main periods of activity, and as the day slips by different faces will appear on the scene. When the sun gets halfway to its zenith, the duck with her brood of young, that was feeding at the edge of the pond in the early morning mist, has disappeared in the tall vegetation and been replaced by swallows and kingfishers. During the heat of the day turtles will be sunning on old logs and muskrat houses in the shallows.

Take a break and go in where the water is shallow and teeming with small aquatic life. On one occasion like this I was watching a small school of minnows drifting unconcernedly when I noticed a little two-inch pickerel waiting motionless in the shadow of a floating leaf a few feet away. As the minnows drifted by the leaf there was a flash as the predator was on its prey. The commotion lasted only a moment, and the minnows were again quietly drifting a few feet from the pickerel which was resting calmly with a minnow's tail still protruding from its mouth.

As the shadows lengthen, turtles will retire and be replaced by the muskrat, which will swim with its tail just breaking the water and go about its business just as long as the observer remains quiet. Bats will come out to replace swallows, skimming the water surface for evening insects.

You may go home fishless, but your senses have been restored and you are again ready to face the world.

Natural Controls

Natural biological controls have apparently headed off an expected heavy infestation of the destructive saddled prominent insect, according to a report issued by the New York Department of Environmental Conservation. The results is that plans for spraying parts of Lewis, Oneida and Rensselaer Counties to combat this pest have been called off.

The saddled prominent is a forest insect that devours leaves of hardwood trees, especially the sugar maple and beech. This has been of particular concern to New York's maple syrup industry which is the largest in the country.

Last fall field men in the Department's Bureau of Forest Insect and Disease control, working in cooperation with the State University College of Forestry's Applied Forest Research Institute, conducted pupal surveys to determine how many pupa had survived through the winter. Initially these surveys indicated that 40,000 acres in Lewis County, 8,000 acres in Oneida County and 5,000 acres in Rensselaer County would require treatment to prevent serious defoliation.

Field men kept a close watch on the developing insects and it was observed that a number of the eggs that were deposited this spring by the saddled prominent moths had been attacked by parasites. As the insect developed it was discovered that great numbers were dying. It soon became obvious that natural controls were destroying the insect and that there would be no need for spraying.

Urban Food Chain

I remember fights behind the city bars
When garbage cans were tipped and rolled beneath the stars.
And when the trash within was strewn about the ground
On one occasion, the bullbats came around.
Their talk, as measured with a thrush, was not a song,
But effectual, in judging by the throng;
For what had been a few became a countless score
And everytime one called it summoned twenty more.
Racing through the alleys and wheeling overhead —
Down they came like things possessed and up again they sped
The brawl, I guess, had stirred up flies on which they fed.

— ERNEST SPAINHOWER

NEWS and NOTES . . .

on Environmental Education and Action

Dr. Palmer Remembered at Annual Meeting

At the luncheon in Chicago on December 29, held at the Field Museum of Natural History, those of Dr. Palmer's former students who were present related some incidents of their relationship with him as a sort of composite eulogy to a great teacher and friend. Those who spoke were Dr. Helen Ross Russell, Dr. Howard E. Weaver, Dr. Crayton Jackson (the new president of ANSS), Dr. John I. Green, Mr. Richard Wason, Dr. Stanley Mulaik, Mrs. Dorothea Mulaik, and Dr. John Gustafson.

In a letter sent to Mrs. Palmer following the meeting, those present at the luncheon expressed their regret at Dr. Palmer's death as follows:

"At its annual meeting in Chicago last week, the American Nature Study Society expressed its deep sorrow and regret at the loss of Dr. E. Laurence Palmer. As a past president of the Society, and one of its principal advocates during the many years that he worked in the nature study field, we are only too keenly aware of the loss which all of us have sustained in his passing. It is our hope that you will be comforted by the knowledge that he contributed so much to nature education during his productive lifetime, and that he has left a living legacy in the lives of so many persons. Indeed, an analysis of the membership of the American Nature Study Society would show that a majority of its leaders over the years have been Dr. Palmer's students."

Brainerd and McClung Receive Awards

Dr. John Brainerd, Professor of Biology at Springfield College, and Robert M. McClung, nature writer, both active as board members and officers in ANSS, were among the fourteen recipients of Audubon "A" Awards, given by the Massachusetts Audubon Society to individuals and corporations for outstanding service to conservation. Dr. Brainerd received his award for his environmentally concerned teaching career, and Bob McClung received his award for his environmentally aware books.

Another active ANSS member, Mrs. Thomas Hale of Vineyard Haven, received an award for her tireless defense of the Martha's Vineyard environment.

ANSS Field Trip To Morton Arboretum

About fifteen people participated in the all-day field trip to the Morton Arboretum, held at the end of the ANSS annual meetings in Chicago on December 30. The itinerary was arranged by Richard Wason, long-time ANSS member and currently working at the Arboretum. The bus route took the group through several parts of the city of Chicago and vicinity, where the geology of the area was described, and residential developments on filled-in land were pointed out. These houses often have flooded cellars as a result. At the Morton Arboretum, the group was divided into three smaller groups in order to get an intimate view of this famous estate. A wood chipper was working at the business of making mulch out of Christmas trees. A highlight of the trip was a visit to the restored prairie, which is part of the Arboretum. Very little of the original prairie still remains in the Chicago area. On the way back to Chicago, the group was taken to Mount Trashmore, a duPage County Parks Project, developing a mountain for skiing and other uses out of solid waste material. They hope to have three lakes, a ski slope, and five toboggan runs.

If you missed this field trip, be sure to plan now to attend the Philadelphia meetings at the end of 1971. Program chairman Kingsley Greene is well acquainted with that area, and promises to have a superior trip arranged.

Boy Scouts SOAR

The National Conservation Good Turn for 1971 is Project SOAR (Save Our American Resources). Boy Scouts will be coming to ANSS members in their communities to help them carry out this "good turn" for 1971—and hopefully for years to come.

Back Issues of Cornell Rural School Leaflets Available

Mr. Ernest M. Mills of Plainfield, New Jersey has the volumes of the Cornell Rural Leaflet starting with Volume 13 (1919), and running through Volume 51 (1958). Many of the volumes, especially the early ones, are complete. Mr. Mills would like to sell the entire set for \$25. Write to him at: Mr. Ernest M. Mills, 1133 Kensington Avenue, Plainfield, New Jersey 07060.

College Students Preaching Ecology

THOMAS DROLSHAGEN

In one quiet Mississippi River town a football coach leads his high school team in cleaning up refuse along a scenic road.

In another river community, high school students embark on a treasure hunt for trash—and collect eight tons of broken glass and discarded bottles.

Students in a third town along a river finish an ecological field trip in a nearby park by scouring a stream and its banks for refuse and piling it in neat stacks next to overflowing trash cans.

In yet another river community, high schoolers demand that a soft drink distributor replace its nonreturnable bottle vending machine in the school with one that dispenses returnable bottles.

These are the things which have been happening as two young men from Beloit College travel along the Mississippi, town by town, trying to stimulate citizens to study their environment.

In a sense, Greg Fernet, of Janesville, Wis., and Alan Crossley, of Waterford, Conn., are traveling evangelists, preaching the gospel of ecology and damning the sins of pollution.

When their 14-week trek ends this winter, Fernet and Crossley will have preached at high schools in about 75 towns within 10 miles of the banks of the Mississippi River, starting at Brainerd, Minn., and ending at Donaldsonville, La., near the river's delta.

They move along in a specially equipped motor home called the Environvan, delivering lectures to people not much younger than themselves and conducting field trips.

A spokesman for Beloit College, which sponsored the education project, said it has succeeded because "two undergraduate students can relate to high school kids a lot better than a Ph.D. in ecology could."

"The project has exceeded every goal we set out to gain," he said. "Their success is due in great part to their informal methods of presentation—yet it's not haphazardly done."

The journey of Fernet and Crossley comprises their "field term," which Beloit requires of all its students. They must engage in research or service somewhere off campus and away from home for 15 months before returning to the

college to complete their undergraduate studies.

Fernette, a geology major, already has spent one of his terms in the Antarctica with the National Science Foundation. Crossley is majoring in physics and the Environvan tour is his first field term.

The two spent considerable time along the Mississippi before the lecture tour, picking field trip sites, photographing geographic formations and landmarks, gathering evidence of pollution.

In their standard one-hour high school presentation, Fernette and Crossley try to impart to their audiences an overall picture of the geography of the Mississippi.

"We're finding so many people who think of pollution only in terms of the big industrial center," Fernette said. "We're trying to alert them to what is happening in the environment of their own farms and villages."

"We point out that not even the remotest crossroads is immune to deterioration."

Quotable Quotes

"I hesitate to talk about environmental education because this implies there is some other kind."

"If the environmental ethic comes alive, environmental education may not be necessary."

(Heard at Green Bay Conference on Environmental Education)

John Breukelman Honored

Longtime member of ANSS, John W. Breukelman, has been honored by having a new wing of the Science Hall at the Kansas State Teachers College named after him. An excellent researcher and writer as well as an inspiring teacher, Dr. Breukelman was a member of the Kansas State Teachers College faculty from 1929 until his retirement in 1968. It is generally agreed that Dr. Breukelman was responsible for the education and training of more biology teachers for Kansas than any other single individual. His work as a writer of biological and science education materials earned him additional respect from throughout the country. He has served as president of the Kansas Academy of Science, and is an honorary member of the National Association of Biology Teachers. He was editor of the American Biology Teacher from 1942 to 1953, and has been editor of the Kansas School Naturalist from its establishment in 1954 to the time of his retirement.

ANSS joins with Dr. Breukelman's Kansas friends in wishing him well and congratulating him on this honor.

Brainerd Publishes Book

John Brainerd, former president of ANSS, informs us that his new book, "Nature Study for Conservation—a handbook for environmental education," is being published by Macmillan Company on January 27, 1971. ANSS is proud to be a sponsor of this book, and we urge our members to obtain a copy, read it, and put it to practice. See the review of this book in the Good Reading section.

Dr. Brainerd indicates that a companion volume is close to being finished, and he hopes to announce its publication soon.

Interpretive Naturalist Seeks Position

Miss Lois Ann Bradstreet recently finished the Audubon Naturalist Training Program at Sharon Audubon Center in Connecticut, and is available for placement as an interpretive naturalist-teacher after January 1, 1971. An evaluation of her training and proficiency can be obtained from Miss Martha Sykes, Director of the Sharon Audubon Center, Route 4, Sharon, Connecticut 06069. Miss Bradstreet is especially interested in New England openings. She holds a Bachelor of Arts degree in Biology from Keene, New Hampshire State College. Her address is: Miss Lois Ann Bradstreet, Cady Lane, Spofford Stage, Keene, New Hampshire 03431.

Thoughts on Environmental Education

J. A. GUSTAFSON

I am more and more dubious about the effectiveness of "nature centers." Perhaps we need to stop thinking about "conservation education" and "nature study," which denote educating about particular environments (natural), and talk about "environmental education," which permits us to start where we are (everyone exists at all times in an environment of some sort), and go from there. Our experts in EE should go to the people, and start at that point to open their eyes to what's around them—gradually enlarging their horizons until each person has some comprehension of the total ecosystem.

So, let's place great stress on having resource people to help teachers and youth leaders "do their thing" for EE in the local situation; then let's also have EE centers where people can come (the chosen few) to get immersed in the natural ecosystem and relate to it and get turned on by it, so they can be the leaders in the fight to preserve, protect, enhance, use wisely, etc., etc.

Environmental Educator Available

Mr. Christopher White writes that he expects to finish his doctoral work in environmental education at Cornell by June 1971, and is looking for a teaching position for September. With a background chiefly in biology, he has taught at the high school level and in a community college. He is well prepared to teach the life sciences from an ecological approach. He served as a ranger naturalist for the National Park Service and a field instructor under a Title III Outdoor Education Program.

For further details, write to Mr. White at 116 Heights Court, Ithaca, New York 14850. Telephone: 607-273-7728.

Federated Garden Clubs Sponsor Ecology Scholarships For Teachers

The Sixth District of the Federated Garden Clubs of New York State, located in Syracuse, is sponsoring a number of high school and junior high school teacher scholarships for studies for credit in ecological subjects. Mrs. Gordon Bond, conservation chairman of the group, is compiling a list of courses being offered in the central part of New York State, and is urging all of the member garden clubs to sponsor one or more teachers in an ecology type course this summer. The listing will be published about February 1.

We congratulate the garden clubs for this effort. If all such civic organizations were to sponsor teachers in this way, environmental education in our country would take a great leap forward.

Nixon Commended by I.U.C.N.

25 January 1971

The President of the United States
The White House
Washington, D. C., U.S.A.

The International Union for Conservation of Nature representing twenty-nine sovereign states and more than two hundred member organizations from sixty nations strongly commends the precedent-setting action you have taken in terminating construction of the cross-Florida barge canal in spite of existing heavy investment, to prevent further environmental damage to this ecologically significant area from this project which was originally authorized without consideration of environmental consequences. This widely-praised action underlines concern your nation has for long-term environmental planning and should stimulate other countries in their own aspirations for environmental management.

Gerardo Budowski
Director General IUCN

NATURE STUDY

Disappearing Wetlands

It is not often realized that progress can also mean disaster. "Progress" is systematically destroying, altering, or poisoning our estuaries. Various projects, big and small, are slowly eating away this valuable resource. When an estuary is destroyed it wrecks havoc with fish and shellfish which use them as a habitat and breeding ground. Many oceanic species suffer as well as regular estuary residents because they too need the estuaries in their life cycles. These nursery areas are often polluted with industrial wastes or are completely filled in for factories, parks or developments. Grass beds where young fish hide may be wiped out by siltation and salinity changes caused by water control projects. These areas then become only soft mud bottoms, useless as nursery areas.

Dredging and land fill are most damaging to estuarine life. The results are worse when dredging is done for the purpose of moving bottom material into the marshes prior to development. Dredging is harmful because the bottom is torn up, the plants are ripped out and the remaining sediments shift about with the current causing siltation. The silt settles as a thick mass on the bottom, suffocating animals and plants. The adjoining marshland or tidal flat is covered with the spoil, raising its level and killing all aquatic life there. Bulkheading, used to hold this fill in place, seals the fate of the marsh by preventing normal tidal flushing action. In this way, both the marshes and adjoining bays are destroyed as aquatic life zones.

The following statistics point out the severe effects of dredging and filling projects: of the tidal wetlands along our North American coast, from Maine to Delaware, 45,000 acres of marshland were destroyed in the ten year period 1955-1964. An accurate inventory kept for the last five of those years showed that 34% was lost to deposition areas for dredge spoil; 27% to fill for housing developments; 15% to recreational development (parks, beaches, marinas); 10% to bridges, roads, parking lots and airports; 7% to industrial sites; 6% to garbage and trash dumps; and 1% to other causes.¹

The above are just a few of the factors in the disappearance of wetlands.

1. From a speech by John Gottschalk, director, U.S. Bureau of Sport Fisheries and Wildlife, cited by Clarke, John. **Fish and Man**: American Littoral Soc., Highlands, N. J., 1967.

Containers Identified as Recyclable

The Capital City Container Company, of Albany, New York, has announced that it will identify all of its recyclable cartons by a recently adopted symbol (shown below). The company has asked permission of the firms which use its cartons to place the symbol in a conspicuous place on each one. All containers manufactured by Capital City Container Company are recyclable except those with wax, plastic, or synthetic coatings. The company, in announcing its move, stated that "recycling is the best answer to the solid waste pollution" problem.



You Can Help With New Book

At the Board of Directors meeting in Chicago in December, it was decided to proceed with the production of an anthology of nature study writing. Dr. John I. Green, president-elect of ANSS, agreed to head up this project. You are urged to send him your ideas of what should be included. (Biology Department, St. Lawrence Univ., Canton, N. Y. 13617.)

This will not be just another compilation of nature essays. The selections will be those which develop the "nature study idea" — the philosophy defined by L. H. Bailey and Anna Comstock in the first decade of this century and refined by such persons as Leopold and Krutch in recent years. To these people, nature study was a frame of mind, a way by which an attitude of appreciation and enjoyment was nurtured. Out of nature study comes the "conservation conscience" of Leopold. Today we call it "ecological sensitivity" or "environmental awareness."

The intangible but essential "spirit" of nature study is needed if environmental education is to succeed. We hope this book will embody it.

A Letter From "Cap'n Bill" Vinal

"It was a pleasant surprise to receive the ANSS packet of photos and text. I have read them and find it all fascinating. I know many of the authors, and they seem to have taken great pains to make the material useful for elementary teachers. I have found that teachers are afraid of teaching nature and these writings make it a joy. I do not see how they can dodge their responsibility any longer. The ANSS has done a needed service. Many thanx (sic) for letting me see it. I will have the honor of giving them to the VINAL School . . ."

Earth Day Activity at "Cap'n Bill's School"

Nestled in a lush, 27-acre tract in eastern Massachusetts, Norwell's William G. Vinal School was happily in a position to do more than just talk and consider.

Going right to the primary source — Nature herself — sixth graders under the supervision of Mary Plemmons and Robert Payne, cut and marked trails, learning in the process.

Another class prepared identification charts for leaves, then labeled trees and bushes found along the trails.

Inside, students experimented with soil samples, testing for acidity and percolation. In one experiment, pairs of students were given carpenter ants, salt and sugar. They then prepared obstacle courses on their desk tops, released the ants and recorded time and movements on the running data sheet.

(Information provided by: Phyllis H. Buell, William G. Vinal School, Norwell.)

Bill Introduced to Prohibit The Shooting of Wildlife From Aircraft

Saylor Confident of Passage This Year

Washington, D. C. (Jan. 29) — "We will not give up" was the way Congressman John P. Saylor (R-Pa.) put it when he and Congressman David Obey (D-Wis.) and sixteen other Members of the House re-introduced a bill to prohibit the shooting of wildlife from an airplane.

Congressman Saylor, one of the leading conservationists in the House and Ranking Republican on the Interior Committee and Rep. Obey, a member of the Subcommittee on Fisheries & Wildlife, vowed to continue the fight they started a year ago to end the so-called "sport" of "hunting" endangered species of wildlife from airplanes.

Congressman Saylor said, "In 1970, we started the year with a dramatic tele-

vision documentary, 'The Wolf Men,' which prompted the introduction of our bill. This year we follow another television program, 'Say Goodbye' which was even more dramatic and pointed out the currently unpunishable slaughter of wildlife practiced by some lower forms of the genus *Homo sapiens*.

"Last year the House acted on our bill. Hearings were held, discussion was open and complete, reports from the agencies were filed, and the public had a chance to involve itself in the legislative process. Our bill passed the House unanimously. Unfortunately, the bill got stymied in the Senate during the rush to adjourn the 91st Congress; no action was taken on the bill by the full Senate.

"What this means is simply that the concerned public will have to mount its letter-writing, telegram-sending, lobbying efforts once more. I am confident that with another effort such as the one last year, we can break through the barriers and achieve this much-needed piece of legislation.

"The path of the bill has been eased considerably since last year with the addition of a number of Members of both parties co-sponsoring our new bill.

"Congressmen Don H. Clausen (R-Ca.), Don Edwards (D-Ca.), James G. Fulton (R-Pa.), Peter N. Kyros (D-Me.), Norman F. Lent (R-NY), James O'Hara (D-Mich.), and Ogden R. Reid (R-NY), all introduced similar bills last year and they have joined Congressman Obey and myself on a single bill this year.

"Congressmen Thomas N. Downing (D-Va.), Louis Frey, Jr. (R-Fla.), George A. Goodling (R-Pa.), Richard T. Hanna (D-Ca.), Joseph E. Karth (D-Minn.), Alton Lennon (D-NC), Paul N. McCloskey, Jr. (R-Ca.), Jack H. McDonald (R-Mich.), Thomas M. Pelly (R-Wash.), and Paul G. Rodgers (D-Fla.), all Members of the Subcommittee on Fisheries and Wildlife Conservation of the House Merchant Marine and Fisheries Committee, have agreed to co-sponsor the new bill.

"Things look good for passage in the House once again, and the situation in the Senate is looking up as I know of several senators who have expressed an interest in introducing companion bills in that body. All in all, I believe we have the combination of factors to achieve success this year."

Youth and Eco-Politics

Now that eighteen-year-olds have the vote, we may see many more young people becoming active in eco-politics. After Earth Day last year, environmental-

ists realized that if any action is to be taken to stem the tide of pollution, ecologists and others would have to involve themselves in political action. Many candidates were affected by the environmental issue in the November elections, and in some cases, relatively unknown persons who championed the environmental cause were elected to office.

Miss Dorothy Bradley, a young ecological activist in Montana, is a good example of this kind of activity. "Being the wrong sex, the wrong age, and from the wrong party has proved to be a winning combination for Montana State Representative-elect Dorothy Bradley.

"Miss Bradley is an attractive 23-year-old ecological activist and Phi Beta Kappa graduate in archeology. She also is the only woman elected to the Montana House of Representatives.

"Her platform was the environment, however, not women's liberation. She dismisses women's lib by saying: 'I think men ought to be liberated, too — and I was hoping to liberate one from public office.'

"She admits that 'working within the system' may not work for her. She says that if she cannot accomplish what she wants through politics, she will not run again.

"She thinks there are other ways of bringing about change. She said: 'I have lived too sheltered a life to condemn activists outside of the system.'

"The Bozeman sportswoman filed for primary election on closing day on the advice of State Sen. Harry Mitchell of Great Falls. He told her: 'What have you got to lose? You're the wrong age, the wrong sex, and from the wrong party.'

"I didn't plan to win. I only ran to voice the environment issue,' she said in an interview. But win she did—although by only 12 votes in the primary.

"After a classic do-it-yourself campaign, she went on to capture the only Democratic seat of four in traditionally Republican (sic) Gallatin County, finishing 600 votes behind the top vote-getter in her race.

"She had no campaign manager. She did have the help of two boys on leave from their studies at her alma mater, Colorado College, for two weeks.

"Money was raised by holding a garage sale which she herself handled with the help of Democratic women in her district. The largest campaign contribution — \$100 — came from her father, a geologist coordinating the environmental studies center at Montana State University. He had no idea she was going to run.

"He thought I was going to gradu-

ate school in Wisconsin,' she said.

"Money left over in her campaign fund — she spent about \$1,400—is going to be used for books on environment for the Bozeman High School library and for trees to be planted in a city park.

"The new state legislator attributes her election to door-to-door campaigning and to the readiness of the electorate to consider a strong stand on the environment.

"I was so outspoken it was incredible,' she said. 'I was the only candidate to come out and talk about mandatory zoning and having only two children, for example.'

"One of her campaign tactics was to distribute 15,000 litterbags which on one side bore the legend 'Dorothy is for the birds and the elk and the bears and Montana' and on the other side listed recommendations about population, pesticides, detergents and the like.

"Opponents retorted: 'Dorothy is for the birds and the bees but not for people.' Her answer to that was it showed a great misunderstanding of what environmentalists stand for."

YOUR CHILDREN are not your children.

They are the sons and daughters of Life's longing for itself.

They come through you but not from you.

And though they are with you, yet they belong not to you.

You may give them your love but not your thoughts.

For they have their own thoughts.

You may house their bodies, but not their souls.

For their souls dwell in the house of tomorrow, which you cannot visit, not even in your dreams.

You may strive to be like them, but seek not to make them like you.

For life goes not backward nor tarries with yesterday.

You are the bows from which your children

As living arrows are sent forth.

Let your bending in the archer's hand be for gladness.

— Kahlil Gibran

Sometimes in the Evening

Some say the earth was made in seven days.

Others — in half as many billion years.

I can't pretend myself to know the ways

An earth is born, but haven't any fears

But what we'll find and always say —

The earth is older yet than it appears.

I wish I knew how long we have to stay.

— ERNEST SPAINHOWER

Nature Study

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Listen to the Earth

How much would you give for a day of joy? . . . or even a second? Take time; listen to the earth, and it shall teach you.

Pick up a smooth stone . . . a gnarled piece of wood . . . a still-wet shell. Run sensitive fingers over the surface. You will be absorbing something of their nearness of the Source of things.

It's a sensuous kind of experience, but it can be educational and inspirational, too. If you are a gardener, you know. Nothing can quite match the feeling of soil between your fingers. Helping seedlings grow is being midwife to a miracle.

If you pause awhile in the midst of nature away from public haunts and cares, listen to the wind in the trees, the rushing of a river, the call of a bird. You will find delight in the endless variety of the plains, the hills, the valleys, the red flash of the Cardinal, the magnificent swirls of a shimmering fish. You might be fortunate enough to watch a new-born woodland creature take its first awkward steps. Like Shakespeare, perhaps you will find ". . . tongues in trees, books in running brooks, sermons in stones, and good in every thing."

Even an alert city-dweller can be stirred by the sun as it rises and sets, by the music in a voice, by watching a child grow, seasons change, patterns of light undulate, a kitten's inherently graceful walk.

Thomas Huxley said: "For every man, the world is as fresh as it was at the first day, and as full of untold novelties for him who has the eyes to see them." He might have added: the ears to hear them, the nose to sense their fragrance, the hands to touch them.

It is thus for you and me.

Come, our teacher awaits.

(An Editorial from Cincinnati Bell Bulletin)

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