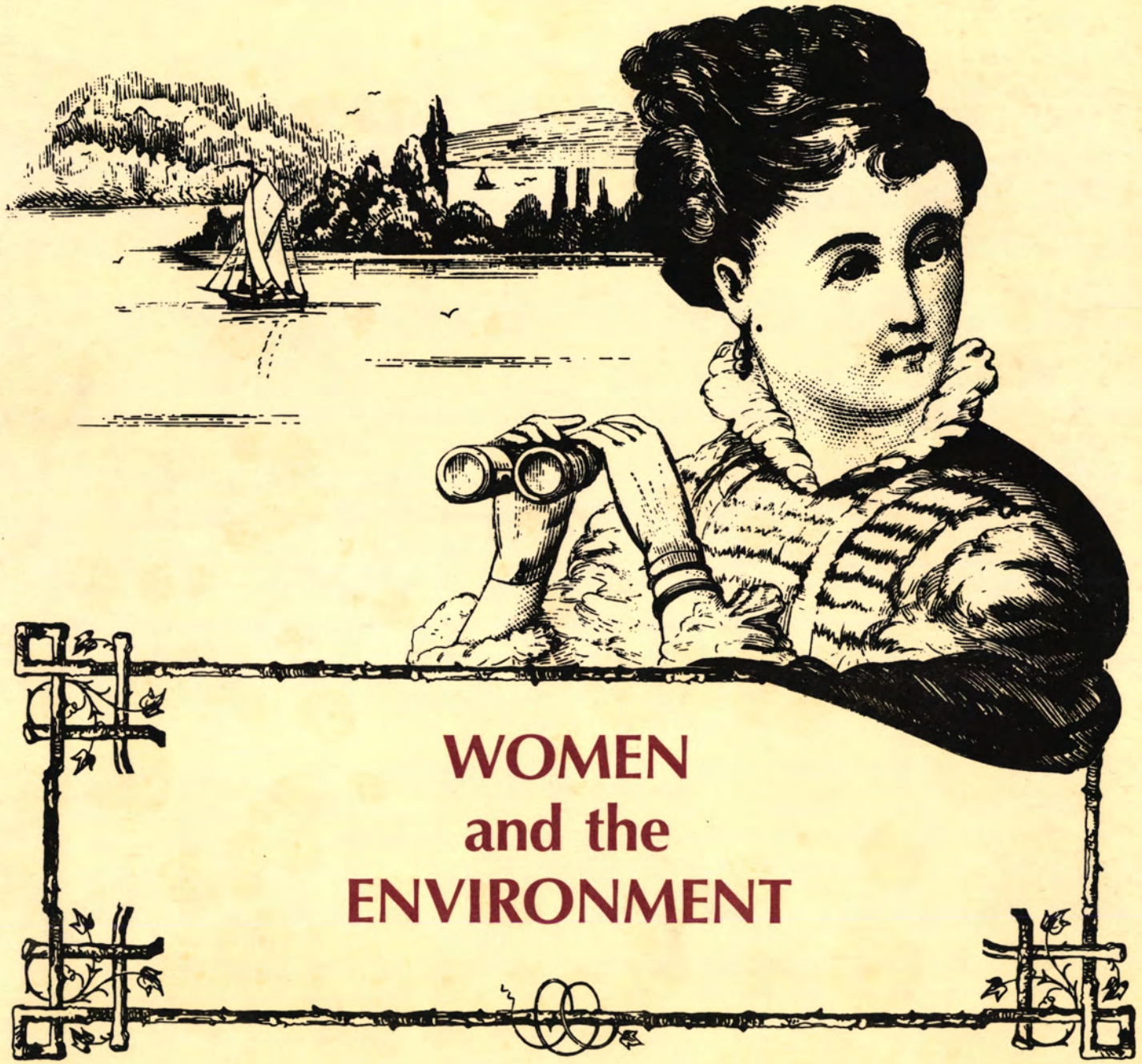
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# Nature Study



## WOMEN and the ENVIRONMENT

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A JOURNAL OF ENVIRONMENTAL EDUCATION AND INTERPRETATION

# NURTURE MORE – CONQUER LESS

**President's Message**

A *Nature Study* devoted to women? An irreverent colleague inappropriately but predictably volunteered to interview candidates for the centerfold. Some feminists argued that since women pioneered the nature study movement, why give gender accolades now that women are finally achieving equality in all other professional and social endeavors?

However, a journal issue on women supports rather than denigrates what I see as the major accomplishment of the women's movement. Women have become more assertive and fulfilled in all aspects of life while men have learned to be more nurturing and supportive. In short, both sexes are more wholly human and humane.

The nature study movement both followed and led this transformation. While agricultural depression (still with us today) was a prime motivation for nature study — to stem the great migration from farm to factory — it followed the Judeo-Christian and European view of science and education at the turn of the century: Our detached male God initiated and directed creation from above. Western men "conquered" nature and revealed God's work by exploring and explaining science while women stayed home to tend the garden and the children. Pre-Christian Europe and other cultures around the world saw a more involved, nurturing Mother Nature. (Today with the Gaia Hypothesis and the acceptance of a nuturing or buffering world ecosystem, we know who was more correct.) But following the Victorian model, "hard" science was a male bastion while "soft" science (nature study and its appreciation) was the province of the school marm. As we slowly outgrew our Victorian image of life, women embraced hard science while retaining their nuturing attitudes, while men have gained sensitivity in their pursuit of environmental understanding through teaching, writing and interpretation.

Today women and men in our environmental professions must redouble their efforts, and work as one to lead the world to nurture nature more and conquer creation less. We have some wonderful examples to follow on these pages.

Frank Knight

# Nature Study



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# CULTURAL RESISTANCE

Helen Ross Russell

When I was hired at Fitchburg State (Teachers) College in 1949 I was an oddity: a woman with a Ph.D., a woman who had specialized in science, a woman who took her classes outdoors. Shortly after I arrived I was introduced to an older woman in the community as "Dr. Ross." She was perceptibly impressed and said, "Oh! You are married to a doctor." As I tried to explain I watched her puzzled expression and realized she was not understanding at all; then her face brightened and she said, "Oh! You are not married to a doctor, you just live with one." "Living in sin" (and in 1949 it was just that) was more acceptable and understandable to her than a woman Ph.D.!

This was six months after I had pulled a card from the Cornell University placement file which said, "We are looking for a man to teach biology and related subjects with 9 years teaching experience and a doctors degree in what was called nature study." The director of placement had said, "Apply, most jobs are described in that way; it doesn't follow that the employer will refuse to consider a woman. It may never have occurred to him that a woman would have the training, particularly in science."

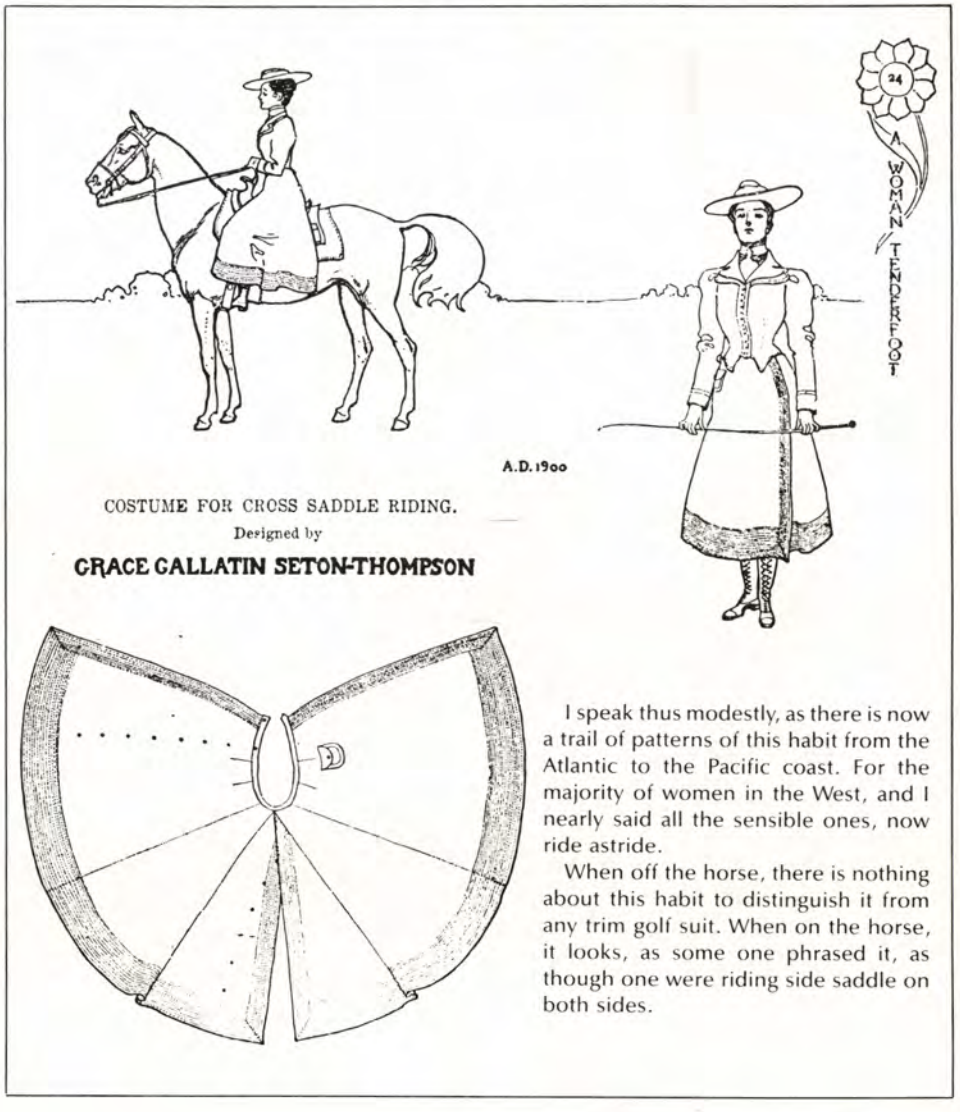
When I thought about it I knew he was right. Out of twelve students who finished Ph.D.'s under E. Laurence Palmer between 1946 and 1949 two were women. Even more sobering, out of 30 masters candidates during that time two were women.

But, you may be thinking that was long ago, in the dark ages. Times have changed, so why write about women and the environment? As one professor told me when we proposed this journal, "A good scientist is a good scientist, a good teacher, a good teacher. When you talk about women teachers or environmentalists it's like talking about black teachers, scientists, etc. The emphasis is on the wrong place. I look at my students as people, some of whom happen to be black or female and that's how they should see themselves." I recognize the fact that this is true and that this journal would be unncecessary if old stereotypes did not remain and if doors were equally open.

This year when Kathleen Blanchard (ANSS president 1986-87) was selected as one of twenty-one people in the United States to be recognized for her contributions to the environment by the Chevron Conservation Awards Committee, she flew to Washington, DC, with two of her colleagues, Larry Morris and Tom Horne. As Tom tells it, when they purchased their tickets Kathy went to one window and he and Larry went to an adjacent one. The agent serving the men glanced at Kathy as he made seat assignments and said, "Would you like to have your secretary seated near to you?" As Tom tells the story, "That won't happen again on that airline. The agent was still shaking and apologizing when Larry and I left."

The people in this journal are environmentalists who just happened to be women, but their kudos and accomplishments did not "just happen." They worked hard for them, sometimes under strong cultural resistance. Cultural resistance is one reason for the small number of women scientists and environmentalists. As long as women were responsible for the total care and nurture of the family, there was no time for outside activities.

This summer eight of us spent a weekend doing fireplace cooking using antique utensils and recipes. The meals were delicious, camaraderie and the experience exhausting. There were no small children to be cared for; no spinning, weaving or sewing of clothing. We turned on a tap for our water, used electric lights instead of kerosene lamps or candles.




I speak thus modestly, as there is now a trail of patterns of this habit from the Atlantic to the Pacific coast. For the majority of women in the West, and I nearly said all the sensible ones, now ride astride.

When off the horse, there is nothing about this habit to distinguish it from any trim golf suit. When on the horse, it looks, as some one phrased it, as though one were riding side saddle on both sides.

We made no attempt to preserve the garden surplus by drying or canning. We purchased our turkey instead of preparing one that our husbands had shot and delivered to us complete with feathers. As we worked over small hot fires with perspiration dripping off our bodies and our modern clothing neatly belted and hugging our torsos we were reminded that the second most common cause of death of colonial women, next to childbirth, was burning to death.

The role of women was essential for the health and well-being of the family and it was taken for granted that all women would be married and fill that role. Those who did not were old maids, maidens who aged but never achieved woman's status, or spinsters, women doomed to live in someone's home and earn their keep by spinning. It was generally accepted that any woman who did not marry was single because no man would have her, or else was unfeminine. Thus we find L. H. Bailey, who fought for women's rights and equal status, referring to women students as "mostly old maid types."

Cultural resistance takes many forms. We find Carolyn Niethammer reporting in Daughters of the Earth that enforcement of the monthly banishment to the menstrual hut varied from culture to culture. In general, tribes with a low ratio of women to men and children were less apt to be strict about the rules than tribes where an abundance of women guaranteed that life would continue to move smoothly even if some women were not available.

Clothing, too, was often a limiting factor. When Grace Gallitan Seton (Ernest Thompson Seton's wife) designed a skirt in 1900 which women could wear riding astride a horse and still appear ladylike both on and off the horse, she was freeing women of cultural restrictions. Had Mary Anning been rich she would never have discovered the fossils that gave her a place in the British Museum, for her clothing would have prevented her from climbing the English cliffs.

While women today are not hampered by hoop skirts and taboos, little girls are hampered in having good role models. I have a four-year-old friend who loves me deeply but routinely asks me why I don't use the kinds of make-up she sees on TV or why I don't behave like women she watches and admires. Models on the media are damaging to both girls and boys.

When one of the faculty at Fitchburg State did a doctoral study at Harvard University in the 1950's proving the academic superiority of males, one of his colleagues, praising his work, looked at me and said, "Of course, you don't fit this study. You have the mind of a man." I doubt if anyone would make this statement today, yet it is not uncommon for me to go into an elementary school class and have children ask, "Are YOU a scientist?" "How can you be a scientist when you are a woman?"

It is indeed unfortunate that Rosalind Franklin, the woman who did much of the research on which the discovery of the structure of DNA was based, had died and therefore was ineligible for recognition when the Nobel committee awarded the prize for this major discovery.

The biographical dictionary, *American Men of Science*, was first published in 1906. About 50 years afterwards they began to include women but the title remained unchanged until 1971 when the 12th edition came out as *American Men and Women of Science*. Is it any wonder that last year when the National Science Teachers Association asked children:

"What do you think scientists do—either real or fictional ones? According to what you see on TV and in films, what you read in books, magazines, and newspapers, and what you hear on the radio, what image comes to mind when you think of a typical scientist?" They received the following answers: out of the 1,434 students responding:

Boys who responded—655
- Wrote about male scientists—594
- Wrote about female scientists—8
- Did not specify—53

Girls who responded—779
- Wrote about male scientists—606
- Wrote about female scientists—73
- Did not specify—100

Most common images by category/name:
- Typical Mad Scientist—544
- Noble, Devoted Hero(ine)—120
- A Variety of Things—106
- "Doc," from the film BACK TO THE FUTURE—64
- Dr. Frankenstein—54
- Someone who cures disease—46
- Albert Einstein—43
- Television's Mr. Wizard—41
- Marine Biologist—29
- Thomas Edison—25
- AIDS Researcher—23
- Their Teacher—20
- Louis Pasteur—19
- Industrial/Commercial—19
- Archeologist—18
- Ben Franklin—17
- Dr. Jekyll/Mr. Hyde—17
- Botanist—15
- Jacques Cousteau—14
- Working with animals—13
- Cancer Researcher—12
- Space Scientist—12
- Inventor—11
- Marie Curie—10

Obviously some proper role models are needed! This issue describes a good many. It will encourage women, both young and not so young, to use their gifts of mind and spirit to vigorously pursue the environmental goals essential to the well-being of all of us.

H.R.R.



# GENE STRATTON-PORTER: EARLY ENVIRONMENTALIST

Mary DeJong Obuchowski

The influence of Gene Stratton-Porter has been greatly underrated. An immensely popular writer of the early twentieth century, she not only published at least ten novels whose audience rivalled that of Charles Dickens in numbers, but she also wrote and illustrated many books and articles on the wildlife of the Limberlost, the swampy area of eastern Indiana which covered thousands of acres of what is now mostly farmland. She loved the land wherever she lived, and she was deeply concerned for the environment: for the preservation of the ecological balance in nature and for the conservation of plants and animals that were at risk of dying out. The root of her concern was an overwhelming belief that nature is a source of beauty and of spiritual as well as physical nourishment, and therefore, when she saw the land or anything that lived on it in danger, she urged her readers--by her own example and through her writing—to protect and to conserve it.

To understand the depth of Porter's zeal, it is necessary to go into her background. Her parents, Mark and Mary Stratton, endowed her with an appreciation of living things. As a small child, the youngest of twelve, she was allowed to run free most of the time. She loved the birds so much that she learned to study their nesting and feeding habits without disturbing them, and to treat sick and wounded birds. Once, her father shot a chicken hawk, and she begged so hard for him to spare it and give it to her to nurse that he let her have it. When she asked for some medicine for its broken wing, her mother said, "What a little bird woman you are!" Perhaps as a result of this incident, her father, she said, "proceeded formally to present me with the personal and indisputable ownership of each bird of every description that made its home on his land." The girl took the gift seriously, and watched, fed, protected, counted, and studied the birds of the farm. Along with this, her father, a Methodist minister, inspired her with a reverence for all of life. He set her the primary example of treating living things with respect, harvesting them in moderation, and enjoying their beauty. Her mother, too, loved birds and flowers. Of her, Porter said, "her great gift was conceded by all to be her ability for making things grow."

Porter's parents had homesteaded the land they lived on. Even as a young woman, she saw the number of birds there decline, as the forests made way for farmland. She noted, "As I recall, there were small flocks of birds for every one that is seen at the presnt time." She also witnessed the destruction of the passenger pigeons, remembering with gratitude that her father had forbidden her brothers to slaughter them as other boys did.





*GENE STRATTON-PORTER*

Conservation was not much of a concept when she was a child. Her father was the only peson she ever heard mention the importance of protecting birds because they exterminated insects.

As an adult, she lived out the principles she had absorbed in her childhood. When she was a young married woman, she made her home in Geneva, at the edge of the Limberlost. She drew much of her best material from it. But even as she was photographing and writing about her subjects, the swamp was disappearing, first, because of lumber interests, and then because oil was found there. With regret, she left Geneva in 1913, moving north to a cabin she had built on 120 acres on Sylvan Lake in Noble County. She called it Limberlost, North, and set about making the property into a wildlife preserve. In 1919 she wrote, "During the past four years, from the surrounding woods and marshes I have collected fourteen thousand named and numbered specimens of trees, bushes, shrubs, vines, and flowers, setting each in its proper environment."

By this time, Porter was a fairly wealthy woman, and she was able to pay half a dozen assistants to gather and transplant the wild plants of that area onto her land. She worked along with her professional helpers, going out with them into her neighbor's fields and swamps to find and save what she could from developers.

She had to wage a political battle, also, to prevent a large tract of land including her own property from being drained to lower the water table. As she believed that the loss of water would also mean the destruction of the plant life that covered the ground,

and that such massive diversion would change the rainfall and consequently the temperature patterns of the area, she added an educational and financial campaign to her physical efforts in the field. The site remains a nature preserve today.

Porter's first two major careers, as a photographer and as a writer, began at about the same time. Her profession as a self-taught nature photographer started with the gift of a camera from her husband and daughter about 1895. Before long, she was going out regularly into the woods and fields, recording wildlife, mainly birds at first. She even ventured into the Limberlost, but not alone, for it was filled with danger. She also endured physical discomfort.




Indeed, she wrote a number of accounts of how she, though ordinarily strong and fit, had to take to her bed because of multiple insect bites, reactions to poison plants, exposure, and injury. As she dressed in trousers and carried a revolver besides her photographic equipment, she must have been an oddity in small-town Indiana at the turn of the century. Obviously, she did not have time to participate in many of the conventional women's social activities. Yet she made many friends, especially among the lumber and oil men who made a point of remembering the locations of nests and birds they had seen and pointing them out to her, sometimes even accompanying her on some of her more dangerous excursions. Such friendships now seem ironic, as those men were responsible for changing the face of the Limberlost, but she accepted their help with enthusiasm.

In her camera work, she had to set up her camera--no Instamatics then--focus it, hope the light would fall right when the birds appeared, and wait, sometimes for hours, sometimes over the course of days, for her birds to pose on their nests or perches, so she could squeeze the bulb. This art was new at the time. Most photographs and paintings then were taken from models shaped by taxidermists.

The information she gleaned about birds' feeding, mating, and nesting habits she accumulated without frightening or damaging her subjects. She objected strongly to the methods of scientists, even of Audubon himself, who killed birds in order to study their physiology. She noted that Kirtland's warbler has always been rare, but in addition, she said, "His history is one of the bloodiest pages of ornithology. The way of science is to shoot every Kirtland on sight. Of course, Audubon and Wilson shot all their specimens." She urged an end to such practices.

Porter's writing career merged with her photographic one and the two remained closely integrated for many years. She wrote articles on photography, nature articles illustrated by her own photographs, several short stories, some poetry, and later many columns for womens' magazines. But the best known and probably the most influential part of Porter's works were her novels. It was this fiction that generated her huge audience. The royalties from the novels financed her lesser known books, the nature volumes, which were her favorites.

As there are over twenty books altogether, I will take up only the most popular and important of those that convey her attitudes toward conservation. I will do this in more or less chronological order, and try to point out some of the interrelationships among them, as far as her environmental interests are concerned.

One of Porter's earliest novels, *Freckles,* had its origin in Porter's own experience. She had been informed that a strange bird had been spotted nesting in a fallen tree in the Limberlost. She and her husband searched for hours in the mucky swamp for that tree. When they found it, she said, "The odor was so unbearable we only could work about the location by dipping cloths in deodorant and binding them over our mouths and nostrils." Porter photographed the birds and later identified them as black vultures, unusual in Indiana but native to states farther south.

This incident became the germ of *Freckles,* bringing the Bird Woman into the story, and with her a young girl who supplies the romantic interest. It is the story of an orphan boy from Chicago who, because he has lost a hand, never has been adopted. The owner of a lumber company hires him as a guard to patrol the limberlost to prevent the theft of valuable trees. The plot is lively enough, with Freckles facing and besting lumber thieves at the risk of his life, and his romance with the girl he calls the "Swamp Angel," but Porter regarded such action merely as an excuse for doing what was really important. She described *Freckles* thus: "A book of woodlore, straight nature stuff, through which I ran a slight romance as a sugar coating, in my effort to entice the household afield." She had set a very explicit goal for herself: to lead people to the outdoors.




Her next book, *What I Have Done With Birds,* is a beautiful one containing photographs and commentaries on eighteen kinds of birds found in Indiana (including, of course, the black vulture). Each chapter incorporates several black and white pictures, plus a color plate. Porter described the habits and character of each species, including amusing as well as impressive anecdotes telling how she managed to take the pictures.

*A Girl of the Limberlost* was the result of the success of *Freckles.* Its sales had been outstanding, and Porter had also received floods of letters of appreciation for bringing nature to "tired clerks," shut-ins, Americans abroad, and more. And "So," she said, "I wrote *A Girl of the Limberlost,* to carry to hospital cots, to those behind prison bars, and to scholars in their libraries,

my story of earth and sky. Incidentally, I put in all the insects, flowers, vines and trees, birds, and animals that I know . . . ."

Thus, she makes it clear that, once again, the plot is merely an excuse to engage people's interest in nature. The fact is that Porter tells a story that is rich in action and detail, with a plucky heroine.

Porter wrote, "Since the publication of *A Girl of the Limberlost,* I have received hundreds of letters asking me to write of my experiences with the lepidoptera of the swamp," and so she wrote *Moths of the Limberlost,* which includes accounts of several incidents that appeared in the novel. It exhibits much the same format as *What I Have Done With Birds:* a chapter on each of thirteen species, illustrated by black and white photographs and one water-color picture done from a photo, for each kind of moth. If possible, she was an even more fervent advocate of moths in this volume than she had been of birds in the earlier one, because she was already feeling keenly the impending end of the Limberlost.

Her next major novel, *The Harvester,* is the story of David Langston, who has educated himself on the cultivation, harvesting, and uses of herbs and other medicinal plants. Porter said that she had modeled him on various people, including her father and Henry David Thoreau, and he is a fine example of integrity and a conservationist at heart. Langston asserts that birds have more to fear in the woods than humans do. He tells the girl in the story,

"No one is going to kill you merely to see if he can shoot straight enough to hit. Your life is not in danger because you have magnificent hair that some woman would like for an ornament. You will not be stricken out in a flash because there are a few bits of meat on your frame that some one wants to eat. No one will set a seductive trap for you, and if you are tempted to enter it, shut you from freedom and natural diet, in a cage so small you can't turn around without touching bars."

The story line is almost negligible, but still full of suspense. Langston dreams of a girl with whom he falls in love; he finds her and rescues her from a brutal uncle by marrying her. As she is ill, he nurses her back to health, saving her life in the process by using a medicine he has created from his own products. As usual, Porter used the sketchy plot as a means to encourage ideals of her own. For example, to landscape his home, he transplants dozens of species of wild plants, so his wife can celebrate every season with the colors and odors of flowers and trees and with the songs of the birds they attract. There is care and conservation in all of this planting and harvesting, so that his herb beds remain full and productive. Clearly, Porter created Langston to project the concept that nature can be used to promote physical health as well as to fulfill our need for beauty.



*Music of the Wild* is less well known than the other books I have mentioned, but it is one of the most significant. The craft of the book is extraordinary, from the detail on the binding to the relationship between word and photograph. Its breadth and detail record a landscape that is now unfamiliar to most of us: virgin forest, small farms cultivated entirely by horse-drawn machinery, and undisturbed marshes. For the most part, it is a hymn of praise of the cycles of nature in forest, field, and swamp, but at moments the tone turns to eulogy, as Porter noted the wildflowers devastated by tourists who left them to die, and the forest that was timbered and then cleared. She worried that land cut so clear would have no shade for animals, no haven for insect-eating songbirds, and no windbreaks to prevent duststorms. Above all, she was concerned about water. If forests are cut and swamps drained, the cycle of rain-evaporation-clouds-rain is disturbed. Paraphrasing Thoreau, she said, "It is truth that man can 'cut down the clouds.' In utter disregard or ignorance of what he will do to himself, his children, and his country, he persists in doing it wherever he can see a few cents in the sacrifice."

There were other ways in which Porter acted out her love of wildlife. She was a founder of the Izaak Walton League, wrote for its magazine, and helped in its efforts to save starving elk in Wyoming. A mutual interest in conservation brought an invitation from President Theodore Roosevelt to visit him at his home on Long Island. She was in great demand as a magazine columnist and speaker, and undoubtedly reached a large audience through these activities.

It was the early novels, however, that actually created that audience and carried her strongest message and thus had the most impact on her public. In *A Girl of the Limberlost,* Elnora sees her landscape diminishing:

Men all around were clearing available land . . . . Wherever the trees fell the moisture dried, the creeks ceased to flow, the river ran low, and at times the bed was dry. With unbroken sweep the winds of the west came, gathering force with every mile and howled and raved, threatening to tear shingles from the roof, blowing the surface form the soil in clouds of fine dust, and rapidly changing everything. From coming in with two or three dozen rare moths in a day, in three years' time Elnora had grown to be delighted with finding two or three. Big pursy caterpillars could not be picked from their favourite bushes, when there were no bushes. Dragonflies would not hover over dry places, and butterflies became scarce in proportion to the flowers . . . ."

This theme of grieving for what is lost and urging the preservation of what remains runs through those early books like a melody, and the counterpoint to it is its reason for being: Porter's impulse to cherish the beauty of nature and to respect its value.

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# TWO WOMEN BOTANISTS OF YOSEMITE NATIONAL PARK

Jessie Kitching



Photo: Yosemite Research Library

*Mary and Donald Tresidder with Half Dome in the background.*

The botany of the high-mountain West has had a host of expert interpreters, many of them women. For some of these women, their family's work has located them where the mountain trees and flowering plants, the birds and animals, the trails and narrow mountain roads are aspects of home. One of these women was Mary Curry Tresidder (1893-1970).

This devotee of Yosemite botany was born to the role. She was a daughter of David Alexander and Jennie Foster Curry, who established Camp Curry in Yosemite Valley in 1899. They set up seven tents to found Camp Curry--the "Camp Curry" sign looks down on hundreds of Valley visitors every summer now. Mary Curry grew up knowing intimately the flora and fauna, the geology and the changing seasons of Yosemite. The bird songs of the Park were familiar to her ears; in later years, when the Christmas bird counts were done in the Valley in the 1950s and early 1960s, Mrs. Tresidder was apt to be among the counters. She earned a master's degree in English at Stanford University and was working for a doctorate at Yale University when, in 1920, she married Donald Bertrand Tresidder.

Tresidder was a Stanford graduate (1919) who later (1927) achieved an M.D. at Stanford but never practiced. Early in his career he was assistant manager of the Yosemite Park and Curry Company which still, under different ownership, controls the accommodations in Yosemite National Park. In 1925 he became President of the Yosemite Park and Curry Company. With such a happy coincidence of background, the couple returned to the Park again and again, to work, to ride and go camping all over the Park, and in all seasons.

When Donald Tresidder died in 1948, he was President of Stanford University. Mary Tresidder had already published her major work, "The Trees of Yosemite; A Popular Account." It is out of print now, but it had a distinguished publishing history and is a gem of a book, a real collector's item, with clear and evocative text and lovely illustrations. Copyright 1932 and 1948, it went into a second printing in April, 1942, a revised edition in June, 1948, and a third edition in 1963.

Some of the excellence of "Trees" is thanks to the artist, Della Taylor Hoss, a specialist in natural history who came from a family of artists and writers. She chose to illustrate the book with 34 black and white linoleum block prints; in her career she did Sumi paintings, color linoleum block prints, and four-color woodblocks of trees of California and Japan. Besides being a favorite technique of hers, the block print way of illustration was a clever way of impressing the foliage silhouettes of the trees upon the memories of the non-scientists whom the artist and writer hoped to reach with their book. Full-page tree silhouettes are strikingly posed against Yosemite cliffs and mountains, or pine cones are carved out in detail.

The writer and artist explain in the preface the origin of the book. "This book began with the attempt of the artist to transfer to paper the distinctive patterns of a few of the pine cones strewn in profusion about the Valley floor; others were added because it seemed a pity to pass them by; and it took definite form at last as a record of what she saw and a guide to the trees commonly encountered in the Yosemite National Park. Working on it has enriched days in the Valley and upon the mountains for both the artist and the author; it is our hope that it may enable our readers to know the trees as friends."

Mrs. Hoss remarked at a 1964 exhibit of her work at Stanford, "My first impression was that all the trees in Yosemite were pines. Mary, in her scholarly

way and out of deep love of nature, taught me differently. From a vague liking for the many trees I saw, I have grown through the years into a 'tree-goof.'"

Brought up in one of the most beautiful and varied national parks in the world, free to explore its five life zones and to watch the greening of trees and the blooming of plants, Mary Tresidder had "a keener vision of the trailside." She firmly grasped the influences of soil, climate, and geology. She was aware of the insects found on the trees and their attacks, for instance, on the lodgepole pine. When she looked at oaks, she probably searched for the acorn woodpecker, but she also thought, "The oaks were the orchards of the Indians, for whom acorns were the staff of life." Or, when she looked at the California Nutmeg, "The Indians used this wood and that of the Incense Cedar for their bows."

Carl W. Sharsmith, the outstanding present-day botanist of Yosemite, remembers, "Mary Tresidder...had an abiding love for Yosemite's wild places and especially for its wildflowers. Her knowledge of the flowers was sound. I recall the several occasions when, at one or another of the Curry Company's High Sierra Camps, I would find by the door of the dining tent a newly-written, lengthy and accurate listing of, and interesting comments on, the flowers to be found in bloom in the immediate area during the week I merely happened to arrive. They were in Mary Tresidder's hand; she had fastened them there."

"Identifying the trees," Mrs. Tresidder remarked, "means checking up on this detail and that, narrowing down, eliminating--until, gradually, the eye automatically recognizes the salient characteristics, even at a considerable distance."

A remarkable thing about "Trees" is the way the author pinpoints the exact locations of tree species, or even tree individuals, within the Park. A stand of sapling Red Firs is below Gin Flat on the Big Oak Flat Road. White Firs rise among the aspens on the northeast shores of Merced Lake. A giant Ponderosa Pine looms near the foot of Sentinel Rock.

And, of the biggest tree of all: "My own most vivid memory of the Giant Sequoia goes back to a camping trip. We came into the Mariposa Grove by some little-used trail that brought us unexpectedly upon the Grizzly Giant. The great tree stood in full sunshine upon the hillside, unquestioned king of all the trees around it."

"A good deal of my childhood was spent under the pines of the Yosemite," she wrote. "There, in lieu of building sand castles and making mud pies, I found zoological exhibits of weird animals in the scales of the great plates of bark of the yellow pine and made 'coffee' from its pollen cones; I rode the elastic young trees as horses and got pitch all over my clothes; I found enchanted hollows in the deep woods."

John Muir called California's Sierra Nevada the "Range of Light" because of the brightness radiated from the light granite rocks. Mary Tresidder added to that definition the open quality of the Yosemite forest: light flashes through the trees; the forest vistas are not gloomy. With the play of sunshine and shadow, colors paint the landscape--in any season. "On a recent winter visit to the mountains I was almost startled at the different nuances of color and shadow among the Red Firs of the forest near Badger Pass, for instance." In an autumn visit to the Little Yosemite, above the Valley, "the aspen leaves turn pure gold in the sunlight; higher they burn with an orange and scarlet flame, making a pattern of Oriental splendor on many a slope."

Mary Tresidder left three principal legacies for Yosemite visitors who feel as she did about the natural beauties of the Park. The first was "Trees of Yosemite." The second was a new High Sierra Camp in a spectacular site where she and her husband and friends had often camped, Sunrise Camp, overlooking the Long Meadow. She supplied the money and inspiration to found the Sunrise High Sierra Camp, with its inconspicuously located tents, its big dining tent, and its rock kitchen. "The Sunrise Camp," she wrote, "was long a dream of mine, as I felt that the Sunrise trail ran through such a beautiful region that it should be made more accessible to people."

Her third legacy was in the form of her botanical notes on Yosemite. She had considered writing a book on Yosemite wildflowers and had kept diaries and field records, but as she neared the end of her life she realized that she would not start the book. Therefore, she made provision in her will for a wildflowers guide.



Photo: Yosemite Research Library

*Donald and Mary Tresidder on a Yosemite Valley Trail.*



Photo: Yosemite Research Library

*Mary Curry Tresidder*

Dana C. Morgenson, as associate of Mrs. Tresidder's and long a nature historian of the Park, was asked to undertake the writing of "Yosemite Wildflower Trails." He organized it by sequences of blooming plants along trails and roads and illustrated it with small color photographs of the major showy plants--a wide field of choice among the over 1,500 classified flowering plants, shrubs, and trees of Yosemite National Park.

The blue of lupine is a special beauty of Yosemite. Great drifts of the tall blue flowers swing along the shores of Merced Lake; along the shaded trail down Echo Creek; and even, thickly, along a trail that was once a road but is nowadays in lupine season a wide blue flowering ribbon in the sunshine down a mountain to the new road near May Lake. More than one species of lupine grows abundantly in the Park. Mary Curry Tresidder pointed out a special high-ranging lupine, *(Lupinus covillei)* "the beautiful silver foliage one," stems and leaves covered with soft hair.

In Yosemite Valley in July a flower in the wintergreen family, called Pipsissewa or Prince's Pine *(Chimaphila umbellata)* flourishes in the talus slopes at the base of the cliffs. Waxy green leaves surround a stalk six to twelve inches high on which a flower stem bears small pink blossoms. This was one of Mrs. Tresidder's favorite flowers.

The park visitor tracking wildflowers can now do so with ease d certainty. Mary Curry Tresidder and her friends, in lifetimes of enjoyable and careful observation, have ensured that.

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Photo: Yosemite Research Library

*Mary Curry Tresidder in later life.*

Our first President reminisces about the fight to put women on Cornell's faculty.



# "IT WAS UNTHINKABLE!"

When 92 years old, Liberty Hyde Bailey broke his leg in a revolving door while he was attending the American Association for the Advancement of Science Conference in New York City in 1950. He had a plane ticket to Africa in his pocket. There he planned to botanize in the only continent he had never visited. Abruptly his field studies came to an end, and he spent the last three years of his life in Ithaca, walking from his home to the Bailey Hortorium to study specimens he had collected, or to the lobby of the Statler Hotel, where he reminisced about the early Cornell, the nature study movement, the problems of the environment and the events of his long life.

Fortunately, Dr. George Lawerence, Director of the Hortorium during those years, recognized the importance of this great fund of oral history and arranged to interview and tape him. For many years the tapes were forgotten; then Michigan State University, Bailey's original alma mater, heard of them and asked to have them. Transcribing them was a monumental task. The equipment that was used in 1951-53 was either in the scrap yard or a museum!

Jane Taylor of the MSU staff brought some of the tapes to the *Gathering of the Elders* this spring and those in attendance were privileged to hear the voice of the first president of ANSS speaking with conviction about the "Holy Earth" and our responsibility to it. She offered to abstract Bailey's comments on women for this Journal. In mailing it she says, "During his tenure as professor of horticulture and Dean of the College of Agriculture at Cornell, Liberty Hyde Bailey initiated his pioneering effort to elevate the status of women in the college. Bailey was the first professor to hire a woman stenographer, and was responsible for bringing women to the professorship status with comparable pay."

Here is a transcript made of a portion of this taped interview. The original audodiscs, made on a Gray Audograph, are in the G. Robert Vincent Voice Library at Michigan State University, Lansing.

* * * * *

***Lawrence:*** *Do you want to tell about these women that you had that were not professors?*

***Bailey:*** *You heard me speak of Mrs. Comstock.*

***Lawrence:*** *Yes.*

***Bailey:*** *She was gone before you came . . .*

***Lawrence:*** *Yes.*

***Bailey:*** *She was a remarkable woman. And she came here and graduated at Cornell from Cattaraugus County, and she married a professor or assistant professor of entomology. His name was Comstock. Comstock had a B.S. degree only. But he turned out Ph.D.'s. And they were well trained. Comstock, I suppose, is our greatest professor of entomology in this country. AND this young woman--Miss Botsford--had facility with a pen and she could draw. And this professor, in whose class she was, got her to draw pictures of insects. And he married her. She was a gracious woman with a high social sense, admired and loved by everybody. And she became a wood engraver in order to engrave on wooden blocks the pictures that Comstock wanted. And she illustrated his books and she became a member of the Wood Engravers Society.*

*Well, Mrs. Comstock, then, had made it proper for the professor to bring his wife to social gatherings. And there were some women students that came here. They were looked at more or less askance — that is, in agriculture. They'd been here before, but mostly of the old maid type. Largely that way. And we had to have women teachers and I got Martha Van Rensselaer. Martha Van Rensselaer was known to Mrs. Comstock. And she came to me one day, Mrs. Comstock did, and said she knew that I was looking the country over for women who might come here and help in our teaching. She said there was a remarkable woman in Cattaraugus County who has been superintendent of schools and she's an excellent teacher. "And if you're looking for a woman who can help you here, I suggest that you take her." I wrote to Martha Van Rensselaer to come here to see me. So I paid her expenses. And I was impressed with her. Presently, her brother came. Became a citizen of Ithaca and died about a year ago.*

***Lawrence:*** *Yes. I know where he lived.*

***Bailey:*** *Well, I was not impressed with him. Then I had another woman, the name of Flora Rose, who was a college graduate. She was a better prepared woman--professionally-- than Martha Van Rensselaer. She had more collegiate training and the question began to come up in the University could those women ever sit on university faculty? Why, of course not! The whole question was taboo! You couldn't bring it up. But I did recommend to the President — I nominated those two women as professors. And that aroused the opposition of the faculty. Why, it was unthinkable! And . . .*

***Lawrence:*** *Did the faculty at that time have to approve elections to the rank of professor, or not? Or were they merely making an issue of this particular case?*

***Bailey:*** *It was an issue of this particular case, but then, then we had a faculty senate that was organized under Adams, under whom I came. I liked the idea of the senate, which could make a recommendation to the faculty, don't you see. I do not remember whether I had got the permission of Adams to recommend the women be allowed to sit on the faculty. But it was opposed. It had been discussed several times. I didn't attend the meetings of the faculty. I quit!*

*I made up my mind that if I was a responsible attendant of the faculty, that I'd be limited in my operations. And the members of the faculty were decent people. And it was decided after a while — I kept hearing it from my friends, you know — that they couldn't make the opposition on the basis of sex. That wouldn't be decent. It wouldn't be gentlemanly.*

*I kept track of the situation as it was discussed and I had my scouts out, who would come after these faculty meetings and report to me what had been said and what had been done. I knew where every man stood. And finally, the issue came down merely to this: these women did not receive enough salary to bring them into the professorial stage. And the last time it was to be discussed, I did not go to the faculty . . . I did not intend to go to the faculty that day. I wasn't wasting my time. But I had recommended to the President a new scale of salaries for the women.*

***Lawrence:*** *Prior to the meeting . . .*

***Bailey:*** *Yes. DeGarmo came around and said — he was Professor of Education — he said, "Now, I'm anxiouis*

*about this meeting today and I think that you're going to be defeated." He said, "Won't you please come up and sit in the meeting?" And I told him, yes, I'd waste my time one day. So I went up rather late to the faculty meeting so I wouldn't waste too much time and went in and sat near the door. This question came up. And DeGarmo looked over to me, to see if I was taking note of what was going on, and that's what I was there for. And finally the vote was to be taken of these persons not having the salaries of professors who therefore were not eligible to be faculty members. And the vote was to be taken. DeGarmo got up and he said, "Fortunately, the Dean of the College of Agriculture is [present] today. Perhaps he can tell us what the salaries are of these women." I got up and didn't say a word, except to tell them what the salaries were. They were professor salaries. The whole thing collapsed! And the battle was won without any arguments from me.*

* * * * *

Unfortunately the printed word does not convey the conviction he felt toward the college's injustice to women.

Bailey hired Anna Botsford Comstock to visit schools in rural districts and introduce a program of nature study to create an awareness and appreciation of the natural world, as part of the Cornell University Extension Program.

While doing that she wrote a series of leaflets entitled *Home Nature Study Course*. After several years she selected the best parts of these and used them to write the *Handbook of Nature Study*. Cornell University refused to publish it, saying that it would not be successful. The State of New York also turned it down. Finally her husband, John Henry Comstock, said to his friend Slingerland, "Anna has done so much for us, even though we may lose money we should publish her book." (She had done all the drawings of insects and other arthropods for his books).

Of course, the book was a huge success. It became a standby of Cornell University Press after the Comstocks died, providing a major source of income for many years, enabling Cornell to publish books on less popular subjects. Today it is still a superb reference book, providing both information and teaching techniques on many topics.

H.R.R.



# NATURIST OR NATURALIST?

Margret Nathanson

While browsing in a secondhand bookshop recently, a book with the strange title, *American Naturists*, caught my eye. Being a naturalist, I thought it must be a "typo", but upon closer inspection I realized that the author, Henry Chester Tracy, meant exactly what was printed, and as will be revealed, he was quite serious and deliberate in his usage of the word "naturist". It is a first edition published in New York by E.P. Dutton & Co. in 1930.

The book contains short sketches of 21 Americans, nineteen men and two women who studied or wrote about nature. Among the familiar names are John and William Bartram, Alexander Wilson, Audubon, Thoreau, Burroughs, Muir and Beebe. The two women's names, Olive Thorn Miller (a pen name!) and Mary Austin did not ring a bell of recognition and it is not my purpose to enlighten anyone about them regarding the contents, literary or academic.

What I wish to address is what Tracy means by naturist and his curious explanation of why he wrote about so many more male than female "naturists", particularly since he claims to have "not the slightest bias in favor of men as nature writers".

Tracy wrote "A naturist writes for persons with fine feelings and emotions, not for devotees of graphs and charts—it is odd that even in book shops 'natural history' and true nature literature are inextricably confused". At another point he refers to naturists as "closet naturalists". The author views the naturalist as one who upon seeing a "new" wildflower will note its color, number of petals, sepals, stamens, pistils, type of inflorescence, etc. The naturist on the other hand, is not satisfied with cold scientific observations, but is impelled to mention the particular shade of blue, the way the leaves rustle in a slight breeze, the fragility of the flower as juxtaposed to the solidity of its neighbor, a sturdy fern.

Citing Thoreau and W.H. Hudson as prime examples, Tracy tells us that male naturists lack interest in all things material. They are perfectly content to live simple lives in the outdoors contemplating and writing about nature, not burdened by mundane desires of economic security. They are the typical naturists. Women, he claims, are by reason of their gender, involved with hearth and home, preferring the more personal and practical indoor world of materialism to impersonal nature. However, our author does offer optimism when he states that since woman has already "rid herself to a great extent of masculine domination" she may one day "be freed of the compelling necessity to possess all kinds of convenient and useful things." Patronizingly he ventures the bold prophesy that woman may one day become a major influence in the nature movement, but adds that this will only happen when she contributes original perceptions stemming from her own feelings.

I do not wish to be too hard on the "unbiased" Mr. Tracy, clearly a product of his time. Undoubtedly he is sincere when he so poignantly asks the reader, "After all, is not nature our 'mother'?" Today Mr. Tracy might be labeled a male chauvinist for his narrow views. For not only during his lifetime, but for a great many years before, outstanding women naturists were active in many fields—Mary Howitt, Anna B. Comstock, Nelje Blanchan, Julia Ellen Rogers, Margaret Armstrong, Ann Morgan, Augusta F. Arnold, to name just a few. It hardly needs stating that today as many women as men are contributing original work in all aspects of natural history. Rachel Carson, Annie Dillard and Jane Goodall spring to mind as examples best known to the lay reader.

Still Tracy deserves credit for making that distinction between naturists and naturalists. There is no question in my mind that every working naturalist started out with a special awareness and appreciation of that wonderful varied world of the wild, in short, as a naturist. By the same token, each naturist has within her or himself the making of a naturalist; one enhances the other.

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**MARGRET NATHANSON,** *Naturalist with Nassau BOCES and Volunteer Naturalist at Muttontown Preserve, Nassau Co. Museum System, Long Island, N.Y.*

# THE WOMAN WHO FOUNDED HAWK MOUNTAIN

Jack Padalino

When I picked up the most recent Hawk Mountain annual report, what caught my eye was President Joseph Taylor's comment that from the very start in 1934 much interest was aroused by the efforts of Rosalie Edge and Maurice Broun to establish the first hawk sanctuary and educate the public about birds of prey. Maurice Broun, whom I had met through Francis J. Trembly, never fully described Mrs. Edge's involvement in the plight of the raptors in his classic book, *Hawks Aloft*. Nor had Michael Harwood, who in his book, *The View From Hawk Mountain*, identified Mrs. Edge as one of the leading lights in the conservation movement, champion of the Emergency Conservation Committee (ECC), and noted that an admirer described her as "the only honest unselfish indomitable hellcat in the history of conservation."

Rosalie Barrow Edge is the woman who founded Hawk Mountain. Jim Brett, Hawk Mountain's current curator, dedicated the Golden Anniversary edition of *Hawk Mountain News* to Mrs. Edge. It was not until long after Mrs. Edge's papers were donated to the Sanctuary that Jim was able to sift through her personal files and update the story of her involvement.

Mrs. Edge founded Hawk Mountain Sanctuary in September of 1934 when she purchased from the owner of a local tombstone company the option to buy 1,393 acres atop Blue Mountain (Kittatinny) near Drehersville, Pennsylvania. The cost of that option was $500.00; however, it was not until December of 1935 that an additional $3,500.00 was raised to close the deal. For about $2.85 an acre and considerable effort Hawk Mountain became the world's first sanctuary dedicated to education about and preservation of birds of prey.

The results of Mrs. Edge's labor in the vineyards of conservation were widespread and monumental. She is also given principal credit for establishing Olympic National Park. The press described her as "hard hitting, fearless, independent, and withal modest," and "the Paul Bunyan of Conservation" as she strove to keep American nature in pristine condition.



Duck Hawk

Mrs. Edge, who was also an avid suffragist, is reported to have gotten into conservation by way of birding at her summer place in Rye, New York. Following the passage of the 19th Amendment to the Constitution and her preoccupation with women's rights, it is said that "...a violent bird fever soon replaced her feminism." When living in New York City Mrs. Edge birded in Central Park, where she met and came to know members of the staff at the American Museum of Natural History. One of the more significant events in conservation and natural history took place when Mrs. Edge and the celebrated zoologist Dr. Willard Van Name probably met while birding in Central Park. Dr. Van Name, a Museum professional, authored "A Crisis in Conservation," which was an electrifying pamphlet about bird conservation. The publication had an explosive effect on natural science and was highly unpopular in Audubon Society circles.

The social leader, Mrs. Edge, and the man of science, Dr. Van Name, formed a conservation partnership that was to last for more than a quarter of a century. At the outset of this partnership Mrs. Edge founded the Emergency Conservation Committee and used pamphlets as the medium to influence opinion and motivate people to action. In addition to "Crisis in Conservation," other ECC pamphlets that focused on birds of prey were, "Common Hawks of North America" and "Eagles in Wonderland." The subject of the eagles publication was eagles versus children and the public versus eagles. Mrs. Edge viewed eagles and owls at the time as the most viciously maligned of wildfowl. She was particularly down on loose talk about eagles' attacking children, and identified as perpetrator of this function a McGuffey's Sixth Reader issued in 1857, which contained a lurid description of an eagle carting off a child.

Among the three greater enemies of nature according to Mrs. Edge back in 1929, was the Audubon Society, of which she was a life member. For twenty years she conducted an ongoing feud with the Audubon Society. This feud stemmed from Dr. Van Name's "A Crisis in Conservation," which she took to the 1929 Annual Audubon Meeting and demanded to know what the Society planned to do about the endangered vanishing birds. The resulting uproar was reported to be "...unique in the Society's history." At the next annual meeting of the Society Mrs. Edge resolved to be committed to a lifelong program of heckling the Audubon Society and clung faithfully to that feeling. In November of 1962 at the National Audubon Society's annual meeting during the banquet proceedings, Carl Buchheister, Audubon President, introduced Mrs. Edge to the guests as "...one of the prominent figures in North American conservation." Mrs.

Edge received a standing ovation.

After learning of the slaughter of hawks in Pennslvania, through efforts by Oliver D. Schock, a writer from Reading; Henry Shoemaker, a conservationist; George Sutton, Pennsylvania's State Ornithologist; Richard Pough, Philadelphia ornithologist; and Henry H. Collins Jr., a regional representative of the Hawk and Owl Society, in August of 1933, Mrs. Edge was galvanized for action. On behalf of the Emergency Conservation Committee she met with Dr. Frank Chapman, Ornithologist at the American Museum of Natural History and leader in the National Association of Audubon Societies and urged that Audubon purchase Hawk Mountain. Mrs. Edge later wrote that "The suggestion seemed to be cordially received." Later that year in October Dr. Pough brought up the Hawk Mountain purchase before a joint meeting of the national association of Audubon Societies, The Linnean Society of New York, and the Hawk and Owl Society. According to Mrs. Edge the proposition was received with enthusiasm and she was led to believe that NAAS would purchase Hawk Mountain.

No action was taken by the joint group that year to purchase the mountain. Hence, Mrs. Edge, on June 3, 1934, met with Richard Pough and a local realtor in Pennsylvania, leased the property for one year with the option to buy. Dr. Van Name provided the initial $500.00 fund for the lease, under the condition that it would be repaid. (He later donated the money toward the purchase.) Maurice Broun was then engaged to post, patrol, and guard the sanctuary.

What then took place can be characterized as a rock road of politics within the conservation movement to acquire Hawk Mountain. Mrs. Edge, through ECC, still had to raise $3,500.00 for the sanctuary property. Jim Brett reported that the fund-raising transcended into a not-so-gentle battle for the control of Hawk Mountain, "A symbol of the larger battle for the Soul of the conservation movement." ECC was not intending to manage Hawk Mountain by itself. Mrs. Edge preferred to develop a joint management arrangement between and among the Hawk and Owl Society, the New Jersey Audubon Society, and the Delaware Valley Ornithological Club (DVOC). From Mrs. Edge's perspective one proviso was to be firmly held: it was undesirable that "...the Audubon Association shall have a controlling voice in the policies that shall regulate the Sanctuary at Hawk Mountain."

The battles continued to be waged; principals included Dr. Witmer Stone of Cape May fame, the DVOC, The Linnean Society, and Audubon, which offered $1,200.00 and which Mrs. Edge accepted. DVOC was interested in Audubon control of the mountain. By 1935 the Audubon board again voted to cover the Sanctuary's costs for a year. Brett noted that by then, though Mrs. Edge was still struggling for funds, success was in sight. Dr. Van Name converted the loan to a gift and contributed an additional $250.00. Ding Darling, Chief of the Fish and Wildlife Service, chose not to get involved in internecine warfare and made a contribution in the interest of forgetting personal differences in zeal for a common cause. Contributions continued to flow to ECC from visitors to the mountain. Pamphlets and publicity articles by Mrs. Edge about the plight of hawks and the new sanctuary/school in the clouds also generated contributions. The goal was reached in December of 1935 with a contribution from the local Janssen Foundation of Reading, Pennsylvania.

Another two years of frustration followed while the legal obstacles involving land titles were removed. At long last, in September of 1937, Mrs. Edge wrote to her attorneys, "I wish that you would proceed immediately to form a corporation to hold 'Hawk Mountain'. If it would be possible, a satisfactory name for the corporation will be 'Hawk Mountain Sanctuary Association'."

The viability of HMSA is reflected in President Taylor's most recent report, which reflects $393,061.00 in total revenue and support, a competent Board of Directors, and dedicated staff in support of their mission in conservation.

Rosalie Barrow Edge championed the cause of conservation through her leadership of the Emergency Conservation Committee and Hawk Mountain Sanctuary. She built a broad base of grass-roots support among conservationists to insure the presence of the school in the clouds. She was President of HMSA from its charter in 1938 until her death in 1962 at the age of eighty-five. According to Jim Brett, "...her driving spirit continues to motivate the Sanctuary today." The principle for which she stood, "conserving nature whole," currently guides the conservation movement.

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Osprey or Fish Hawk

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# THOSE WHO MADE IT THROUGH THE DARKNESS: A REMINISCENCE ABOUT MALVINA TRUSSELL (1898-1987)

Lorne Kotler

"What does it mean to own a piece of this beautiful world? Do we too often think of ownership as merely a means for making a quick buck; does ownership give one a license to take everything possible from the land without returning anything to it? To feel true ownership one must have understanding and appreciation. If we are to own one tiny spot of this wonderful world we must nurture it, enjoy it, share its beauty with others, and finally pass it along to another generation more beautiful than when we found it."

Malvina Trussell, who served as President of the American Nature Study Society (1955-1956) and as editor of the ANSS Newsletter (1950-1955), wrote these words for *Nature Study* in January 1982. Malvina did not simply express these words; she lived them as well--she nurtured what she touched, enjoyed it, shared its beauty with others, and did finally pass it along more beautiful.

Malvina said of her life, again for *Nature Study* (1983):

"My life span has paralleled that of the American Nature Study Society. I was nine years old when ANSS was born. At the time Bailey was writing 'Universal Service' and guiding ANSS through its early years, I was beginning my teaching career in a one-room rural schoolhouse in Southeast Georgia.

"No one could have lived through a more exciting period of history. I watched transportation move from oxcarts to space travel, communications evolve from the massive battery- operated telephone to TV and radio astronomy, and I have followed our knowledge of the organic world from the discovery of the atom to our present fear of DNA manipulation.

"As exciting as these explosions of knowledge have been, even more exciting was the opportunity to personally share the enthusiasm of those who broke through the darkness: Hegner in parisitology; Thomas Hunt Morgan in gene mapping; Harlow Shapley in spotting our place in the Milky Way. These were some of the people I pursued at AAAS and ANSS meetings from 1925 to 1965.

"I have always admired those who work at breaking down walls of ignorance; I despise the behavior of those who prey on ignorance. I was fortunate to have outstanding environmental scientists as teachers: Needham in Entomology; Wiegand in Botany; Allen in Ornithology; Wright in Vertebrate Zoology. I was also fortunate in having great teachers who helped me put things together: Anna B. Comstock; Liberty Hyde Bailey; W. C. Muenscher; Eva Gordon and E. Laurence Palmer.



*Malvina Trussell*

"Today in retirement I am following the advice of Paul Newman by 'joining groups that make their presence felt.' These groups have a deep knowledge of our 'Holy Earth' and are fighting to protect it from despoilers."

Malvina's 88-year lifespan--through the appearance of the automobile, the airplane, and the rocket, through a constitutional amendment to guarantee women their civil rights and later one to do the same for blacks and other minorities, through two world wars, through two visits of Halley's Comet--strikes me as an evoloution toward a greater and greater understanding of balance, harmony, and grace. It is balance in the sense of striving for moderation in all things, from how we apportion our time to what we eat; harmony in the sense of discovering how nature works and doing our best to live in its flow ecologically, psychologically, and sociologically; grace in the sense of cultivating a faith in the essential order and meaning of life, regardless of what might befall us.

By her very demeanor—her steadiness, her laughter, her thriftiness, her promotion of self-reliance and good works, her love—Malvina brought me and many, many others into this evolution. She confirmed it when she faced her terminal illness in 1978 not with anger or defeat, at least never outwardly, but with thanks for the devotion of her friends and relatives, with appreciation of her 43-year teaching career followed by an active, engaging retirement of 23 years, and with conviction in the goodness of people, the integrity of the universe, and the righteousness of a divine spirit.

When Malvina retired to Miami from Florida State University in 1964, she had passed along her enthusiasm for natural history to some 17,000 students. She herself became interested in science as an undergrduate at Georgia State College for Women (B.S., 1925), but it was only when she went to Cornell University as a graduate student that she focused her interest on natural history.

She helped Arthur A. Allen make his famous series of records on bird songs, and after getting her master's degree in 1931, she introduced him and Paul Kellogg to the frog music of the swamps around Statesboro, Georgia, where she taught for twenty-five years as head of the Biology Department at Georgia Teachers College (1927-1951). "The Voices of the Night" was the record that resulted.

As Malvina progressed to a Ph.D. degree in natural history (1946), she concentrated on the large volume of work in natural history that had taken place in the South. Florida State University, where Malvina developed and headed the Science Education program (1951-1964), published her survey in 1955 ("A Historical Survey of Some Representative Natural Science Work Done in the Southeastern United States from 1590 to 1900," FSU Studies, No. 22).

A strong concern of Malvina's was the gradual liquidation of the wet-pine-barrens stretching along coastal areas from Louisiana and the southeast to New Jersey. She pointed out that those who wanted to keep fires out of the woods were responsible for one assault upon the pine-barrens, since dozens of bog plants will not survive in the shade of the hardwood growth that takes over when there is no fire. She discussed also the problems associated with land drainage and with highway building and "road beautification" programs. In "The Wet-Pine-Barrens: A Habitat in Miniature" (*The American Biology Teacher*, November 1958), Malvina described her attempt to solve—in her own backyard—the dilemma she perceived.

"I would like to mention one possible solution to our dilemma: bring the habitat to the schoolyard. In my attempt to do this, I have experimented with a wet-pine-barren which can be developed on any school ground or even in a small backyard as I have done. I have grown at least fifty species of bog plants in an area fifteen feet long and not more than four feet at its widest part, with a depth varying from five to ten inches. I have used a cement bottom and sides to simulate the hardpan which prevents draingage in the natural wet-pine-barren. I have duplicated the soil conditions, in some instances, bringing in soil from the natural habitat."

Along the same line of interest, Malvina was instrumental in forming the Tall Timbers Research Station, a 2,800-acre plantation near Tallahassee, Florida, set up for long-range research on the effects of fire on plant and animal life. She completed an extensive inventory of the herbaceous and small woody pants on 84 half-acre plots on the plantation.

Truly a pioneer—as a woman and a teacher—in the field of science education and environmental preservation, Malvina was elected Fellow of the American Association for the Advancement of Science (1957) and became the second person in sixty-seven years to receive the American Nature Study Society's Distinguished Service Award (1967). There are more recognitions and achievements that I could list; the important point is that her accomplishments all point to an unwavering desire to serve. Her love of, and respect for, nature and science grew out of her even deeper feeling for humanity; she was undoubtedly a forward-thinking individual always concerned with human rights, a significant one of which she believed was the right to know and appreciate nature.

With this spirit, Malvina was an environmentalist in the broadest—and, I think, most meaningful—sense of the word. That sense is the "holistic" view of the world. By this view, she saw our need to preserve and protect the natural environment wholly in the context of promoting a healthy psychological environment, a sane sociological one, and a harmonious spiritual one. In her 1986 Christmas letter (the last in a 49-link chain), Malvina wrote, with an optimism that undergirded her facing of any environmental concern: "The beauty of this solved problem [relating to certain aspects of racial integration] lies not in the statues, streets, roads, and parks honoring those strong leaders who led us through that dark period . . . the beauty is in lives changed. This is a continuously unfolding beautiful world."

And in that world, Malvina had a great capacity for recognizing what she called "mountaintop experiences" on the flat road of the ordinary and the everyday. There, I think, is her greatest legacy. She gloried, really gloried, in the sight of a hummingbird, the scent of a rose, the sound of a child laughing. She found the words of a friend's letter to be as palpable as the friend's physical presence. She giggled over a midnight picnic in a parking lot after her second viewing of Halley's Comet; her weak vision wouldn't let her see the comet in the sky, but this time she cared more about the camaraderie of the picnic on the ground anyway . . . .

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**LORNE KOTLER** teaches English and works with Instructional Computing in the Division of Educational Technologies at Miami—Dade Community College. He was a close friend of Malvina's for ten years.

The National Science Teachers Association will meet in Atlantic City December 14-16, 1989. Jack Padalino is urging ANSS members to present programs. Proposals must be submitted by January 15, 1989; for forms and further information, contact Joyce Swartney, NSTA Program Coordinator.

Associate Dean
Faculty of Natural and Social Sciences
Buffalo State College
1300 Elmwood Avenue
Buffalo, NY 14222

Further details will be provided in the ANSS December *Newsletter.*

**BLUE CRABS**

She rests in the cradle of his legs

He carries her to the bed of eelgrass
He stands high on his legs
a shelter for her undressing
her slipping out of the shell

She is ready
her pores open

Gently he turns her over
Only once will she ever look up
and feel a mate's entry
Her new-shapen abdomen
folds around his back — for hours

Even after
he is haven
for her final hardening



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# COLLIER GLACIER

Ruth Hopson Keen

I first heard of Collier Glacier in the 1950's when Dr. Ruth Hopson (Keen) brought pictures to an ANSS meeting. Ruth was very active in the Society at that time. She served as president in 1954 and again in 1961.

In the summer of 1953 she broke ground for women by obtaining a job as a Ranger-Naturalist in the National Park Service when the idea of women rangers was revolutionary indeed.

Her study of Collier Glacier has been published as a pamphlet by the state of Oregon and she is currently working on a book about her discoveries with a camera.

It seems most appropriate that her more than half century study should occupy the center spread of this Journal.

*In the summer of 1933, I saw a glacier for the first time — **Collier Glacier** — and it became an important part of my life. At that time there was no lake in the lower part of the glacier. My first photograph of the glacier was taken the next summer, 1934. In fact it was the lake, which has not been there previously, that caused me to take the photograph. Collier Glacier lies between the North and Middle Sisters in the Central Cascades of Oregon. The setting is magnificent! The region is entirely volcanic. Cinder cones to strato-volcanoes make up this part of the cascade chain that extends from southern British Columbia to northern California.*

*In Yosemite in the summer of 1936, I chanced to meet Dr. Francois E. Matthes, then chairman of the Committee on Glaciers of the American Geophysical Union. I showed him my photograph of Collier Glacier and he told me that the glaciers of the Cascades were getting smaller and suggested that I keep a photographic record. When I returned home, I made the trip to Collier Glacier and started the series. I have not been able to go every year, but most. My last trip was in 1985. Friends have taken pictues for me some years when I could not go. From McKenzie Pass, three trails lead to the glacier; they average about 7 miles and gain 2000 feet in altitude.*

*The U.S.G.S. Quadrangle of the Three Sisters — 1932 — shows Collier to be about one-and-a-half miles long by three fourths of a mile wide. The altitude at the snout of the glacier is seventy-four hundred feet, and at its summit, nine thousand feet. Now it is less than half that length, and has lost at least half of its thickness. Because I have found ice under the rock cover of the eastern lobe near the former snout of the glacier, I believe that ice still lies under the rock cover of the lower half of the glacier.*

*continued*

# Collier Glacier *A photographic study that spans 53 years.* by Ruth Hopson Keen

It has been a rare privilege to follow the changes in Collier Glacier for so many years, and to keep a photographic record of it. These eight photographs show the most significant changes in the glacier.



September 19, 1934

The lake in the foreground was newly formed. Before 1934 the glacier had extended to the terminal moraine, and White Branch, the stream that drained the glacier, had emerged from under the snout. The ice islands and peninsula, veneered with rock debris, were part of the glacier. Some of the islands were domed pressure ridges, proof of the force of the flowing glacier. Glacial flour in suspension in the water gave the lake the characteristic milky aspect.

A medial moraine extended onto the glacier from the middle western side (right). Above this, the steep ice slope marked a former through glacier that connected with Renfrew Glacier on the Middle Sister. Ice pyramids, protected by a cover of loose rock, were clustered in the lower eastern (left) corner of the glacier.

Notice the height of the lateral moraines on the eastern border of the glacier.



September 25, 1938

The lake was larger. The peninsula was gone. The islands were now of two types: Those still connected to the glacier under the water, and icebergs floating in the lake. The eastern lateral moraine extended higher above the glacier, indicating loss of glacial ice.



1940

This was one of the two years of maximum size for the terminal lake — Collier Lake. No islands remained. An overhanging cliff thirty feet high or more in the western lateral moraine revealed the ice core of this moraine. The eastern lateral moraine had begun to slump onto the glacier. The stream that drains the glacier had formed a delta where it entered Collier Lake.



July 23, 1942

An unusually heavy snow fall during the previous winter and a hot spell in early July combined to cause significant changes in the glacier. The lateral moraine to the east stood high above the glacier and had slumped and slid onto the glacier as the ice core had continued to melt. The lower slopes of the western moraine had become less precipitous. But most exciting, the flood of the meltwater in the lake had caused it to overflow the moraine dam and to cut a gorge from the outlet, disrupting the course of White Branch for miles down its valley. The resultant lowered local base level had allowed the master stream at the east of Collier to dissect its delta, and had revealed it as a veneer of rock debris covering the ice. A new delta had begun to form at a lower level beyond the old one.



July, 1987

There was little change in the glacier since 1985. Although this was earlier in the year, more of the large snow bank on the western lateral moraine had melted. The ridge between Middle Sister and Cirque Rock had more snow, possibly indicating increased snow on the upper glacier.



August 21, 1985

Over the years rock debris from the adjoining mountains and moraines had covered almost two-thirds of the glacier. Some of the ice that held the moraines together had melted allowing them to slump further onto the glacier, completely covering the lower glacier. Much of the ice there had melted, possibly all of it, but I believe there is still ice protected by the rock cover. The remaining moraines still stood high above the glacier.



August 13, 1969

Between 1948 and 1969 dramatic change had taken place in the lower half of Collier Glacier. The delta had almost filled Collier Lake and rock debris from the lateral moraines had covered the lower glacier. Since 1961 there was no White Branch! It was dry. The stream that drained the glacier turned east, where it continued out of the picture to disappear in a crevasse that opened. Nobody knows where the water went after that! The glacier was shrunken from melting and evaporation that exceeded the annual build-up from precipitation. Little White Branch had formed a new erosional pattern on Collier Flat. Much of the lateral moraine had slumped onto the middle glacier.

I named this stream Little White Branch, the crevasse. Melthole, and the filled Collier Lake, Collier Flat.



August 27, 1948

The straight line deposits west of the slumped eastern moraine were crevasse fillings that were exposed as the ice that formed the crevasse had melted. The delta was enlarged and its pattern changed by melting and erosion.

*NOTE: All the photographs, except July, 1987 were taken by the author. July, 1987 is by Nan Hage.*

# WOMEN OUTDOORS: A NETWORK FOR LEADERSHIP

Nancy Franz

In several contemporary and historical cultures women played a major role in developing and maintaining the group's earth or environmental ethic. In the United States, Women Outdoors, Incorporated is attempting to carry on this tradition. This nationwide organization of volunteers has a threefold purpose:

— To create a supportive network which encourages women to expand their leadership and outdoor skills;
— To build a network in which women can get in touch with other women who share similar interests and values;
— To encourage an ethic of stewardship of our earth.

Women Outdoors, Incorporated was founded in 1980 by a group of women in the northwestern portion of the country. President Susan Moore states, "These women had a clear vision of ways women could grow by bonding together in their respect for the outdoors." The membership now includes every state in the nation.

Members develop their outdoor skills and environmental ethic individually, in local groups and on the national level. As individuals, members can apply for leadership development scholarships and contribute to the Women Outdoors Magazine. The scholarships help deserving women explore their leadership skills and outdoor interest through formal environmental and outdoor education schools, symposiums and trips. The Women Outdoors Magazine is published quarterly and has been in print since the formation of the organization. It includes input from the Board of Directors, editorials, articles on leadership, women and the outdoors and environmental concerns, poetry and illustrations submitted by members. The magazine is also utilized to transfer important organizational information to members and to help women's and outdoor businesses network.

Local participation of Women Outdoors members takes place through regional groups. These groups are coordinated by volunteer regional contacts. Regional contacts are members of the organization, are listed in the magazine, respond to inquiries about the organization, contact new members, conduct at least one quarterly meeting or event in the region, keep contact with the national Board of Directors and take precautions to be sure local activities are conducted safely and reinforce the goals of the organization. Activities in most regions take place monthly and range from backpacking along Lake Superior to whale watching in Massachusetts or fishing in Colorado. Many groups also conduct public service activities such as maintaining a local hiking trail or conducting public environmental education workshops. On the local level women develop leadership skills and other talents by setting up and leading trips and activities and producing local newsletters and retreats.



On the national level members have the option to participate in the annual Women Outdoors gathering held each spring in the northeast. The event offers women a large selection of workshops, speakers, art and socialization related to women and their connection to the earth. Members of the Board of Directors are elected and an annual report of the organization is also part of the program. National level involvement is encouraged by being a part of the Board or its support staff or assisting with the annual gathering.

Starting a regional Women Outdoors group requires a minimal amount of energy. The national organization provides start-up grants for new groups as well as tips on promotion and promotion materials. An organizational meeting usually includes information on the organization, an educational program and a planning session for trips and activities. Groups then report to the Board on a quarterly basis about their local activities.

Women Outdoors, Incorporated is greatly concerned with the issue of safety of outdoor experiences. A set of trip guidelines is given to trip leaders, trip leaders are urged to participate in a group liability insurance policy and each participant signs an assumption of risk statement at every event. These precautions have enabled the organization to conduct effective, enjoyable and safe programs.

One of the most important elements of the organization is its efforts to promote earth stewardship. One member heads up many of the activities in this area on the national level. Each trip leader is urged to include discussions and "hands-on" stewardship activities in each trip. The national gathering focuses heavily on stewardship. Earth stewardship is a constant theme in all aspects of the organization.

A final important aspect of Women Outdoors, Incorporated is the opportunity for women to try new approaches to enjoying the out-of-doors in a supportive environment. Women working and playing together in the natural world provides healthy options in the physical, emotional and spiritual realms. Time in the natural world away from the pressures of everyday life keep women motivated to really be women outdoors.

Women Outdoors, Incorporated may have a group in your area. To discover the location of your local group or to join, contact:

Women Outdoors, Incorporated
Curtis Hall, 474 Boston Ave.
Medford, MA 02155

*Author Nancy Franz is the regional contact for Wisconsin Women Outdoors. She has led backpacking, biking, camping, snowshoeing, and hiking trips for Women Outdoors. She is employed as an Associate Professor of Youth Development with the University of Wisconsin-Extension. She trains youth and adults throughout the state in environmental education and leadership programs. She can be contacted at Route 1, Box 10, Washburn, WI, 54891.*

# DR. ORRA A. PHELPS, NATURE EDUCATOR

Mary Arakelian

At the Adirondack Mountain Club's Nature Museum sun sparkled garnet and deep blue flecked anorthosite can be turned in your hand and identified using guide books on hand. A terrarium with club and sphagnum moss, partridge berries and little beech ferns wafts "Wood's Duff #1." The aquarium's polywogs and aquatic plants charm a curious child and the vespidae wasps' nest hangs just close enough for parents and children to feel and inspect its papery walls. The stuffed owl can be "petted and poked" and little holes on the woodpecker-riddled log beckon little fingers. The collection goes on with last year's snake skin, feathers, cones, mushrooms, lichens and more.

In 1967 Dr. Orra Phelps, nature educator and physician, started this museum, at first out of her car, then from a tent, and finally inside the building she helped design. During her ten years as the club's naturalist/ranger, she also started its Natural History Program, which today continues to educate second and third generations of her "families" as well as thousands who never knew her.

"Doc" loved all outdoors and those who were with her on the trail or in city lecture halls came to share her zeal. She devoted more than half a century to the preservation of the majestic Adirondack State Park and to the education of thousands through her nature hikes, slide shows, lectures and writing.

On the trail, with twenty or so hikers hanging on her every word, she'd teach how the soft feel, aromatic smell and glistening deep green of the balsam trees contrasted with the bristly black spruce, "differential diagnosis" in the wild. Of the garter snake she'd say, "He must be in the area hunting for a frog or a mouse." Sure enough a frog would hop away! Always confident of her subject, she'd pick up the snake and again teach, "Feel how smooth and dry his skin really is and look how he's reading the news with his tongue!" The New York fern narrows, or as she put it, "burns the candle at both ends" just like busy New Yorkers.

Orra easily shared her encyclopedic knowledge in terms that both children and professors could assimilate. She inspired young and old to observe nature more closely and to educate themselves as they enjoyed the mountains.

In 1934 in a pioneer effort, Orra, Chairperson of the Adirondack Mountain Club's Guidebook Committee, compiled and edited the first (and later the second) editions of the *Trail Guide to the Adirondack Mountain High Peaks*. This enormous task meant collecting numerous individual trail descriptions from the New York Conservation Commission, fellow ADK hikers, old-time woods guides and sportsmen. She then hiked each trail on her weekends and off-duty hours from her medical duties as school physician in Ft. Plain, N.Y., two hours drive away. Her apartment came to look like a general's staging area with maps carpeting the floors and walls. She documented the locations of water supplies, unusual trail contours, and lean-to and ranger station sites.



Photo: Courtesy Mary Arakelian

She then assembled all this information into an accurate composite. By hand she inked in trails on U.S.G.S. quadrangle maps. This guidebook opened the trails of the Adirondack high peaks to thousands of hikers and naturalists.

Her contributions have had a profound effect on the use and knowledge of the Adirondacks. She dreamed of a series of guides for the entire six million acre park. Today the *Guide to the Adirondack Trails, High Peaks Region*, eleventh edition, is dedicated to Orra Phelps for her pioneer and life-long contributions. Her dream of a series of guidebooks is gradually becoming a reality at the Adirondack Mountain Club.

Dr. Orra Phelps, a Mount Holyoke College and Johns Hopkins Medical School graduate, capably combined the dual roles of physician and nature educator. Orra was the author of "Mountaintop Flora" in the book, *The Adirondack High Peaks* and of numerous articles on botany. She was the 47th person to climb all 46 high peaks



Dr. Phelps at the top right.

Photo: Courtesy Mary Arakelian

in the Adirondacks, (a 46er twice and Mt. Marcy 20 times) and the first woman to bushwack up 4161 foot Phelps Mountain. "Doc" Phelps guided U.S. Supreme Court Justice William O. Douglas and his party up 5114 foot Algonquin and readily identified plants, birds, rocks and vistas.

She worked on state and local study groups concerned with the interrelationships between water, soil, vegetation, air, wind and weather and such issues as acid rain's detrimental effect on the Adirondack's unique ecology. At the local high school she sponsored the Paludalogical Society, which gives interested biology and chemistry students an opportunity for in-depth study of marsh life. For her many contributions to nature education and conservation she was awarded the Oak Leaf by The Nature Conservancy, Eastern New York Chapter.

Yet, she wore these well-deserved honors and achievements lightly. She'd drive for days in search of a particular botanical specimen for a colleague. She hiked into the mountains at night to aid an injured hiker. She organized and led a full senior Girl Scout troop, teaching them from her total comprehension of the outdoor world. For may she became a life-long role model.

"Doc" was a gentle and kind humanitarian as well. She helped support a friend's retarded children, sheltered a battered wife and counseled confused and questioning young people. She wrote volumes of letters, cheering the elderly and confined, and encouraged young scientists. One of her delights was to be among younger professionals and to see their work on mountaintop flora, ferns and fungi in particular.

Dr. Orra has passed on her love of nature to her own four nieces, two of whom are teachers, and to her nine grand-nieces and grand-nephews. At her request her private papers, library, and slides will be donated to the Adirondack Resource Center at Schenectady, N.Y. "Doc's" teaching impact continues each time any of her "family" sees a T.V. special on fungi, tunes in to the white throated sparrow's whistle or marvels at the maiden hair's delicate beauty.

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**MARY ARAKELIAN** *is one of Dr. Phelps' nieces.*

# 65th REUNION: RECOLLECTIONS OF A "FEMALE STUDENT"

Martha E. Munzer

When the daily mail arrives, I thumb through the letters with expectancy. But when I opened and read the one that came from my Alma Mater, the Massachusetts Institute of Technology, I gasped. Good heavens—could it be that our class was to celebrate its 65th reunion? 65th! Those of us who were still alive were in our late eighties. How many of us were going to be able to make it to Cambridge from far off places such as Florida?

Twenty-three of us from a class of twelve hundred actually did make it; we the hardy, long-lived survivors of the class of '22. Two of us were "girls"—Marjorie Pierce, a distinguished, still-practicing architect in the Boston area, and I, still scribbling, teaching and speechifying on environmental matters whenever given the chance. The "boys" were by and large enjoying retirement from their years of professional work, several continuing to serve as consultants.

Actually, I had hardly known any of these "survivors" while an undergraduate at Tech. None of them had been in the particular course I had chosen, that of electrochemical engineering. But we had met at our 50th and 60th reunions, so that we were now well acquainted.

At our 65th they asked me, "Martha, whatever made you come to a man's engineering school in the first place?"

"This is how it happened: I got hooked on becoming some kind of scientist because of a key person a high school teacher. Had he taught Latin, I may well have wanted to become a scholar of ancient languages. But he happened to teach physics and chemistry, and I happened to have a crush on him!"

"So, instead of going to Smith College where I had previously been enrolled, my remarkably modern Victorian parents allowed their immature, 18-year-old daughter to go to a man's college and live in a hotel because there were no housing facilities for "female students," as the MIT catalogue dubbed us in fine print. Talk about Women's Lib, I had it without knowing it almost seventy years ago."

"And look at the MIT gals of today," commented one of my old classmates. "Here we are comfortably housed in one of their attractive dorms."

"I understand," chimed in another, "that women now make up a quarter of the population, graduate students as well as undergraduates."

"Not to mention a sizeable number of professors and administrators," I added, "none of whom were around in our day. Yes, 'we've come a long way, baby', but we've still quite a distance to go."

We all nodded.

Conversations such as this were part of the enjoyment of our get-together, probably a final one. But our hosts at MIT had provided more formal occasions for our enjoyment.

And what a ball we had. First there was the pleasure of meeting with MIT's president and special faculty members helped by our class. We were honored at the Tech Night concert of the renowned Boston Pops. We spent a day learning about the challenging new projects being undertaken by our Mass Tech, a leader, as usual, in creative plans for the future. Between times we were wined and dined almost beyond our capacity to eat and drink.

At one of the luncheons I was asked to reminisce about what it was like to have been a female student at Tech in the early 20's. It was fun to remind my classmates of our shared experiences of so very long ago.

"There was plenty of hard work," I recollected, "a daily, nightly, weekend grind just to keep up with assignments. However, there were fun times, too. Though we girls—two or three of us—may have seemed out of place at the Smokers, since we neither puffed nor imbibed, there we were, singing lustily along with the rest:

'Take me back by a special train
To that glorious Institute
I long for the inspiration of
A technological toot.'

"That 'toot' did not include for me, a 'greasy grind' in the eyes of my classmates, an invitation to go tea dancing at the Copley Plaza, known to us as the Costly Pleasures; nevertheless, I

(Continued on page 21)

# EVA LUCRETIA GORDON

John A. Gustafson

In April of this year the Holden Arboretum in Mentor, Ohio hosted a "Gathering of the Elders" of the American Nature Study Society—a time for reflection and renewal. We remembered the pioneers and giants of the past. Our appraisal was honest—we acknowledged that there is a "dark side" to our heritage. However, in the case of Eva Gordon, the only fault we could find was that she never learned to drive!

Not learning to drive may be an indication of what was both a strength and a weakness in Dr. Gordon's character. She was modest to the point of self-effacement. Coming to Cornell at the end of an era dominated by Anna Botsford Comstock, a woman of steadfast assertiveness and notable accomplishment, Eva Gordon spent most of her career in the shadow of both Comstock's reputation and the aggressive personality of E. Laurence Palmer. She did much of the research and writing for which Palmer took credit. As his teaching assistant, she put feeling and perspective into Palmer's classroom. Among a host of academic *Prima donnas* (most of whom were "dons"), she spread the sweet leaven of humility, civility, and caring. To those of us privileged to know her and study under her, she was an "angel of light"—no shadows; no dark side.

With great patience and good humor, she stuck it out as Dr. Palmer's "assistant" (they were nearly the same age). Finally, coming into her own when he abruptly retired at age 64, she received academic rank and recognition. She nurtured graduate students in their quest for doctorates. She wrote the Cornell Rural School Leaflets under her own name. She taught nature writing and field natural history by both precept and example.

In her field natural history class one semester, Dick Wason (now Director of Education at the Morton Arboretum) and I would follow along at the rear and make up tuneful ditties about the plants we were seeing. On one occasion we spotted a yellow flower along the path and started singing a duet: "Sweet Celandine, will you be mine? Your yellow juice/has got no use". It turned out that Celandine was the next item on Dr. Gordon's field quiz, and we had given it away! The look she gave us chastened our souls, but we knew we were forgiven!

To know Eva Gordon was to love her! Always a lady, her calm and deliberate manner was, like the deep pools in a river, indicative of the depth and breadth of her intelligence and understanding. She gave us freedom to develop in our own and often different ways, never forcing us into any preconceived mold. She gave sound advice, and gave it sparingly. A teacher of children *par excellence*, she became a teacher of teachers who continue to uphold her high standards of quality education and personal integrity.



*Eva Gordon & Friends*



*Eva's home was a center for student gatherings: sometimes to meet special people like May Theilgaard Watts: sometimes to relax and share ideas.*

## 65th Reunion

(Continued from page 20)

was taken on a wild motorcycle ride by a classmate. I remember the thrill, but have forgotten my 'date'."

At this point, one of the most lively and attractive of my former classmates piped up, "That was me!" We smiled at each other in sudden, shared remembrance.

Yes, there are still joyful, unexpected happenings at a class reunion, even if it be the 65th, and even if one is "going on" eighty-eight.

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**MARTHA MUNZER**, *a long-time member of ANSS, has had three careers, the first based on her MIT education; the second, when she discovered the environment and became an environmental educator, and the third, an author of books for teenagers.*

# BOOKS ABOUT WOMEN AND THE ENVIRONMENT

***Daughters of the Earth: The Lives and Legends of American Indian Women,*** by Carolyn Niethammer, Collier Books, Macmillan Publishing Co., N.Y.C., 1977, 281 pages, $11.95 paperback.

To read Carollyn Niethammer's introduction to this book makes one want to read the other 263 pages of text. In it she presents an overall view of the ten basic cultural areas north of the Rio Grande; she describes the extent and limitations of matriarchal organizations; she points out the problems involved in historical research when the scanty records of early European contact were written by male missionaries and explorers; she compares the life of the Indian women to the life of our pioneer ancestors of the same period; and finally, she says, "I ask readers to remember with me that any woman, living or dead, can be judged properly only by the way she conforms to the ethical and social standards of her people, not by the measure of our own ethical or social standards."

The book starts with childbirth and eleven chapters later closes with death. Each chapter is rich in specifics of Indian life, culture, legends, religion, and ceremonies from many different tribes.

Even though there was a wide range of male-female relationships and roles, generally women were gatherers (Cherokee women knew and used 800 plants), planters (some anthropologists believe that women invented agriculture), harvesters, cooks, tanners, tailors, potters, weavers, and home builders. In these roles they transformed Earth's bounty into the products needed for survival, and the conservation of life. Men were hunters and warriors, an essentially destructive orientation.

Generally speaking, women did not hold leadership positions, though there were exceptions on an individual and on cultural bases. Medicine women frequently held powerful positions, however. Most of these women were middle aged, beyond child rearing and free from menstrual taboos, when in some tribes a woman became "just like a man" and was totally acceptable even in council deliberations.

As a woman I had a wide variety of reactions while I read this book. Empathy and indignation as I read the long chapter, "From Menarche to Menopause," which dealt with scared little girls entering "adulthood" with isolation in menstrual huts, with the fact that puberty rites for boys sent them forth and broadened their horizons, while puberty rites for girls confined and restricted them. I rejoiced in the stories of women working together, of female ceremonies, of games, of Flathead women who banded together to punish rapists. I took real pleasure in the creativity of women limited in their chance at self-expression by a society that expected them to dress like others, to cook what the men brought from the hunt, to build a house like their neighbors and to make fairly standard utensils, who found time to decorate their pots and baskets and sometimes their clothes, not only in traditional patterns but in new ones, from their soul, their memory, their imagination.

Finally, the book concludes with the impact of the arrival of the Europeans and states, "Life did not change as dramatically for the women. Even on the reservation there were still children to be raised, meals to be cooked, housework to be done. Some women discovered that they could earn money by making and selling their native crafts. With their strength and resolve, Native American women held their families together through very dark days."

"Native American girls today have more choice in how they will spend their lives than their grandmothers did, but even their new career and educational opportunities do not overshadow the important gifts left them by their female ancestors—a legacy of dignity and purpose."

This book is important as a part of a long-neglected history. It is good cover-to-cover reading. It is also good reference material, not only on women, but on a great variety of Native American cultures. It is indexed, has an annotated bibliography on theories of women's status and role in general, and a nine-page bibliography on Native American cultures.

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***Women and Wilderness,*** 1980, by Anne LaBastille, Sierra Club Books, San Francisco, soft cover edition, 1984.

Women in Environmental Studies, the theme for this issue of Nature Study, permits me to review Anne LaBastille's book, Women and Wilderness. This book was given to me by one of my daughters for Christmas in 1985. I've always claimed, even as a child, that Christmas isn't Christmas unless it provides me with a special book. That Christmas was one of the best! Because I was raised on a farm in Ohio where I watched the natural world unfold season by season and ranked among my most pleasurable experience walking in the woods and along a stream, because I had camped at every opportunity when I was growing up including an overnight at the age of six with my father at our sugar camp where I slept on a narrow seat built from saplings, because I had majored in geology in college at least partially and certainly initially for the field trip opportunities the courses provided, and because I had married a geologist and pursued an outdoor life even with tiny children under less than convenient and conventional circumstances, the very title of the book captured me completely. Reading it was pure pleasure.

Anne describes herself as a wildlife ecologist and conservationist. To find the names of professional women to write about she went through a process of contacting American Women in Science, the Society of Women Geographers, Outdoor Writers of America, the National Organization for Women, the Wildlife Society, the U.S. Fish and Wildlife Service and several state conservation departments. She canvassed female friends and colleagues and put an ad in *Backpackers* magazine. The results provided a list of 325 names. This was culled to 50, and to each of these she sent a questionnaire. Responses made it possible to reduce these to 20. Then came

travel and interviews, many of which she relates in individual chapters. When she had written about fifteen women, enough to fill her book, she stopped writing. She lays no claim to being a historian, a social scientist or a feminist scholar. Her objective was to supply the necessary background for an understanding of the abilities and attitudes that women today bring to their wilderness lives and careers. She reveals throughout the book how wilderness within women has emerged and how women have contributed to appreciating and saving wilderness. My own special interest in showing how women can preserve the wilderness environment is given fair treatment.

The author started her vivid descriptions of women in the wilderness by dealing with American frontier women. These included women who headed west with their husbands to homestead, farm or ranch. These women had no choice; they went with their men because that is what women did in the early eighteen hundreds. There were women involved in gold rushes and mining booms; wives who traveled with army men; teachers and missionaries, and some few women who were just plain adventurers, usually fiercely independent. The stories of these women were gleaned from a few marvelous journals and collections of letters. However, most of these women left no written record.

Among the gallant outdoors women who were really adventuresome and as freedom-loving as any man, I selected from her material an Englishwoman whose book, *A Lady's Life in the Rocky Mountains,* I had read a number of years ago. Isabella Bird at age 42 made a memorable trek from Lake Tahoe across the Basin and Range section of Utah and Wyoming to the Colorado Rockies. This was back in 1873 at a time when respectable women just didn't do those kinds of things. But Isabella managed to look and act like a lady; although journeying alone, she was never molested. In fact, she was well treated by all whom she encountered. Her travels were by pony, hers she aptly named Birdie, and Birdie permitted her time to see and appreciate the outdoors, which she loved. She gloried in the magificence of the landscape of Colorado and wrote her feelings time after time. While staying at Estes Park she managed to climb Long's Peak with the help of a mountain friend who literally dragged her the final distance to the 14,700 foot peak. She describes this experience vividly. "Uplifted above love and hate and storms of passion, calm came amidst the eternal silence. Fanned by zephyrs and bathed in living blue, peace rested for that one bright day on the peak."

Isabella, though delicate as a child, proved her stamina and endurance while riding her pony 800 miles through Colorado over ice and snow and narrow mountain trails. She didn't regard herself as a geographer yet she was the first woman elected as a fellow in the Royal Geographical Society of England. Her journey on her pony, almost always alone, is recognized as an accomplishment worthy of a skilled explorer and an extraordinary feat for a woman in those days, or even today. Her book is still in print and a real joy to read.

The author of *Women and Wilderness* recognized the American Indian woman as true women of the wilderness. She pays tribute to one in particular, Sacajawea, a young Indian woman who is renowned for having been of tremendous help during the Lewis and Clark expedition. This exploration, taking place in the early 1800's, extended from the Missouri River to the Pacific Ocean, a distance of 2,000 miles. Sacajawea was a Shoshoni Indian, bartered when very young to a French Canadian trader. This man was engaged as a guide and Sacajawea and her small baby accompanied him. She so impressed Captains Lewis and Clark that they described her in their journal as "the Indian woman to whom I ascribe equal fortitude and resolution with any person on the trip." Her greatest value emerged when the party of thirty-three met a Shoshoni band in the mountains of Idaho. She was instrumental in negotiating with the members for horses necessary to take the expedition across the Rockies. Not negligible was her effective use of survival skills. She gathered roots, nuts and berries to supplement the food supplies which saved the men from starving on several occasions. "Her wilderness training, her quiet, matter-of-fact resilient nature and her adaptability to rough conditions contributed greatly to the first white crossing of this continent and set an example for others, both men and women, to follow," is a further quote from that journal.



After her stories of the tremendous difficulties and triumphs of frontier women in the 1800's, Anne lunges into a description of the trials that women encountered in the 1900's as they sought to achieve professional status in outdoor fields. She gives some experiences from her own life as an example. Because she was a girl her mother had refused to let her go camping or even to learn to drive a car, so she was poorly equipped with the skills and experience needed for an outdoor career. She went to the University of Miami, Florida, intending to major in marine biology. Due to her own inadequacies and lack of encouragement there, she decided to pursue wildlife conservation instead of marine biology and transferred to Cornell University, one of the few offering this specialty to undergraduates. This is not a surprising development for ANSS members, many of whom attended Cornell. Although she was the only woman in many of her classes, she was at last permitted to learn the skills she needed. She found Cornell had liberal attitudes toward women, more than any of the Ivy League or land grant universities. For her master's she applied many places, but only Colorado State University was willing to let her do field work. She went to school in the winter, climbed mountains to study mule deer as a research project. She returned to Cornell for a

doctorate, finding that the new emphasis on environment from 1965 to 1970 had reduced the prejudice toward women greatly, even at Cornell. She quotes impressive figures from American Men and Women in Science which clearly indicate a tremendous increase in the number of women in the scientific professions.

The larger part of the book deals with comprehensive profiles of fifteen adventurous and accomplished women whose lives and work in the outdoors have contributed greatly to knowledge and understanding of the scientific world. We cannot describe all of them. A selected few can represent the total.

Margaret Owings, whom Anne describes as an artist in activism, was influenced by a poignant incident at the tender age of six years. She was hiking in the hills above Berkeley, California, with her parents and brothers. Margaret was particularly happy when walking under eucalyptus trees and live oaks across grassy knolls. On this day her father was carrying a gun. Margaret had never seen a gun before. At one point he lifted the gun and shot a large owl as it took off from a tree. It fell to the ground with a dull sound. Margaret was horrified. She screamed at her father, "Why did you do it? Why did you do it?" Her father, stunned by her emotion, answered, "I don't know why I did it."

This incident made a tremendous impact on both the father and the daughter. Her father never shot a gun again and Margaret became an ardent protector of wildlife. Throughout her childhood she chided boys for throwing rocks at blue jays, and her girl friends for picking wildflowers. Her friends teased her but she persisted. Not until she was in her teens and read some of Albert Schweitzer's writings did she realize that there were kindred souls who felt as strongly as she did.

Forty years later another incident took place. Margaret and her architect husband, Nat, were enjoying a quiet afternoon at their airy A-frame house above the Pacific coast. From their porch they could look down on the Big Sur beach and see sea lions cavorting in the waves or sleeping on the rocks. Suddenly three shots rang out. To their utter dismay they witnessed a large sea lion bull collapse and slide into the water. Across the way a single man stalked to his car and drove away. Margaret was incensed and frustrated. What could be done? She did what she knew best to do; she wrote an emotionally charged letter to the *Monterey Herald* protesting the needless murder of a hapless wild creature. Others followed her example and she became known as the Sea Lion Lady. Thus began a chain of events where she organized lobbying and research teams to give information to legislators so that they could intelligently vote for the protection, first, of the sea lion, then the mountain lion that lived in a reserve back of her home. A little later she took on the protection of the Pacific coastline to maintain the sea otter population. These slim, engaging creatures were accused by the fishermen of depleting their catch of abalone. Margaret organized research efforts and proved them wrong. The legislators enacted measures for their protection. Margaret later visited Africa with her husband and identified so strongly with the acute need to take steps to save the habitats and the animals of that continent that she was named the only woman on the African Wildlife Leadership Foundation.

Of the fifteen women highlighted in her book, I found Margaret Murie the most fascinating. Margaret, or Mardy, as she is commonly called, is presently a lovely silvery-haired woman of eighty some years, living alone in the remote lodge in Moose, Wyoming, which she and her husband built in 1946. She is now a vice president and member of the governing council and consultant to the Wilderness Society, which her husband, Olaus, a wildlife specialist for the U.S. Fish and Wildlife Service, helped to found. She has received many honors which include an honorary doctorate from the University of Alaska, from which, incidentally, she was the first woman to graduate. She is the author of *Two In The Far North*, written in 1962, a popular book about life with Olaus in the Alaskan frontier. Their lives together in Alaska started with a honeymoon trip which was followed later with one when they took along a very young baby. At first she found it was confusing to be a woman eager for adventure but fighting at the same time a desire for cozy homekeeping. She combined the two very successfully, making a home in a tent with a Yukon stove and sleeping bags. She loved the Brooks Range environment, considered it a fairyland. But it was not all beauty and enjoyment. At times Olaus left her alone during the day. If he was late in returning, she agonized over her aloneness and helplessness, her fear for his safety and her own if something happened to him. She had to learn to accept the situation, because it seemed that their life together would be one long field trip. So even on the trip with the baby she met the challenge with organized fortitude. It is a delightful book.

Largely because of the full scale ecological research expeditions to the Sheenjek River region by Olaus and his brother Adolph, the U.S. Department of the Interior under Fred A. Seton established the Arctic Wildlife Range, 9.2 million acres, the largest national wildlife area in the United States at that time. In 1963 Mardy's beloved husband died. Her years as companion, wife, trailmate and secretary were over. Deep emptiness engulfed her. But in the twenty-five years since that loss she has made a new life working for the Wilderness Society, writing articles and flyers, giving countless speeches and lectures, testifying at hearings and lobbying tirelessly for conservation causes. She learned to live a rich and satisfying life within herself, not only with but apart from friends and loved ones.

The author concludes by examining the qualities that women must have for a successful career and fulfilled lives in a wilderness profession. Enthusiasm, youthfulness regardless of age, are important, but they are essential for success in any walk of life. Anne lists love of nature, self-sufficiency, self-confidence, a certain disregard of conventions, and good physical shape as requisites. Noteworthy is the fact that the women she writes about have no bitterness toward men. Wilderness women recognize and accept diversity and the fact that nature must have male and female, like life and death, like prey and predator. The preservation of life on earth by humans as a species depends on each *Homo sapiens* working toward a unity of spirit that excludes the possibility of extinction. This spirit was expressed by David Rains Wallace in a recent book. "Moses forced society to accept a un-

ified law; Jesus forced us to accept the unity of all humanity; Darwin forced us to accept the unity of all life; I doubt whether any of the three would have been able to influence his society so strongly if he had not been fortified by a season in the wilderness. Wilderness for women as well as men, generates mythological thinking; it leads the mind back to stories of origins and meanings, to imagining the world's creation."

It would seem that wilderness women, in exemplifying this unity, leave us with two messages which the author seems to think are important for all of us: one is that even without pursuing an outdoor career women have the capacity for caring and are ready to meet the challenge to help in the preservation of our natural heritage; and two, that an appreciation and understanding of the outdoors leads to a full and satisfying life, not only with, but apart from, friends and loved ones.

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**RUTH MELVIN** *is past president of ANSS and 1988 recipient of the Liberty Hyde Bailey Award.*

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***Mary's Monster,*** by Ruth Ban Ness Blair, Coward, McCann and Geoghegan, Inc. 1975. 64 pp.

The book, *Mary's Monster,* was about a young girl named Mary Ann Anning, born in the town of Lyme Regis on the southern coast of England on May 21, 1799. Mary loved to go curiosity (fossil) hunting with her father. The best place to go fossil hunting was near Lyme Regis in the cliffs. Mary's father was a carpenter and her older brother, Joseph, was an apprentice upholsterer.

Mary was more mature than the other children. Instead of playing jump rope or other games she would go fossil hunting with her father. In Mary's time many people believed fossils were works of the devil, children of stones, or even thunderbolts that fell from skies. This is a good book for ages 7-10. Give the book a chance; it is interesting and holds your attention. I liked this book.

The main plot begins after Mary meets Henry, a boy who also enjoys hunting fossils, and finds a stray dog that she named Tray. Shortly thereafter her father dies. Her brother Joseph finds a very large old skull. Since Mary was so interested in fossils, Joseph gave the skull to her. Even that couldn't cheer her up; she was very depressed by the death of her father.

Finally, she decided that her father would want her to find more fossils and keep his memory alive. That same day when she was chiselling at the cliff she found an unfamiliar creature, now only bones. Henry came up the hill and saw the enormous monster. Mary gave his instructions to go and get Joseph and the quarrymen. She told Henry to have Joseph bring the big head. When the quarrymen arrived and Mary and the men decided on a fair price, the fossil was soon carefuly removed from the cliff and the head fit it.

Years later scientists decided to call Mary's "monster" an Ichthyosaurus (Fish-Lizard). Mary became very famous. She made many more discoveries during her lifetime. Mary died in 1847. Some of Mary's monsters and a picture of her and her dog Tray can still be found in the British Museum of Natural History. Mary Ann Anning opened many doors in the scientific world. Who knows, maybe you'll be the next Mary Ann Anning?

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***Rachel Carson: Pioneer of Ecology*** by Kathleen V. Kudlinski. Illustrated by Ted Lewin. Viking Kestrel Books, New York. 1988. 64 pp. $10.95.

A new and welcome addition to the widely praised *Women of Our Time* series published for young readers, this interesting and well-written book is an ideal introduction for ages 7 to 11 to one of America's most important and influential writers about the environment.

Kay Kudlinski describes Carson's early life and struggles clearly and concisely. Her interest in nature developed early as she roamed the 65 acres of her father's farm in western Pennsylvania and observed the plants and animals around her. She dreamed of being a writer, and was a top scholar in the classroom as her High School Yearbook noted:

> Rachel's like the mid-day sun
> Always very bright
> Never stops her studying
> 'Til she gets it right.

After high school, she attended Pennsylvania College for Women (now Chatham College) in Pittsburgh. At first she planned to major in English, but changed her mind after a course in biology opened new horizons. After graduation, she gained her MS degree at Johns Hopkins University and then went to work as a writer for the United States Bureau of Fisheries (now the Fish and Wildlife



*Dinosaur skeleton in rock at Dinosaur National Monument, similar to the one found by Mary Anning.*

Service) in Washington, D.C. Some of the beautifully written public information pamphlets she wrote about national wildlife refuges and endangered species of wildlife are still in my files.

Her interest in the sea and marine life resulted in her first book, *Under the Sea Wind*, which was published in November, 1941, just a month before Pearl Harbor. Lost in the wartime shuffle, that book sold few copies the first time round. After the war, however, Rachel wrote *The Sea Around Us*, which became an instant best-seller. She began the book with "the gray beginnings of that great mother of life, the sea," then went on to describe the cycles of the ocean, the tides and waves and currents, and how the well-being of the great waters affects all life on earth. The message of the book, Kudlinski notes, "was that the earth, with its seas, is a balanced planet where nothing is ever wasted." Its success, and Rachel Carson's continuing love affair with the oceans, led to the reissuing of *Under the Sea Wind* and the writing of *The Edge of the Sea*, which was published in 1955. These three books showed how "all life was tied together."

In the late 1950's, one of Rachel's friends wrote to her, telling of the dead robins she had found in her yard after the pesticide DDT had been sprayed over her area. That letter – plus many months of painstaking research – led to the writing of *Silent Spring*. It was a book Rachel Carson felt she had to write, to warn the world about the dangers of pesticides and their indiscriminate use. This famous study aroused a storm of controversy at the time it was published, but the author's careful research and arguments have stood the test of time. *Silent Spring* demonstrated "how the future of all life depended upon what we do," Kudlinski states. "Over the years, Rachel Carson's love of nature and her beautiful writing have helped to change the way a world of people looks at the life of their planet."

The continuing struggle to safeguard our environment continues today, in no small part because of "Rachel's courage and her legacy of hope."

Robert M. McClung

# GOOD READING

**AN INTRODUCTION TO THE WORLD CONSERVATION STRATEGY.** By Stan Croner. Prepared by the Commission on Education of the International Union for the Conservation of Nature and Natural Resources and published by IUCN and the United Nations Environment Programme. Order from IUCN Commission on Education, 58 Greenbrae Boardwalk, Greenbrae, California 94904. $8.95 postpaid (Cal. residents add 6% tax).

"Our ancients believed in the unity of all living things, and even of life and non-life. We must rediscover this sense of identity with and responsibility for fellow humans, other species and future generations" writes Indira Gandhi in the "Foreword" to Stan Croner's powerful statement of the need for world conservation and the path to achieve it which was first laid out in *The World Conservation Strategy* in 1980. With the help of Ansel Adams, Eliot Porter and several other



outstanding photographers, the *Introduction to the World Conservation Strategy* makes the point that the present way of going about our business is self-destructive to the planet which supports us. To save the world, which is what we must do, we need a sense of common agreement — a language to use in building bridges of cooperation. "If enough of us get the message — and change our ways accordingly — we may yet come to enjoy a full sense of belonging on an earth which remains good because we keep it so," writes Croner. Buy two copies of this book — one for yourself and one for a political official.

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**BIRDS — RIGHT BEFORE YOUR EYES.** Written and illustrated by John R. Wiessinger. Foreword by Les Line. Index. Enslow Publishers, Inc., Hillside, New Jersey 07205. 1988. 64 pp. $12.95.

Written for grades four to ten, this book about the common and uncommon birds around us consist of some 50 concise essays — each discussing a particular aspect of bird life, each illustrated with the author's accurate and attractive black and white line drawings. As the author notes in his introduction, "There are endless questions about birds: How do birds sleep on a perch without falling off? How do they find enough food for their active bodies? Why don't their feet freeze in winter? How can they migrate for thousands of miles and return to a specific yard?" In this book he sets out to answer these and many other questions for young readers.

The brief page-long essays and illustrations are loosely grouped into six different sections, as listed below, together with several examples of the subjects covered in each section:

**Who's Who.** What makes a bird a bird . . . why different kinds of birds occupy different niches . . . what are the distinguishing characteristics of sparrows, nuthatches, woodpeckers.

**How Things Work.** How the syrinx enables a bird to sing . . . how the oil gland helps keep the plumage groomed . . . how birds sleep . . . how the nictitating membrane works.

**On the Move.** How fast can birds fly . . . why and when do they migrate . . . why do some not migrate.

**Hunting and Hiding.** How owls locate their prey at night . . . how bills are adapted for different kinds of food . . . how robins locate earthworms.

**Family Matters.** The whys of bird songs . . . early nesters . . . foster parents.

**Birds and People.** Alien birds (starlings) . . . egrets and the plume trade . . . the whooping crane, an endangered species . . . why we should care about endangered species.

Each essay stands on its own, and the reader can "read the book back to front, middle to end, or hit-or-miss," as the author states in his introduction.

"There is a bit of gee-whiz in every bird, even the commonest sparrow," Les Line, editor of *Audubon* magazine, notes in his introduction to the book.

"John Wiessinger knows that, and he relates some of those wondrous facts with neat drawings and fun-to-read descriptions. He has given us a book that will spark the interest of a new generation of birdwatchers, while reminding us oldtimers of the things that got us hooked on birds so many years ago."

Robert M. McClung

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***Keepers of the Earth, Native American Stories and Environmental Activities for Children,*** by Michael Caduto and Joseph Bruchac, Fulcrum Inc., 1988, 320 pages, $18.95.

This book will be a good addition to any school library. The twenty-one Indian legends selected and retold by Joseph Bruchac, an Abenaki Indian, can be used in literature classes to develop an appreciation of the role of legends in a culture. Since the legends represent eighteen different cultures they can be a valuable resource for Native American studies, regardless of whether one is studying a specific group of people or is looking at the great variety of cultures which existed in North America before the Europeans arrived.

The introductory chapters of the book provide insights into the role and importance of legends and of story telling. They also contain information on story telling techniques, as well as patterns for using the supplementary materials written by Michael Caduto to help children develop an appreciation and sensititivy to what the legends were telling about Earth relationships.

The supplementary materials fall into three main categories: QUESTIONS to lead listeners into relating the basic concepts of the legend to today's world; SCIENTIFIC FACTS listed under DISCUSSION to provide teachers with simple information on biological science, earth science, and ecological concepts that apply to the legend's basic concept; and finally, ACTIVITIES which offer a great variety of classroom and child-tested hands-on experiences which foster problem solving and responsible action.

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***Creating Humane Climates Outdoors: A People Skills Primer,*** by Clifford E. Knapp, Eric/Cress, Appalachia Educational Lab., 1031 Quarrier St., P.O. Box 1348, Charleston, WV 25325, 1988. XI + 98 pp. $6.50 including postage; discount for quantity orders.

Unless people learn to respect each other and work together all of our knowledge cannot save us or Planet Earth. *Creating Humane Climates Outdoors* provides a wealth of experiences and activities for leaders in the use of the outdoors to help people grow—as individuals, as members of communities, and as part of Earth's total environment.

The suggested programs enable leaders to take advantage of the benefits of group living and of contact with the natural world. Any teacher concerned with maximum growth of students will find help in this book. Schools, nature centers and camps would benefit from using this as a text for a staff training workshop.

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***Listening to Nature: How to Deepen Your Awareness of Nature,*** by Joseph Cornell, photographs by John Hendrickson, 95 pp., Dawn Publications, 14618 Tyler Foote Rd., Nevada City, CA 95959, 1987.

Joseph Cornell wrote this modest little book for me. I almost never LISTEN to nature with all of my senses, emotions and spirit as Cornell means by "listening." Weighed down with my mental taxonomic baggage, I take a quick look and then start identifying: "Is that goldenrod a *Solidago hispida*or is it *S. puberula*?" Then I put my photographic baggage beween me and nature: "Would this shot be better at 1/125 sec. at f8 or 1/250 sec. at f5.6?" Names and numbers wall me off from nature as effectively as would brick and morter.

How clever of Mr. Cornell to pull me into his book with the superb photographs of John Hendrickson. In his photographic notes in the book's back, John tells me that when outlooking and sensing for a photograph, he begins by "tuning in." At a water site he will splash it or even jump in. Fallen leaves will be picked up, crinkled and smelled. Becoming a part of nature may take up to an hour before the first photo is shot. Might this account for why Hendrickson's photos are so much better than mine?

No sooner have I become absorbed by the pictures than I become intrigued with the quotations about nature from 31 familiar authors, poets and philosophers. Each introduces a day in a one month diary in which Cornell offers a brief activity or explanation designed to help the reader translate the quote's idea into personal experience. Best of all, an Index to Quotations in the back tells me where I can find much more from each author. Let me share as an example a quote from one among the Asian, European and American (including native peoples) men and women naturalists. On Day Two Cornell quotes our own Liberty Hyde Bailey: "One's happiness depends less on what he knows than on what he feels." In a portion of his explanation, Cornell writes: "Go for a walk in the wild. Avoid categorizing the things you see; instead, focus on feeling a kinship with everything you see. Look at everything as though you are seeing it for the first time, with the eyes of a child, fresh with wonder." Cornell has me pegged!

Squelching my egocentricity, I concede that Cornell, author of *Sharing Nature With Children* and its sequel, *Sharing Nature Awareness*, had others besides me in mind as the audience for this book. If you were a three-year-old whose parent or care giver had this book, he or she would learn on Day Seventeen how to explore nature at your tiny tot pace. A ten-year-old could learn with Mom or Dad "Still-Hunting," a native American activity on Day Four, and enjoy having wildlife find you in the wild. When ready for a more active adventure, the pre-teen will thrill to being blindfolded in the woods in "Meet a Tree" on Day Eighteen and then swap roles with the adult. If you're a hiker whose outdoor experiences encompass mainly getting from the car to Lookout Point and then back to the car, try "Walking and Feeling Yourself in All" on Day Fourteen and become part of what you used to just walk by. Are your hiking days behind you and your greatest joy is just sitting in your garden? Then do Day Thirteen's "Expanding Circles:"and become more totally aware

of yourself and your surroundings than ever before. (The same activity works just as well from a mountain top after a long, hard climb.)

Should *Listening to Nature* make you want to hear more, Mr. Cornell invites your participation in one of his nature awareness or sharing nature with children workshops. Educators might be interested in his principal/lead-teacher supportive leadership workshop on child discipline and self-worth.



# SHARING AND CARING

Joy Finlay

"If a child is to keep alive his inborn sense of wonder . . . he needs the companionship of at least one adult who can share it, rediscover with him the joy, excitement and mystery of the world we live in."

—from Rachel Carson's
*THE SENSE OF WONDER*

Environmental educators at their best set the stage for connecting individuals with their experiences. We often try to identify the connections of certain people, places or events as being key to "getting started". Who or what is it that influences our environmental preferences?

When asked who my mentor was, I like to reply, simplistically, "I had a tree to climb when I was a kid." True enough, there was a birch tree which I climbed and sat in whenever I wanted an overview of the world below. But would I ever have ventured forth if it were not for the encouragement and role model of at least one adult? Was that adult my mother? And since this issue of *Nature Study* is on women, it is timely to acknowledge the advice of one woman who contributed significantly to environmental awareness.

With the words of Rachel Carson in mind, I began to reflect on the role of mothers, my mother, of her mother before, and teachers, especially women, in developing an environmental ethic. As I tried to put pen to paper, it was Environment Week and two days before Earth Day. Planes were flying low over and around, spraying our country acreages in a war against the forest tent caterpillar. Now Rachel Carson's urgent message in *Silent Spring* became piercingly relevant with each pass of the spray planes.

Within days my optimism was renewed by a rural area grade two teacher who, following intensive spraying in her area, found a failing hummingbird and took it to school for teachable moments that will last a lifetime. This was wonderful confirmation of Rachel Carson's insightful advice to parents (and teachers) that "it is not half so important to know as to feel".

Linda writes about the two days of great learning experiences the little hummingbird provided:

"I showed him and talked about him to all the grades, as I had taught them before and we had studied birds together. They were all so fascinated by his forked tongue and his little feet and eyes. I had reports back that this bird was a great topic of conversation (one grade four student reported on the biologist who was consulted—they were studying 'ologist' words). Of course, I was best able to notice the changes in vocabulary, knowledge, attitude, etc. demonstrated by my own students. It was a great opportunity to reinforce one concept I have been teaching all year—the importance of habitat to an animal's survival.

Roger Tory Peterson in *Bird Watcher's Digest* claims his interest was first kindled when, in his seventh grade, a young red-haired teacher formed a Junior Audubon Club in the class. Membership was ten cents each "for which we received an enameled membership pin with a red-winged blackbird on it, and ten leaflets telling us about ten common birds". There were also inserts by artists of the day and outline drawings to be coloured. He met his former teacher years later. He learned that she had recently taken a summer couse in ornithology at He learned that she had recently taken a summer course in ornithology at Cornell, unaware that the book she used had been written by her former pupil.

Persist as we may in trying to identify a formula to develop environmental values, sharing and caring in the world of nature are fundamental to setting the stage for learning. I asked my mother just what in her childhood had contributed to developing her interest and concern for the environment. She recalled her experiences as a five year old, the year before emigrating to Canada from Denmark in 1911, and again at the age of six on the new homestead. She writes:

"Poppa had gone to Canada to prepare a home for us on the prairie homestead. I like to remember that year, when Momma took us to visit the open beech wood where the anemones, primroses, and violets poked out their heads in whites, yellows and blues. Momma loved colors and smells and the sounds of bird song. She taught me to watch for the first snow drops that blossomed out front of our home.

"At six, I roamed my father's Canadian homestead and compared the prairie flowers—crocuses, buttercups, yellow beans, penstemons, and others that grew on shaded ravine slopes, to the flowers in that Denmark beech forest. I loved them equally."

Today my mother grows wild flowers in her urban backyard. Our daughter, working as an interpretive naturalist, ensures yet another generation of environmental interest in our family.

Is this love of nature over the generations a hand-down from early nurturing? I like to think so. This was Rachel Carson's wish for each child in the world, "a sense of wonder so indestructible that it would last throughout life", and I would add, throughout generations of parents and teachers too.

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**JOY FINLAY**, *Board member, needs no introduction to ANSS members. Last year she was presented an award for her leadership by Prince Philip, two months later she and her husband, Cam, were recongized by the Alberta Government when they conferred the Order of the Bighorn on them. Most recently Joy has received the Dr. R.D. Bird Award as the volunteer who directed the Canadian program, Wildlife '87, so effectively.*

# A GATHERING OF THE ELDERS

## ANSS and Holden Arboretum Conference April 15-17, 1988



*President Frank Knight, holding first Liberty Hyde Bailey Award plaque.*



*Past presidents of ANSS (from left to right) Roger Tory Peterson, Helen Ross Russell, Glidden Baldwin, Verne Rockcastle, Howard Weaver, Ruth Melvin, John Gustafson, Craig Chase.*



*Roger Tory Peterson presenting one of his signed prints to Ruth Melvin, first recipient of the Liberty Hyde Bailey Award, 1988.*

*Panel to the past, Clifford Knapp, Helen Ross Russell, Phyllis Ford, Reynold Carlson, Phyllis Busch, John Gustafson.*



# TEACHING TIPS

## Walking Through Time

Diane Wiessinger

Big numbers are intriguing because they are so meaningless. The earth formed about 4-1/2 billion years ago; dinosaurs died out about 65 million years ago; the last ice age ended 10,000 years ago. But these numbers really don't meant anything to us—they conjure up no mental image, and they don't relate to one another in any concrete way.

Now a short *hike*—there's something tangible. So I use a third-of-a-mile "walk through time" to make our earth's history more real for children and adults alike. I have extended the traditional classroom timeline so that each centimeter represents 10,000 years. On our hike, we cover 1 million years of the earth's history with every meter we travel. This enlarged timeline can be laid out on any reasonably straight 1/3 mile stretch of sidewalk or roadside near a school or nature center. Unlike many nature walks, this one actually works best in an urban or suburban setting, where there are plenty of visual landmarks.

Even at a million years per stride, we can't begin to cover all of the earth's history in a third of a mile; the earth's beginnings lie over 4-1/2 billion years behind us—4-1/2 km or 2.7 miles away. You can tell your group "where" the earth formed on your local timeline, and about at what point (3-1/2 billion years or just over 2 miles away) the first life forms began to develop. The starting point of my actual walk is a mere half billion years ago, at the beginning of the Cambrian Period. At this point, the land portion of the earth is still moon-like, but the seas teem with life: trilobites; brachopods, and crinoids populate the bottom. There are no sounds on the surface except those of the wind, thunder, and occasional geologic events.

Rather than pace off the distances as I talk, I check out my path ahead of time, leaving masking tape "flagging" to mark each new period. (Be sure to label your flagging; you have 16 periods and epochs of varying lengths to get through, and if you overlook one marker with your group, you'll become hopelessly tangled unless the names are there to guide you!)

The walk itself helps fix the relative lengths of geologic time units, especially if your group has a chance to refer to it repeatedly afterwards. For my eight-year-old son and me, Devonian fish will always swim the stretch of sidewalk in front of a certain Tudor house, dinosaurs will always die out crossing Kline Woods Road, and Eohippus will frolic around mailbox number 510. If a classroom regularly uses these mental keys as it discusses prehistoric times, the children will come away with a very, very solid notion of relative times, and of how far removed one particular ancient event was from another—and from us.

Nearly as important as the physical milestones on this walk are the "props". When I do this walk with adults, I have a labeled bag for each period or epoch. If I am with children, I try to have a bag for each child, numbered to correspond to my notes, so that everyone has a prize to carry. The bags are not to be opened ahead of time. My "props" are a low-class collection of fossils, pictures, rubber animals, plant cuttings, rocks with lichens or moss, and so on—whatever I can find that is pertinent to a certain part of our geologic history. My Carboniferous bag, for instance, holds a piece of coal, an unavoidably wilted fern, a yellow rubber Eryops (early amphibian), and a pinned dragonfly. The Jurassic bag has several model dinosaurs, a simple flower, and a feather. An arrowhead represents the Recent Epoch. With practice, I'm learning to keep moving slowly as I talk, because many of these innovations occurred gradually, not in a sudden burst at each of my markers. I talk about climate changes and continent positions as I walk, pointing out that we're now cooling off again, or that there are mountains pushing up in Europe, and we talk about the sights and sounds that are probably being added to the world.

Once we enter the Cenozoic, things happen fast, and there are markers every 20 meters or so. I have a picture of "Lucy" for the Pliocene; it's only 24 meters from her small but upright form to the present. When we reach the Recent Epoch, the group has to gather in closely, because the final stages are not easy to see, and because the group now realizes that it is sprawling across millions of years even as it stands there!

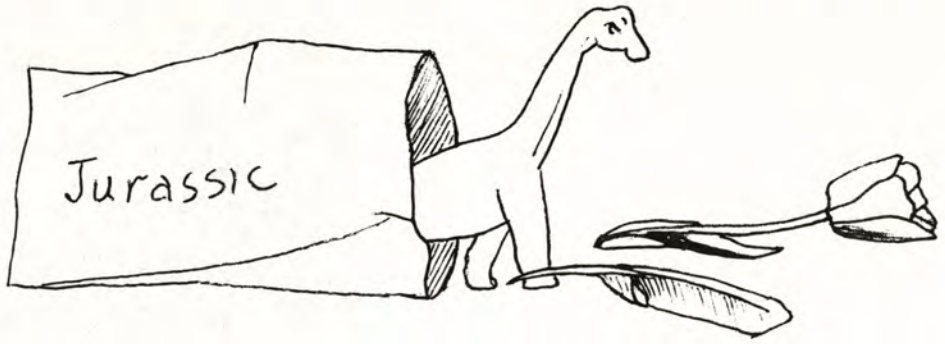
My four Recent index cards show the length of time since the last Ice Age, when humans were hunting mastodons (10,000 years ago):

humans began recording their own history (6,000 years ago):

Columbus discovered America (500 years ago):

we entered the Nuclear Age (45 years ago): less than the width of a pinprick in the card.

From our new vantage point, we can think back over the incredible distance we have traveled, from the beginning of the world 2-3/4 miles away, to this tiny pinprick in time that constitutes most of our lives. Now continental drift seems plausible: at their 2 cm a year pace, the continents are shifting



20 km for every "meter of time" we have travelled. Evolution makes more sense: humans have observed and recorded it firsthand for only a centimeter of this entire distance. And it's no wonder there are great gaps in the fossil record: even one short meter of "time" without a fossil marker knocks a million year hole in our knowledge of the earth's history.

Not all the books agree on exactly when each period began and ended, or even just what happened in each period. It doesn't matter. What's a few million years here or there when the science of paleontology is such an unfinished jigsaw of huge timespans anyway? [Use the figures I have here, or figure your own from a favorite text.] Or have the classroom take on the whole project, from selecting a site to figuring out the distances. Assign pairs to decide upon and round up appropriate props for "their" period. Walk through the time line several times, refer to it whenever geologic time comes up, and you'll provide your group with a mental backdrop for all time. I hope that the Devonian, for me, will always be the stretch of sidewalk in front of that Tudor house, and that its yard will always swim with Paleozoic fish.

| ERA<br>PERIOD<br>EPOCH | #MILLION<br>YRS AGO | DISTANCE (M)<br>FROM<br>PREV. MARKER |
|---|---|---|
| Paleozoic | | |
| Cambrian | 570 | Starting point |
| Ordovician | 500 | 70 |
| Silurian | 430 | 70 |
| Devonian | 395 | 35 |
| Carboniferous | 345 | 50 |
| Permian | 280 | 65 |
| Mesozoic | | |
| Triassic | 225 | 55 |
| Jurassic | 190 | 35 |
| Cretaceous | 145 | 45 |
| Cenozoic | | |
| Tertiary | | |
| Paleocene | 64 | 81 |
| Eocene | 58 | 6 |
| Oligocene | 36 | 22 |
| Miocene | 25 | 11 |
| Pliocene | 12 | 13 |
| Quaternary | | |
| Pleistocene | 2 | 10 |
| Recent | .01 (10,000 yrs) | finish |

**DIANE WIESSINGER** *is a naturalist who currently is raising a family, serving on the ANSS board of directors.*

# Beads From Trees: Artful Science

Judy Isacoff Thomas

Stems of sumac (Rhus glabra and Rhus typhina) and elderberry (Sambucus canadensis) have long been used as spiles for maple tapping in early spring. An abundance of long, straight, 1/2" - 3/4" diameter stems with a perimeter of strong wood around a pith that is large and soft makes it possible to effortlessly cut and bore out the needed tap "plumbing." Wooden spigots about 3" - 3-1/2" long are tapped into 2" deep x 1/2" - 5/8" diameter holes drilled into the trees. A notch may be cut at the top of the spile from which to suspend the pail.

The ecology of teaching suburban and urban populations moved me to adapt this traditional tool-making craft into a simple, decorative art. After demonstrating the making of the spiles needed for sugaring at maple festivals and with science classes, I cut 1/2" - 1-1/2" lengths of stem for everyone to hollow out woody beads. This proved to be an exhilarating activity and the epitome of "the teachable moment." My attachment to offering Beads From Trees exclusively in springtime, associated with spile making, has given way to the discovery that the plants' characteristics and the context do change with the seasons, but like the audience's enthusiasm, bead trees are always an outstanding raw material.

Staghorn and smooth sumac are inviting roadside weeds in much of northeastern North America. Where elderberry or Ailanthus (A. altissima) are weed species, use them instead or in addition. They are all easily identified and distinguished from any harmful species. Make sure to *Recognize* the plant with full appreciation for its form, color, texture, place in the landscape and its *Life*. Then, harvest with care, gratitude and awareness of what the ecosystem can afford.

Whenever possible, involve students in the gathering of materials. To explore "where things come from" — to find and become involved with objects at the source of creation--is the primary task of environmental education. Tracking down bead trees provides an opportunity to nurture the sense of wonder, cultivate bioregionalism and self-reliance, and to illustrate how to effect a happy balance between an available natural resource and our appetite for it.

For young students and large groups, prepare pith pokers and cut quantities of 1/2" - 1-1/2" lengths of stem in advance. Pokers may be made from wire clothes hangers. Cut each hanger into five pieces; bend a loop on one end of each piece (as illustrated). Distribute these to students with the wood. With potential bead in hand, students become effortlessly absorbed in a botany lesson. Guide them as they scrutinize their pieces of stem to find: details in the bark; sumac's heart shaped leaf scar with a bud at its cleft; its oozing, sticky, white sap and soft, yellow pith. Instruct them to push the wire into the pith and work it through until it appears at the other end. Spongy crumbs fall out. Keep pushing and pulling the wire in and out until there is a clean hole in the center of the white wood. The diameter of the hole will be around 1/4". The basic bead is complete.

Now, using sumac especially, peel the papery brown-grey outer bark away to reveal the bright green inner bark. Then, pull vertical strips of this pure green matter away and see the white wood behind. That's three different bead possibilities. Peel the whole green layer away to make a bone or ivory-like bead. Given this introduction to exploring their pieces of wood, individuals discover new ways of carving or peeling beautiful patterns on the surface of their beads.

Stringing the beads provides another opportunity for artistic abandon, for improving manual dexterity and appreciating how human ingenuity can transform otherwise uninteresting or discarded materials. To wit, cut an 8" long section from a piece of old nylon rope; pull it apart into its strands; distribute these to be used as threaders (see illustration). Thread single or double lengths of yarn, one or two colors. Use knots and alternations of color inside and over the beads to create attractive designs. For necklaces and bracelets it is best to use ample yarn so that the ornament may be put on and pulled off without having to undo a knot each time.

BEADS FROM TREES makes it possible to conduct meaningful lessons in otherwise difficult teaching situations. Classes of institutionalized teenagers,

first offenders struggling with learning disabilities and emotional problems, are drawn into the hands-on immediacy of this science-art class. As a part of a sixth grade environmental education overnight, a gathering of one hundred youths has been manageable, because the subject holds their interest. Allow one hour (or two one-hour sessions) for classroom work. Add time if there will be a field component.

In the hands of students from kindergarten to post-graduate teachers, crafting with sumac, elderberry and ailanthus is sure to evoke wonder, curiosity, pride and enthusiasm.

**Summary:**

Subjects: Botany, Environmental Education, Social Studies/History, Art

Grades: Kindergarten-College

Seasons: All

Time: 1/2 hour to 2-1/2 hours, depending on whether there will be a field lesson/gathering component and the number of beads to be made

Location: Where trees or shrubs grow stems with a large, easily removed pith. Locate such plants and bring your students to them to gather raw materials. Where this is not possible, this lesson may be conducted in the classroom.

Materials: Determine quantities for number of participants and time allotted.

- stems with a large, easily removed pith (e.g. sumac, etc.)
- pruning shears
- rigid wire (e.g. clothes hangers) to cut up to use as pith pokers (I once straightened wire shower rings)
- wire cutters
- pliers (if these have cutting blades, delete wire cutters). These are for bending a loop on one end of the poker.
- wool yarn or other appropriate material
- scissors
- 8" length of recycled nylon cord or spool of wire thread

**JUDY THOMAS** *is a freelance environmentalist living in Hillsdale, New York.*

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# Environmental Studies Shouldn't Stop At Noon

Carmon Slater

Historically, environmental education had its roots in conservation movements which were mostly rural. However, the many social, cultural, and biophysical problems brought on by mass urbanization have forced a redefinition of environmental issues which affect the quality of life. Humans should be one of the major focal points of our current thrusts in this area. Environmental problems arise because humans are somewhere in the picture, and the issues must be defined in terms of them. When humans make use of an environment to maintain or improve their way of life, they do so within a system of ideas which reflects their attitude toward nature and themselves. We find ourselves as ethical animals in a world that has no ethical element of its own to confront us.

Children are naturally curious. Our purpose as educators is to aim them in a hopefully promising direction within their own framework. Children should learn something about themselves in the process and begin to contemplate their place in the natural world around them.

In the scope of the environmental field trip — one of the major ways that we need to take a closer look at ourselves is in the area of the lunch hour. This is a usually neglected educational moment where we can indeed relate humans to their environment and help them learn something about themselves in the process. It is in the area of food production, food management, food mobility, food consumption, and food waste in which a large variety of environmental issues are based.

We need to explore children's reactions to foods to help them develop some understanding of the relationships of foods to health. We need to have them examine their attitudes and habits toward food and help them to understand nutrition information. The problem lies in the way we traditionally teach health concepts. Too many children find health boring and lacking in vitality. We need activities that go beyond reading assignments and a mundane exploration of this vital subject.

Good activities involve children; they make the learning process challenging. In many, the students would be doing what we traditionally think of as science, art, math, and consumer learning — characteristics of any good environmental education program. It can and should be a viable elementary school learning process. The field trip lunch can provide a motivated learning experience to not only build toward, but to follow-up.

Children do not come into the world with ready-made values. They learn values from counltess sources. One of the major influences in the development of values is the school, and more precisely, teachers. Values often come through most effectively when we say nothing. We do not teach children only what we want to teach.

Each of us must realize that we serve as models to the students we teach. We must also encourage students to form environmental concepts and values from their own personal experience.

1. How about involving students in the planning, buying, and preparation of their field trip lunch? Think of the subjects that could be covered in this lesson. It could be so valuable an educational tool that I do not think any teacher could justifiably say it would take too much time from the "so-called" basics because the basics would need to be used to make this activity possible and meaningful. What an excellent way to teach responsibility, group cooperation, research techniques, and most of all, the ability to solve real problems.

2. How about cost comparisons and an analysis of paper, glass, and metal products in lunches that have been individually packed, as compared to those involved in a group prepared lunch? Paper and plastic products used in fast food restaurants can be used to illustrate the nationwide waste of materials and natural resources, as well as the resulting disposal problems. An article in the *Washington Post* cited one food chain consumed 315 square miles of forest to provide for their paper products for

one year. Now plastics are heavily used. The energy equivalent of 12.7 million tons of coal were used to power their 1,755 restaurants. This has probably increased since then.

National studies show the energy required to produce the 56 billion containers that Americans throw away annually, equals the energy provided by two billion gallons of gasoline.

The United States produces over four billion tons of solid waste a year. The biggest problem is the 250 million tons of garbage that makes up approximately only 6% of the solid waste load. Of this amount, sanitation men collect 190 million tons, while the other 60 million is disposed of by the user or just left somewhere. This is what piles up where we live — to get smelly, to be unsightly, to serve as a fire hazard, and to act as a breeding ground for disease organisms, flies, and rats. In the 1980's each of us will throw out more than eight pounds of collected trash a day.

It costs this nation over $5 billion a year to handle this waste; 80% for picking up and hauling, the other 20% for getting rid of it. Paper products make up about half the municipal waste. How many trees does that amount to each year? Plastics have increased in the municipal waste heap. Packaging is the most common evidence to most of us. On the other hand, this has helped reduce food waste. However, over 90% of plastic packaging ends up in our dumps or landfills. It does not rot and, therefore, forms a permanent fill material.

3. Do aluminum pop cans have a place on the environmental field trip? One study indicates that returnables are two to three times more energy efficient than disposables, and that includes all costs — transportation, washing, and refilling — based on an average of eight uses. Before returnables went out of fashion, bottles were reused 40-50 times. What does your state highway commission spend policing primary, Interstate, and freeway right-of-ways for trash pickup? That will not take into account what cities and counties spend for the same purpose.

4. How about studying the sources of food and follow the progress of the food to the table and the changes it has undergone? Energy use could be related very nicely to this study. *Environment* magazine indicates for each unit of energy the wet rice farmer of China expends, he gets more than 50 in return; whereas for each unit of fossil fuel energy we expend in this country, we get about 1/5th in return. Energy is not only consumed in farm operation, but in the manufacture of farm equipment, electricity, fertilizer production, food processing, and the transportation network which brings equipment and supplies to the farms and moves the food from the farm to tables all over the nation.



*Photo: Ray Pfortner*

5. How about conducting studies on the rate of decay of the types of throw-away materials? This could also include studies on the decay rates of different types of leaves, as would occur naturally in the forest.

6. How does the temperature of a glass jar of hot chocolate wrapped in newspapers change, as compared to a thermos after the same interval of time? Why not have the students design a thermos of common materials and insulating materials?

7. How about studying advertising in the food market?

8. How about an analysis of food wastes, not only with the field trip, but with school lunches as well? What do people throw away and what do people eat and why?

9. How about a set of glasses or cups for a class that they can use and wash throughout the year? This could provide an excellent background for sanitation and microbiology lessons.

Knowledge in and of itself, will not change behavior. The critical element is how we *feel* about what we know. No matter how nutritious a food may be, and is known to be, there is little chance it will be consumed it if does not pass the tests of the senses. This area of exploration could provide the impetus for a large variety of class experiments that would also serve as valuing experiences.

Children bring emotion-packed legacies with them to the classroom. Infants are in a state of pain when hungry. As a result, food supply and love become enmeshed with good feelings. As toddlers, behavior is often reinforced by food rewards or denials. Food further becomes associated with trust and a sense of personal self-worth. These legacies and how we handle them form our food and eating habits througout life.

Lifestyles are another factor. People's habits affect their ideas about food and about eating. We must be aware of the effects of lifestyles on the attitudes of children and their families, both socioeconomically and ethnically and teach accurate nutrition in a context relevant to each child and to each family. We need to explore our demand for a steady flow of new and better products, our throw-away rather than fix value system, our demand for convenience and disposability, and our food waste ethic.

Among our goals for all children is that they develop a healthy self-concept and this includes or should include a healthy attitude about their bodies. They must like their bodies — want to enjoy them — and value the skills they are able to perfect with them.

Each of us generally acts in accord with our values. Our daily judgments and decisions ordinarily express our priorities in life. Our values are the guiding principles for our own lives; they express our understanding of life's purpose and meaning and consequently influence our choices. Values are the abiding and stable principles of each of us; they are the goals, purposes, and meaning for our life and thus they express what we think

we should be and what we hope society will be.

Values are something "out there" accepted "in here" and when these values are ordered by the individual, they constitute a kind of personal plan of life. This has a social implication. Just as individuals make society, so too do their values influence and create social values. Social values are not created by blind forces, nor are they something superimposed on individuals by some uncontrollable, outside power. Call it culture or civilization or whatever you wish, but culture is the product of our choices. Culture is the reflection of our priorities or, if you will, an expression of what individuals believe society should be. Every environmental crisis confronting us today stems from a value judgment made in the past. Environmental problems are a problem of values.

Environmentalists are saying, if we make problems, we can change them. This is our hope. We can make the environment better if everyone does their part; if each person becomes conscious of what can be done; if each tries to realize the consequences of individual decisions; if each realizes that it is all of us that make the environment what it is.

The environment can provide a vehicle for teaching all subjects, both in class and out. We must encourage students to form environmental concepts and values from their own personal experience. This calls for a "learning by doing" approach in which teachers serve as "learning facilitators" rather than distributors of prepackaged knowledge.

The field experience can raise questions within each student about the meaning of their own life and can help them to reflect upon their lifestyle aspirations — introspective questions about their intimate relationship with the web of natural reciprocity. They can pause to reflect upon their lives in terms of ultimate meaning. They can develop their sense of meaning and value commitments through these encounters with natural processes and through dialogue with their fellow classmates and adults. □

**DR. CARMON SLATER** is a member of the Department of Elementary Education at Iowa State University, Ames, Iowa.

## HARBOR SEALS

Wanderers from New England waters
sleeping on rocks at Montauk
another floating way out on a chunk of ice
a small herd moving off-shore at Amagansett
seals hunting fish in Shinnecock Inlet
where Grandmother always took me

Even with a nor'easter coming up we'd stay
snow slanting into our faces
"Look, there's one!" she'd shout
I could barely see the dark shape of a head in the whitecaps

But on a clear day
the sun brightening the snow on the dunes
we'd get close-ups of their round faces looking at us
"Seals," she'd say, pointing them out
to some disbelieving couple who run back
to bring others

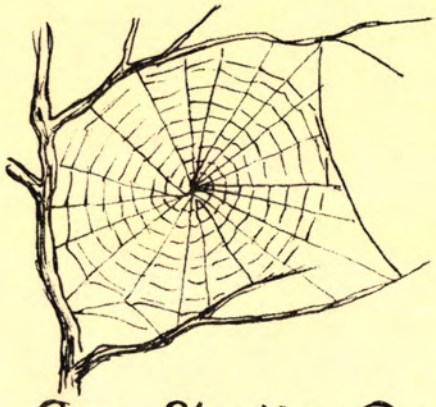
I think of my grandmother as a shepherd of seals



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# Naturalist's Notebook

## Four Pre-eminent Women in Environmental Education



**Anna Botsford Comstock** (1854-1930)
A pioneering professor of nature study at Cornell, she influenced many generations of science educators, not only through her classroom activities, but also through her classic *Handbook of Nature Study*. First published in 1911, it has gone through countless editions and reprints and is still widely used today.

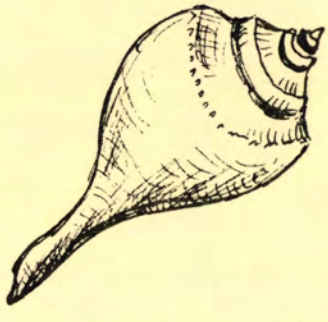
**Gene Stratton-Porter** (1868-1924).
The author of many best-selling novels (*Freckles*, *A Girl of the Limberlost*, *The Harvester*) this famous Indiana writer was also a skilled nature photographer and naturalist. In such non-fiction works as *Moths of the Limberlost* and *Music of the Wild* she wrote about the birds, insects and plants that she loved. Although sometimes too sentimental, anthropomorphic and moralistic, her work as a whole influenced millions of readers to a greater awareness and appreciation of the natural world.





**Eva L. Gordon** (1892 - 1962), as one of her Cornell students observed, "was a caring human being and a great teacher." As such, she guided and deeply influenced many who went on to become leaders in science education and the nature study movement. In her honor, the American Nature Study Society instituted the Eva L. Gordon Award for Children's Science Literature in 1963.

**Rachel Carson** (1907 - 1964).
A trained scientist and inspired writer, Rachel Carson was a leader in explaining the concepts of ecology and the interrelationships of plants, animals, water, earth, and air in *The Sea Around Us* and other books about the oceans. In her classic *Silent Spring*, she warned of the dangers of pesticides and made people everywhere more conscious of the many threats to our environment.



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**Calling all authors, teachers, environmentalists, ANSS members: We need articles for the next journals.**

| Topic | Deadline |
|---|---|
| Weather | January 1989 |
| Food and the Environment | April 1989 |
| Non-Flowering Plants | September 1989 |

**We also need help with editing. Any volunteers?**

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