

"A Gathering of the Elders," April 15-17, 1988

Howard E. Weaver Presentation

"Honor the Past, Serve the Present, Build for the Future"

Howard Weaver:

I was rather upset to come to a conference called "A Gathering of the Elders," because that obviously puts me in that category. I'm really just a visitor; you people are the elders. (laughter). As I look around, I see grey hairs, I see a twinkle in the eye, I see energy and enthusiasm, but I don't see a woman over forty! (laughter and applause) So I don't know where Paul [Spector] got the title for this meeting.

We are here, in no small part tonight, because of great leaders that we have known. It's fun sometimes to have an audience tell how they got started in nature. Members of the fine panel this morning told how they got started. Invariably, it goes back to an individual, sometimes more than one person; not necessarily parents, although we heard Helen Ross Russell credit her parents. If you haven't done so already, think back to how you got interested.

I was lucky to have relatives on farms. I was a city boy--Indianapolis, Indiana--28th street--and attended a public school (#44). My father and uncles were fishermen and hunters; I grew up with that. I fortunately lived near a river (White River), where I hiked and fished. Also, I had an uncle (Alfred E. Weaver) who was an amateur horticulturist, and developed one of the first green gladiolus in the United States. I remember, as a Boy Scout, working on Gardening Merit Badge, and I got my interest in birds through Bird Study Merit Badge, as I worked for my Eagle rank. I am grateful to Boy Scouting, because it probably helped me obtain my first job as one of the first two junior naturalists in Indiana (1941).

This morning, one of you mentioned that you were the only person in your school interested in this or that. Well, I was the only person in my high school interested in conservation as a career. As a child I went to the Riverside Fish Hatchery, a bicycle ride from my home. I saw men seining fish, and getting paid for it! "Boy," I said, "I want to work for the Department of Conservation." In 1941, my high school arranged for an interview with Colonel Richard Lieber, founder (and past Director) of the Indiana Department of Conservation.

Lieber had attended the White House Conference on Conservation with the Governor of Indiana. Teddy Roosevelt and Gifford Pinchot organized the first White House Conference on Conservation (1908). Out of that grew the the National

Conference on State Parks, and the State Parks of Indiana. 1916 was Indiana's centennial, and Indiana was to have a state park (McCormick's Creek and Turkey River) by 1916. During that time you had park systems, like Palisades Interstate Park of New York (Major Welch was it's developer). It's strange that a cornfield state like Indiana would develop a leading state park system, probably second only to Palisades Interstate Park of New York. By 1941, Lieber had been ousted as Director of the Department of Conservation, because he was the wrong political persuasion (Republican). The Governor just fired everyone who wasn't of that party in power at the time (Democratic). Lieber however, had such a national reputation that Franklin D. Roosevelt sought Lieber to work in state relations for the federal government, with an office in the Federal Building in Indianapolis.

As a graduating high school senior I went to see Colonel Lieber, and told him I was going to Purdue, and major in forestry. He thought that was fine, and took down a volume of The Trees of Germany, where he was born and raised. We compared American trees with those of Germany. I told him that I was an Eagle Scout and I knew birds and trees pretty well (which I did, for that stage in life), and asked if it would be possible to work in Indiana State Parks that summer. Unknown to me, they were creating two junior naturalists positions, and after an interview with Charles DeTurk, State Parks Director, I got the position at McCormick Creek State Park (1941).

For the first time in my life, I was with college people. My father went to the fourth grade, my mother to the eighth grade; both encouraged me to study and supported my attending the university; neither questioned my chosen career. My father was a too busy with his small electrical and wholesale business to spend much time with me in the outdoors, so I would go out with my Uncle Alfred. For these reasons, I appreciated my summer with college graduates and my work feeding caged animals, and scrubbing down the museum floor every morning at six o'clock. The nature center was called a museum, not a nature center. I also helped lead hikes and run the slide projector--an old SVE (Society for Visual Education). You had to move the slide holder back and forth by hand, and not keep it in too long or the slide would warp. I ran one of those projectors and heard the naturalist presentations. Following enlistment in the Army, and active duty (1944-1946), I served three summers as a naturalist at McCormick's Creek (1946-1948). It was a great life--no such thing as an eight hour day--six o'clock in the morning till midnight sometimes--personal "business" you understand.

All of us can think of great people that have influenced our lives. I certainly gained much from Rey Carlson, sitting here. Although I never studied under Rey, I've studied under many of the greats, and observed them in the field. I knew many of founding fathers of the nature study movement, and listened to

Liberty Hyde Bailey and others. That is why I feel quite at home with the program today at Holden Arboretum.

Bailey, Comstock, Vinal, Palmer, Eva Gordon, May Watts, etc. were great in the field; all of them contributed to The American Nature Study Society. I remember ANSS meetings with Edwin Way Teale, Roger Tory Peterson, etc. All were influenced by Cornell's great naturalist teachers. I am happy and privileged to see tonight former classmates, ANSS friends, and colleagues, who I respect, and who shared experiences with E. Laurence Palmer, in many facets, Eva Gordon, "Wild Bill" Hamilton, Arthur Allen, Walter Muenscher, etc. The Cornell years were great years. Like John Gustafson, I didn't know if I was going to make it to Cornell; I was on Palmer's 1947 waiting list, but Palmer knew the chief naturalist of Indiana, Howard Michaud, which helped. Anyway, those are some of my beginnings.

The topic tonight, "where we've been, where we're at, where we're going in the future" is quite an assignment. May I refer you to the chapter I prepared in Grant Sharpe's Interpreting the Environment. This is the first edition. I've lost my copy of the second edition. My chapter two of Interpreting the Environment, presents an overview of the history of the interpretive movement. Did you ever think you would know someone who's name lays along that of Pestalozzi, and Socrates, and Plato? Well here I am [holding up book, opened to chapter two], and there's Socrates, Plato, and Howard E. Weaver. (laughter) Anyway, I would refer you to the bibliography of that chapter. I spent a summer deep in the stacks of University of Illinois library (an excellent library) digging out some of the authors and books Palmer and Gordon had introduced to us in Nature Literature-- naturalists, and nature writers, artists/naturalists, explorers, etc. It was great reading about the experiences and methods used by early naturalists and pioneers in field nature study and education. I knew the names, but I still had not developed a feel for them. I could spend a summer, sinking my teeth into books about these old pioneers. It was very rewarding and contributed much to Grant Sharpe's book.

This research was essential and, undoubtedly, nature education goes back probably to the ancient Chinese, who had wonderful cultures thousands of years before Christ. We really do not know where nature guiding, and nature education began. They probably began when two men got together without bashing one another over the head with a club. They could learn something from somebody-- how to catch a rabbit, kill a saber-tooth tiger, etc. Teamwork and sharing knowledge and skills enabled them to obtain more food and protection.

A Roman, Quintillian, shortly after the birth of Christ, stressed first hand learning. We've been talking today about the need for sensory experiences; first-hand learning, etc.

Quintillian wrote:

"Knowledge depends on the will to learn; it cannot be forced. Through precepts, the way is long and difficult, but by example it is short and practicable."

Here's Quintillian, writing about the need for first-hand learning experiences, and practical learning experiences. Roger Bacon stuck his neck out to put forth certain aspects of scientific knowledge. Many other early naturalists had to walk the tightrope, because they might say something that was in conflict with the religious dogma, and political authorities. We should be grateful to these people, because they accomplished much during the infancy of science with crude equipment and limited financial resources.

One of my favorites is John Amos Komensky (Comenius, 1592-1670), born in what is now Poland. Komensky, latinized as Comenius, was a Moravian bishop. He realized that sensory experience was vital to knowledge. Comenius used objects and models of objects in developing object teaching, and a book, Didactica Magna, 1638. His students observed things, then made models of them. Comenius also used gardening as a laboratory in the 1600's--perhaps the beginning of school gardening.

Comenius found that sometimes children had difficulty in separating c-a-t from d-o-g, so he drew a picture of a c-a-t, and a d-o-g with the words. One of you this morning (Phyllis Ford) mentioned having a childhood fear of donkeys, fear of other animals. A Chicago teacher took her class to a dairy where a little girl went into hysterics when she came around a corner, and came face to face with a cow. In her picture book, a cow was the same size as a dog! Comenius recognized this, and wrote Orribus Pictus, the first illustrated book for children. He also showed insight into relationships of organisms, and was familiar with what today is called ecology. That's pretty good for a Moravian Bishop!

I wrote Edwin Way Teale, a past president of ANSS, and asked him what were his favorite books and who influenced him? The first person on his list was Gilbert White, who wrote The Natural History of Selbourne. Gilbert White studied things in his immediate area. He wrote of his field experiences, and the relationships of things in the Selbourne area of England.

And another favorite of mine is John [Johann] Heinrich Pestalozzi (1746-1827)--what a name. Some of you, I'm sure, have experienced times in your career when you were short of money. Pestalozzi was as poor as a church mouse, humped over, full of pock marks from smallpox--certainly not much to look at--but

pupils loved him. Now what do you do when you're poor as a church mouse? What did this teacher without money do? He opened a school for orphaned children! He didn't have equipment and specimens from Wards Scientific Company, etc., so he took children on field trips. They had gardens to raise food, they learned mathematics in preparing gardens, they learned to count and weigh.

Pestalozzi took them on field trips before they studied mapping; he took them into the hills, they gathered clay in baskets, and took field notes. When they got back, they built a model of what they observed. Next they went out to higher elevations, and built up their models. They developed topographic maps of the valleys, and tributaries. Then they studied mapping. Today, we too often hand a kid a map, tell how the black indicates the works of man, browns are contour lines--"imaginary lines of the same elevation," etc. The child doesn't have any concept of what the land features are like. Pestalozzi's did. Pestalozzi's school near Yverdon, Switzerland attracted children of wealthy Europeans; unfortunately he was no businessman.

One of Pestalozzi's understudies was a person by the name of Frederic Froebel (1782-1852), of Germany. Froebel recognized Pestalozzi's weaknesses in administration, and improved upon his methods of instruction. Froebel was founder of the kinder-garten, a child's garden. Froebel, like Comenius and Pestalozzi, used gardening in his science instruction and as a way to get food. Frederic Froebel wrote a book, The Education of Man (1826). Little mention is made of that book today. Any of you in outdoor education, with camps, and training teachers in the field of outdoor education should try to get a hold of Frederic Froebel's Education of Man, because there is much to gain from it, useful things appropriate for schools, camps, etc. They worked for Froebel, and would work in 1988.

Consider now implications of the work of great explorer/naturalists. We mentioned Alfred Wallace today, neck and neck with Charles Darwin in the development of theories of evolution--a great explorer. How wonderful it was for Bailey to have a meeting with Wallace at Michigan Agricultural College, Bailey's Alma Mater, now Michigan State University. Darwin, Wallace, Von Humboldt, Agassiz, Andrews, Beebe, etc., contributed so much to the development of the natural history of the world.

The first storehouse for the collections of early explorers was the British Museum created by Parliament in 1753. In the United States, we think of such science centers as Philadelphia and Benjamin Franklin, a remarkable statesman with a broad knowledge--broad interests, working with the Philadelphia Academy of Science. Think of young entomologist Thomas Say--the father

of American entomology-- working in Philadelphia; Say and other scientists going down the Ohio River to a little village, New Harmony, the first prominent education center west of the Appalachians, in Indiana. The boatload of knowledge was an exciting story, of people of great intellect going to form the perfect community. It was pure communism, and pure communism like pure democracy doesn't work. Everyone wanted to be chiefs, and no one wanted to be an "Indian." It was a great, noble experiment, and Indiana's first geologist and first president of Purdue University, David Dale Owen lived there. If you are not familiar with the New Harmony movement, read about some of those early founders--the founder of American geology, William Maclure; Thomas Say, the father of entomology, and so on. One of the first geological surveys was right here in Ohio, and Cincinnati was one of the first centers of science west of the Alleghenies. Eccentric but brilliant Constantine Rafinesque did much of his work in this area at the time of Audubon. Rafinesque wrecked Audubon's Cremona violin killing a bat for a specimen.

I love a story about President Thomas Jefferson, who along with Franklin, was a man of great intellect. President Jefferson was trying to find out what we had in the Louisiana Purchase that he got from Napoleon, who needed money to fight his wars. What did we pay for the Louisiana Territories, from Louisiana to Montana--about fifteen million dollars? Jefferson asked Congress to appropriate money for a scientific expedition into the Louisiana Territories. "Sorry, but there's no money." Jefferson knew Congress, so he selected Captains Lewis and Clark and went to Congress for money for a military expedition. "Certainly Mr. President, how much do you need? No problem!" Jefferson got two thousand dollars for a two year study--the Lewis and Clark expedition. He couldn't get money for a scientific expedition, but he could get money for a military expedition. Now does that sound familiar?

Consider other early explorer naturalists. Francois Michaux, traveling through the mountains of the southeast; John and William Bartram, Alexander Wilson who was to influence Audubon; on and on--great writers, and you have to marvel--and also be envious of what they saw--nothing but foot trails and horseback trails through wilderness.

Botanical gardens and arboreta such as the Holden Arboretum have played a highly significant role in nature education and plant propagation. Among the earliest was the Temple Coffeehouse Botanical Club of England. Teas were commonplace, and coffee was a novelty, so coffeehouses emerged with a fascination for various teas and herbals.

Botanical gardens began with John Bartram's Garden in Philadelphia in 1728, followed by the Philadelphia Botanical

Society in 1806, the Arnold Arboretum of Harvard, 1876, the New York Botanical Garden, 1891, and the Brooklyn Botanic Garden in 1910. Here Anna Gullick conducted a pioneer's children's gardening program.

The British Museum, created in 1753, followed Bartram's garden by twenty-five years. Museum development kept pace with botanical gardens with the creation of the Smithsonian Institution in 1846, the Agassiz Museum at Harvard, 1859, the Peabody Museum of Natural History at Yale, 1866 and the New York Museum of Natural History, 1870. Museums were followed by zoological parks such as Cincinnati's, 1875, Philadelphia, 1876, New York Zoological Park, 1888, the National Zoological Park, 1890, and the New York Zoological Park, 1899. The Buffalo New York Museum of Natural History had a highly developed children's program in 1879, but the first children's museum was founded in Boston in 1889.

Scientific organizations were usually the forerunner, and certainly an outgrowth, of such natural science facilities as botanical gardens, museums, and zoological parks. Early organizations in the United States were:

Philadelphia Botanical Society, 1830
Philadelphia Academy of Science, 1812
Boston Society of Natural History, 1830
American Geological Society, 1838
American Association for the Advancement of Science, 1848
Buffalo Society of Natural Sciences, 1861
Agassiz Association, 1875
American Forestry Association, 1875
American Humane Education Association, 1877
American Ornithological Union, 1883
Geological Society of America, 1888
National Geographic Society, 1888
National Academy of Science-General, 1888
Society of American Foresters, 1900
Wildflower Preservation Society, 1902
American Nature Study Society, 1908

Mention of the Agassiz Association reminds me of the story about Louis Agassiz, Professor of Natural History at Harvard, and a visiting professor at Cornell. Agassiz had developed the theory of glaciation in Europe, and was interested in all of the natural sciences. One day on the Cornell campus, he was in Cascadilla creek with a frock coat and pants rolled up. A little boy who would become a prominent Cornell zoologist, was summoned by Agassiz. "Come here little boy (boy), I show you something (something)!" Agassiz was watching a stone-roller minnow make its nest. Was this the spark that ignited a little boy's interest in science?

The American Association of Museums provided stimulus for the development of museums throughout the United States. Prominent among the museums was the American Museum of Natural History in New York. Expeditions including those of Roy Chapman Andrews to Mongolia, Carl Akeley to Africa, and William Beebe to ocean depths added to its collections and scientific knowledge. Theodore Roosevelt as a boy spent considerable time in the museum and, as an amateur ornithologist, corresponded with other children throughout the world. Roosevelt was an avid and rapid reader. His traveling library, the classics bound in pigskin, and in a metal trunk, may be seen at the New York museum. While President, Roosevelt was presented a book by an author friend who encountered the President a half hour later. The author said to Roosevelt, "I hope you enjoy the book, Mr. President." Roosevelt replied, "I did!" The author was disappointed, until Roosevelt began discussing the book with him in detail.

Another significant contribution of the American Museum of Natural History was the creation of the Laura Spellman Rockefeller Fund which made possible the creation of the Trailside Museums at Bear Mountain on the Hudson River in Palisades Interstate Park, and the National Parks by such museum leaders as Herman C. Bumpus, John Merriam, Joseph Grinnell, Laurence Vail Coleman and others. Major William A. Welch, park superintendent of Palisades Interstate Park, had attended the meeting of the National Conference at Des Moines, Iowa in January 1921 and was enthused about the reports of Harold C. Bryant and Loye Holmes Miller, the first "special ranger" (park Naturalist) at Yosemite (1920-1921). The conference helped spread naturalist programs, trails, and museums in state parks. Nature programs in the West and the East developed simultaneously. While the Yosemite program was beginning, Benjamin T.B. Hyde ("Uncle Bennie") and a Boy Scout, William C. Carr, set up a tent nature center at the Kanawauke Lake region of Palisades Park near Bear Mountain. This led to the creation of the Trailside Museums in the Harriman section of the Palisades Interstate Park by Hyde and Carr with the assistance of Herman C. Bumpus. The area served more than forty-five resident camps.

Benjamin Talbot Babbit Hyde- "Uncle Bennie" is an unsung hero in the nature study movement. Having inherited a fortune from the Babbo Soap and scouring powder fortune, he volunteered his full time services to the New York museum of Natural History and spent summers with his nature museum program at Bear Mountain.

William C. Carr, a Boy Scout who assisted "Uncle Bennie" lived next door in Flushing, N.Y. to Daniel Carter Beard, the artist who illustrated Mark Twain's works, and the first chief Scout of the Boy Scouts of America. Beard had been an illustrator for several boys magazines, and had created an organization, The Sons of Daniel Boon. Beard's camping drawings and articles led to the publication of his Handy Book for Boys

the forerunner of the first Boy Scout Handbook. Beard and the famous artist-naturalist Ernest Thompson Seton were co-founders of the Boy Scouts.

William C. Carr joined the staff of the American Museum of Natural History, working closely with "Uncle Bennie." After entomologist Frank Lutz developed a "Field Station for the Study of Insects" at Bear Mountain, Hyde and Carr developed a system of self-guiding nature trails. Carr published a series of booklets on trailside museum and nature trail development. With failing health in later years, he moved to Arizona, where, with the help of philanthropist Arthur Newton Pack, son of lumber baron Charles Lathrop Pack, Carr developed the Arizona Sonoran Desert Museum.

Prior to the development of nature guiding by Bryant and Miller at Yosemite, and the work of Hyde and Carr at Bear Mountain, Enos A. Mills (1870-1922) conducted nature-oriented field trips in 1899 up Longs Peak in what was to become Rocky Mountain National Park.

Mills, a sickly boy (allergy to carbohydrates) had worked in an Iowa bakery, and went west as a young man to Colorado for health reasons. Here he worked in the mines carrying sharpened drill bits to the miners. At night he studied natural history in the local library and decided to be the best nature guide in the Rocky Mountains.

Following a mine explosion, Mills went on a trip to California, and found a plant near the coastline that he was unable to identify. While studying the plant, a tall, bearded man came up to him and helped him identify it. This was a most fortunate, accidental meeting of Enos Mills and John Muir. Muir had been working for the creation of Yosemite as a National Park; Mills was working for the development of Rocky Mountain National Park, and John Muir's advice greatly motivated Mills. Their kindred interest in natural history and conservation evolved into a strong friendship. Enos developed nature guiding as part of his resort development at Longs's Peak Inn, and consistently prodded Steven T. Mather and his assistant Horace Albright to create nature guiding in the National Parks.

John Muir, a native of Dunbar, Scotland, attended the University of Wisconsin. He made weather observations, and to help wake him up early in the morning he developed a device that rocked him out of bed. Muir did not graduate from the university, rather he went to California to pursue his interest in natural history, discovered the Muir Glacier in Alaska, raised a family, and worked for the conservation of natural resources in California. As author and conservationist, he received an honorary doctorate from the University of Wisconsin.

It is most unfortunate that Gifford Pinchot invited neither Muir nor Mills to participate in Roosevelt's White House Conference on Conservation, 1908.

Steven T. Mather made a fortune from the American Potash Company and created the "Twenty-Mule-Team Borax" logo for the popular cleansing agent. When he was critical of the Army management of National Parks, the Secretary of the Interior invited him to head the parks. Mather, using much of his personal fortune, developed the National Parks Service in 1916. Fellow Californian, Horace Albright, was his assistant. It was fortunate that Steven Mather, troubled by a group of businessmen seeking to put an amusement park in Yosemite Valley, accidentally encountered an owl presentation by Loye Holmes Miller at University of California classmate, Billy Prices's Fallen Leaf Resort near Lake Tahoe, on July 20, 1919. That summer, Harold C. Bryant and California banker and philanthropist, Charles M. Goethe, were conducting their "Tahoe Experiment" with Bryant conducting lectures and field trips at Tahoe resorts. These events led Bryant and Miller to initiate nature guiding at Yosemite in 1920. Following the successful program, Mather had Bryant and Miller make a nation-wide trip lecturing at nationally known museums, etc. and meeting with prominent natural scientists and educators. An early stop was at the meeting of the National Conference on State Parks at Des Moines, Iowa, January 1921. Here Bryant and Miller inspired such noted state park leaders as Major William Welch of New York and New Jersey's Palisades Interstate Park, and Colonel Richard Lieber of Indiana.

Bryant and Miller both received doctorates at the University of California at Berkley. Miller was a prominent paleoornithologist who had done much of the early work at the Labrea Tar Pits and was teaching at what is now the University of Southern California. Bryant did his doctorate work on the economic importance of the meadowlark, and while working with the California Game and Fish Commission, led prominent businessmen and students on "Six Trips Afield" in the Berkley area. He would later head the Research and Education Division of the National Park Service, and develop the Yosemite Field School of Natural History.

Charles M. Goethe, the Sacramento banker and philanthropist, had a home museum as a child and raised chickens--naturally at a profit--and later managed the banks (Wells Fargo) and investments of his father. Charles's wife, Mary Glide Goethe, was a banker's daughter and the first female graduate of astronomy at the University of Chicago. She married Charles with the provision that all their money in excess of basic expenses would go to promoting parks, playgrounds, and education in the natural sciences. Worldwide travel, during which they observed nature guiding of the blind in Denmark, motivated the Goethes to sponsor the "Tahoe Experiment," develop parks and playgrounds, and

scholarships in the natural sciences, etc. Goethe claimed that he brought nature guiding to the United States. This was an overstatement, for he overlooked the work of Enos Mills, John Muir, John Burroughs, and many other early naturalist. The contributions of the Goethes were, however, quite significant in the history of nature education and the nature study movement.

It is important that nature guiding in national and state parks began with well-trained naturalist who were also excellent lecturers and skilled at leading field trips. Enos Mills, and especially Bryant and Miller, gave such such programs credibility with natural scientists and educators. The backing and support of the American Museum of Natural History, American Association for the Advancement of Science, National Academy of Science, etc. and universities such as California, Chicago, and Cornell gave impetus to the movement.

We could mention the role of teachers. Certainly there was no greater teacher than Louis Agassiz. I know some of you are sick and tired of hearing about Cornell today. But think of Agassiz at Harvard, having a field natural science course at the Isle of Penikese--off Massachusetts. "Study nature, not books, he said". Among his students was Henry Ward; you all remember Wards Natural Science Establishment of Rochester, New York.

Another student was David Starr Jordon, Cornell's first graduate assistant--in botany, I believe it was. As a student at Cornell, he developed a paper on hoof rot of sheep and presented this paper to the American Association for the Advancement of Science. Jordon, as a student, lived in a house at Cornell known as "The Strug"--the struggle for existence. I don't know if that sounds familiar with current graduate students or not. Also living in that house was John Henry Comstock, entomologist. Jordon came to Cornell with fifty dollars, and left with fifty dollars. He applied to the University of Cincinnati and the University of Michigan, wanting to teach natural science. President Angel of the University of Michigan wrote back, and said the university had no need for instruction in zoology, physiology, botany and other natural sciences. The president of University of Cincinnati said, "They had someone teaching ancient history, and if there was ever a course in natural history, the same person could probably teach that." (laughter) David Starr Jordon, who wrote the Manual of Invertebrates, became the president of Indiana University. Jordon Creek that flows through the Indiana campus was named for Dr. Jordon. Nearby, he discovered a blind fish, *Amyloopsis* sp.) in Donaldson cave, at at now Spring Mill State Park. David Starr Jordon next became the first president of the "Cornell of the West", Leland Stanford University.

I mentioned the film today Palmer made of Liberty Hyde

Bailey, Anna Botsford Comstock, John Henry Comstock, and David Starr Jordon. Mrs. Palmer handed David Starr Jordon a little frog; the film shows the frog in the hands of the man who wrote the Manual of Vertebrates, and Jordon said, " I wonder what it is?" He was quite old at that time, his eyesight was poor, and he had forgotten many things. It is a charming film; I hope sometime we can all see it.

Another important influence of this organization (ANSS) came through E.L. Palmer's work with the American Nature Association Charles Lathrop Pack Forestry Foundation--headed by Arthur Newton Pack, Palmer received research fellowships in exchange for his "Nature Inserts" in Nature Study magazine. Many doctoral theses that were turned out at Cornell, some twenty four of them, I believe. Mine was one of the last; in fact I was Palmer's last PhD; the day after I had my doctoral exam, Palmer retired. That's cutting it pretty thin folks. He was afraid I wasn't going to complete my degree.

Verne Rockcastle: That's all he could take.

Howard Weaver:

All he could take--right. But at that time, I was working for the Texas Forest Service, and writing the thesis at night. It was weighty- my wife can tell you, because she typed a thesis almost three inches thick. I might add that my wife Dorothy typed part of the manuscript of James Needham's Dragonflies of North America. Needham was another of the great early science educators, and Dottie had the privilege of typing for him when he was quite old. I was pleased that she got to know Needham, who, like Loye Miller, used poetry effectively. John Gustafson recently wrote of the place of poetry in a recent issue of Nature Study.

Rockcastle: How thick was your thesis, Howard?

Weaver:

There was a lot of ink; I'll tell you that Verne. There was also some thirty thousand miles of travel behind that data. I mentioned Pack, because when I was at Cornell, I enjoyed going to the Sage Chapel. I am now in Michigan, working for the Genesee County Park and Recreation Commission; and a forester by training. I learned one of the great timber barons and land owners of Michigan was Sage. Part of his fortune was gained speculating and investing in Michigan timberlands. Another lumber baron in Michigan was Charles Lathrop Pack; after clearing off the virgin timbers, he became a conservationist. (Laughter) His son, Arthur Newton Pack, was the mainstay of the American Nature Association, which published Nature Magazine. Dick Westwood was secretary, and Arthur Newton Pack had the money. Pack was living in the West, and when Bill Carr came to Arizona, Carr and Arthur Newton Pack got together, and developed the

Arizona Sonoran Desert Museum. Now you can see the influence of Bear Mountain, and how nature education developed simultaneously in California and in the Harriman section of Palisades Interstate Park. Again, we see the museum field bearing fruit.

Mention was made today of Cap'n William Gould Vinal, director of Camp Cohasset a sailing camp for girls (1914-1926). You asked today, how Cap'n Bill got his title. It was from Camp Cohasset; Cap'n Bill was the captain, the director of the camp. In 1920, Cap'n Bill developed a Nature Lore School, for pre-camp training of camp counselors in nature study activities and showing them how to set up a little nature center in a camp, etc. In 1926, Vinal was editor of Playground Magazine, for the National Recreation Association. In 1928, he established the Nature Guiding School, one of the first schools for training nature guides. Where was it, anyone? It was mentioned today, Western-- (pause)

Audience member: Western Reserve University

Weaver:

Western Reserve University, Cleveland Ohio, right near here. This preceded the Yosemite Field School of Natural History, that Rey [Carlson] attended with Harold Bryant. Vinal next went to the University of Massachusetts, where he developed the book Nature Recreation. Vinal was a naturalist; he was also a great educator, but he used the medium of recreation--this was his forte. Palmer [nature] education, Vinal [nature] recreation. We see their tremendous influence; and that of their students.

I never met a student who didn't like Cap'n Bill. Everyone was a student of Cap'n Bills; regardless of where you studied nature education, you were one of the "Vineholler" group. I never studied under Cap'n Bill, but I observed him in the field, thanks to the American Nature Study Society. I'll never forget the trip to Massachusetts, Cape Cod. Cap'n Bill knew Cape Cod like the back of his hand, being a native there. His father and grandfather were sea captains. Here was Palmer, and Cap'n Bill, Roger Tory Peterson (probably), etc. on the same field trip. Vinal, in the 1930's conducted National Recreation Institutes throughout the United States, and his successor was Reynold Carlson.

[End of side two, tape one]

[Present and Future]

The Boy Scouts helped establish my professional interests, and opened the door in Indiana State Parks. Is it fair to assume that the Boy and Girl Scouts, outdoor-related and character building organizations, should be prime customers for nature

study? I did a survey, a few days ago, and read the annual report of the Tall Pines Council, which covers three counties in Michigan (Genesee, Shiawasee, and Lapeer Counties). I thought you'd be interested in the results tonight, since Verne stressed today the need to get graphical. It's true past needs were great, but what about present needs? I studied the nature-related merit badges earned in 1987 by the Boy Scouts in the Tall Pines Council. There were 6,082 boys in the Council; of these 989 are Boy Scouts; the rest are Cub Scouts. Why aren't boys staying in scouting? Because it's not cool. I know a boy that is an Eagle Scout candidate; when he gets a phone call from his buddies, his mother is instructed not to say that he's at Scout meetings, he's just out. He doesn't want his peers to know he's a Boy Scout.

"On my honor, I will do my best to do my duty to God and my country; to obey the Scout Law; to help other people at all times; to keep myself physically strong, mentally awake, and morally straight."

What's wrong with the Scout Oath? Nothing.

"A Scout: is Trustworthy, Loyal, Helpful, Friendly, Courteous, Kind, Obedient, Cheerful, Thrifty, Brave, Clean, and Reverent."

What's wrong with the Scout Laws? Nothing. It is the the only character building organization for boys, and boys don't want to be a part of it. Think of Ernest Thompson Seton, Daniel Carter Beard, William Hillcourt--anything sissified about those guys? Not in your life.

Okay folks, you who run nature centers; you who run nature education, training for Scout leaders--camps; here are the facts; 989 boys, plus 28 in the Explorer program, a total of 1,017 boys; how many merit badges did they get related to nature?

Astronomy--1,715 boys--want to guess? Place your bets.

Audience: Fifteen; ten; fifty.

Weaver: Five.

Bird Study, where I got my interest in birds-- How many Bird Study Merit Badges in 1987, in three counties in Michigan?

Audience: Twenty-five; three; fifty-five; twenty seven.

Weaver: Ready? Zero.

Ruth Melvin: How about Geology?

Weaver:

Hold on. Beekeeping--one. Environmental Science--I never

had that merit badge when I was a Scout--fifty one. Fish and Wildlife--now doesn't that excite you? Place your bet.

Audience: Ten, seven. How about Skateboarding?

Weaver:

Sixty-seven got Fishing Merit Badge, but that's applied, so that doesn't count. How about Forestry Merit Badge? How many Forestry Merit Badges in 1987?

Audience: None; fifty; twelve.

Weaver: There were three.

Audience member: What was the highest?

Weaver: In number of nature-related Merit Badges, the subject? Environmental Science.

Audience member: That's required.

Weaver: That's right. I'm sorry, Fishing, but among the science Merit Badges, Environmental Science. How about Geology?

Ruth Melvin: Yeah, I want to know.

Weaver: Place your bets.

Melvin: Three.

Weaver: You're close; four. There were four Geology Merit Badges.

Verne Rockcastle: How big an area did you say the council covered?

Weaver: Three counties.

Rockcastle: What geographic area- how many square miles, for instance?

Weaver: I don't know. [1,840 square miles]

Rockcastle:

Can I give a statistic, just something to think about? In one of several school districts in Bronx, New York, there are 22,000 kids, grades one through five. When you talk about 1,700 in three counties, compare that to 22,000 in a fraction of a county. I think ANSS has to look a little bit at where they are putting their emphasis.

Weaver:

But I said Boy Scouts, a character building organization; perhaps the cream of the crop-maybe, maybe not. But these are potential leaders of America. Most of our astronauts are Eagle Scouts. An Eagle Scout almost has an open door to the service academies.

How many Insect Study Merit Badges were awarded in 1987?. Do you include insects in your program?

Audience: None.

Weaver:

None? Insects? Kids love bugs! Unfortunately you were right. No Merit Badges in Insect Study. How about Reptiles?

Rockcastle:

Well, what are you saying to us? You can go on and on with statistics, but what is your message here now?

Weaver:

Here's the message: Through Scouting, children have opportunities to become acquainted with the out-of-doors. They have an opportunity to learn relationships of natural resources. They have an opportunity to become motivated, and to become informed citizens, maybe to go into the professions, and so on; but at least be intelligent voters on matters that pertain to natural resources, and promote the conservation and preservation of ecosystems, etc.

Reptile Merit Badge--one Merit Badge. Soil and Water Conservation--three. A total of 141 Merit Badges minus fishing, which left 74 in 1987, of a three county area, with 989 Boy Scouts. In other words, we're missing the boat.

The Genesee County Parks has two nature centers and an arboretum. I had five full time naturalists working for me in 1975. Now we have one part-time naturalist.

Phyllis Busch: Why?

Weaver:

Lack of money, millage defeats; in two straight elections people turned down the park systems because they wanted the C.S. Mott Foundation to support it all. School millages (tax referenda) are failing right and left.

Two days ago, I phoned the chief naturalist of the National Park Service; I wanted to know what the status--number of naturalists in National Parks, thinking back to Loye Miller, Harold Bryant, H. Raymond Gregg, etc.. According to Roy Graybill, Acting Chief Naturalist, there are 1,478 permanent interpreters (naturalists, historians, archeologists) in the National Park Service. They must spend at least 50 percent of their time as interpreters. They can be assigned other duties, but at least 50 percent concerns interpretation. There are 2,080 seasonal park employees; 50 percent of these are interpreters. But get this: each year, there are between four and five hundred work years being done by volunteers, 1/2 of whom are in interpretation.

Rockcastle:

If you were manufacturing a product, and gave the statistics

you gave, the product is not selling. You could say, "Look, our product has to be redesigned--something is wrong". Now you can go on, and give all the Merit Badges for the whole evening. The point is, we are not hitting the target, and I think that's maybe the big message.

Weaver:

We're failing in our Tall Pines Council to reach young boys in nature related activities. Now I'm sure you are just swamped with Boy Scouts and Girl Scouts, and you have training programs galore for Boy Scouts and Girl Scouts. We in Michigan are backwoodsy, but you people are reaching far more youth in the outdoors--or are you? I don't know.

Phyllis Busch: Do you know what the situation is elsewhere? Is this reflective of the country?

Weaver: Phyllis, I don't know.

Busch: Do you suspect it is?

Weaver:

The enrollment in Boy Scouting is (I'm going to the National Convention in San Diego next month) in decline. There is a national problem of attracting youth of Boy and Girl Scout age (11-17) to Scouting. It has so much promise for outdoor awareness.

Busch: What do you think ought to be done?

Rockcastle: Same thing as was done with the Cornell Rural School Leaflet. [It was discontinued] (laughter)

Reynold Carlson:

I think the Boy Scout organization backed away from the outdoor-related activities a few years ago, and I think that's one reason for their loss in membership, and one reason for their loss in the outdoor living and learning field.

Robert Russell:

Part of the problem is the computer, which is the same thing as their watching television, the same problem we are having in the public schools. It's not just current to the Boy Scouts. In the city of Jersey City (a city of 450,000) I don't think there are more than two or three Boy Scout troops in the whole city because parents are keeping their kids home. You either keep them home or you get them out. That's not not the fault of American Nature Study Society, or other people; it's the fault of the society we're living in right now, which is befronted with television, passive resistance, and playing computers.

Rockcastle:

Helen [Russell], made a comment today I don't think many people heard, but my ears were standing out like an elephant at full charge. She mentioned computers. I'll bet you there are

more kids that have access to a home computer, than belong to Scouting. And what are we doing? Nothing! You talk about insects and entomology; what if American Nature Study Society, with the expertise it's got, developed a computer program, where a kid could bring a bug to a computer. The computer says: "How many wings does it have?" Kid: "It has wings? Gosh it has got wings-it has four." Punches in four. [Computer]: "How many eyes does it have? Keep punching this thing, and finally he finds it's a beetle, a Colioptera. Then the computer tells him something about Colioptera. [Computer]: "Would you like to know which of the Colioptera?" Kid: "Yes!"

Weaver:

But Roger Tory Peterson said last night, "beware of computers; this is not the answer." Well let me tell you a funny story. I know I'm running long, and probably boring you. But I had a fellow working for me, Gordon Tanner. He's so dedicated, you put him anywhere in Historical Crossroads Village in Flint Michigan, and he would do a great job. Gordon grew up on a small farm in northern Michigan; they had a rough time of it, particularly during the depression of the 1930's. Nothing was wasted on the farm. Gordon's mother was canning cherries--picking out all the bad ones. She put them in a pile out in the backyard. The sun was shining brightly, and the cherries, in time, fermented. A goose came along, ate all those cherries, staggered off, and keeled over. Gordon's mother ran outside and said, "Oh, my goose died." While she was busy canning cherries, she couldn't have all that down go to waste. She went in the house and got a bag, got down on her hands and knees, and jerked out all the feathers and down she could from that goose, put them in the bag, and went back to her cherry canning. Before long, the goose got up and staggered around. Gordon's mother saw the goose--to make a long story short, she had to make the goose a little jacket to keep it from getting sunburned. (laughter)

I told that to fifth graders recently. Verne Rockcastle showed people with pride yesterday, thank you letters from children with drawings on them. Kids sent me a stack of short stories with drawings. The thing that impressed them about my talk, and my experiences, was the story of the drunk goose. So Verne, they drew a goose, and most of those fifth graders drew a goose with four legs. (laughter) Maybe that explains something about nature awareness, I don't know. You talk about your computer, and this and that; maybe they could learn that birds have two legs. I was amazed; anyway, you would be surprised what kids get out of stories.

How are we going to approach mass nature study? I am excited about video, and stereo availability, videotapes, recordings'etc. Think of the Arthur Allen/Paul Kellog's bird songs, Voices of the Night, Amphibians of North America, etc. Great records, but what they (Kellog and Allen) could have done with videotape and

stereo sound and public broadcasting! We've got to reach the mass media. What mass medium today is helping most people see and learn about nature? I think it's public broadcasting folks. I called a couple of stations including WKAR, in East Lansing, and talked to the program director, Barbara Sutton, who conducts much of the fund-raising for WKAR.

Jane Taylor: I sing in the church choir with her.

Howard Weaver:

You sing in the church choir with her! Okay--you see, keep it relevant, keep it local, I talked about someone she knows. I said, "Barbara, how popular are the nature programs over public broadcasting, WKAR, TV, East Lansing? What are your most sought programs? What are the programs that cause people to donate? After all, that's how public broadcasting's supported-through public gifts when public giving is decreasing. Wild America, Marty Stouffer, Saturday evenings, at 8:00, is one of the best listened to programs of WKAR, East Lansing. Nature, Nova, the National Geographic Specials, Jacques Cousteau programs, and Michigan Outdoors, which is hunting and fishing, are most popular. They had a program, The Saving of Wildlife, which was about worldwide vanishing species etc.. It was okay--not great, but it showed many exotics. People support public broadcasting because they want to hear the nature-related programs. There is receptivity for good nature films. I also phoned our local WFUM, University of Michigan, in Flint, and asked the same questions, and got the same answers. I said, "Is this true for Michigan, or is this true nationally?" All over the nation, there is great public demand for outdoor related programs.

Phyllis Busch:

I read an article recently, analyzing that, in the New York Times, and it said what you said, that it's true all over, they're having more programs than ever in nature. 'Course, they've been saturated, and people will be turned off, but that's what they're doing, and now the commercial stations are beginning to do that--they'll be an increase in that.

Weaver:

I think this is one of the answers. We all know, certainly this group, that we have an aging population. There's much talent out there, among older people; people are retiring early. There's talent, and interest in nature. We have a big job in training volunteer leaders. Maybe we can do something about the Scouts--I'm going to do something about the Boy Scouts when I get back to the Tall Pine Council. I'm going to say, "Why is it?--" I'm going to talk to our naturalist, at the FOR-MAR Nature Preserve and Arboretum, and give them the statistics on Merit Badges. What can we do about bird study? Maybe we can help our program, and do the job we should be doing. But I was frankly

shocked with the merit badge statistics. I wasn't surprised at all about the public broadcasting programs. That shows there's still interest. We're born with curiosity, and all of us have an innate feelings for nature; either it's turned off or it's turned on.

A quick story about Liberty Hyde Bailey, that either Bailey or Palmer told. Bailey, as a child in southwest Michigan (Niles area) walked through the woods to school when the Indians were still there. He brought a leaf to his teacher one day. The teacher had several alternatives. She could have said, "Please don't bother me right now, Liberty; I have to get ready for today's lesson." Or she could have said, "Why that's red maple." She might have even said, "That's Acer Rubrum." Or she might have said, "Don't ever bring anything like that in this classroom again". But what did his teacher say? "My! Isn't that interesting; I wonder what it is?" She had a crude book on trees, and the teacher and little Liberty went through the trees, "Well, the leaf has finger's like this. It has to be one of the maples. Liberty, could you find out which one it is?" Suppose it was red maple. "Liberty, are there any other maples along the trail?" "Well, there's sugar maples, silver maples and red maples." "How many of them are there along the trail, Liberty?" Mathematics-counting. Well, Bailey said, as far as he knows, he got his interest in plants from this teacher. Now that may or may not jive, but that teacher could have turned him off; instead she turned him on. Thank God for that teacher.

I've talked long; I hope I've brought a few interesting things out to you. I hope I've reinforced a little bit of what was said today. I don't have the answers to what we're going to do about this. But it has to get back to leadership training, it has to involve the mass media. I don't think anything can be forced. Quintillian, two thousand years ago said you can't force something like this, but we know the interest is there, it's there innately. We can no longer afford to turn people off to nature. Thank you. (applause)

Paul Spector: Thank you very much. Couple quick announcements. One, Phyllis has asked to say a few short words about the John Burroughs- You want to skip it?

Phyllis Busch: I think it's rather late. If I have another chance, maybe tomorrow.

Spector: Okay, fine. A quick question about the field trips tomorrow? How many people are planning to stay?

[tape paused]

Verne Rockcastle:

Before we find ourselves in such a mess that we can't extract

ourselves from. it's high time we geared up; gainted for battle (as you mentioned Phyllis) to find some better direction than ANSS has had the last few years. Not that it's been ineffective, but doggone it, we can do better than we're doing.

Spector:

Well, one of Frank's goals as president, is to take another look at ANSS, and exactly what direction and so forth to take for the future. And maybe to convene another session, at some point, focus on just your suggestion is something ANSS could sponsor, and involve any others that should be involved--

Rockcastle: But it's got to be working time, not talking time--

Paul Spector: --And structure it in just that manner. We certainly would be happy to have it here. But I think that, as a board, maybe ANSS can see what we can put together along those lines.

Audience member: Good idea.

Rockcastle:

I would strongly urge people to think about the kinds of things that the kids are actually immersed in. Liberty Hyde Bailey said, "When teaching about birds, think first about the student, and second about ornithology". I think we've been thinking about ornithology. We've been thinking about ecology, and we've forgotten where the kids actually are. They're at the arcades, they're with their skateboards, and I think we've forgotten where these kids are. The large majority aren't with us.

Let me give you an example. When Martin Luther King wanted to affect somebody, he fell in step on the march. I can well imagine--I'm just dreaming this up now--but he'd be walking alongside of some white person, and ask how many kids he's got. I can imagine the guy says "I've got two"; and I imagine King says, "I've got two also. What do your kids do when they can't go outside and play?" "You know, my kids like to do that too. In fact one of them plays the piano when he can get to it, once in awhile." Before long, when he had fallen in step with the person he was trying to affect, then he began to erode, very subtly, but very inexorably, the thinking of the person he fell in step with, and pretty soon he moved them over to his side. I think we have to fall in step with the kids, the people, that we are trying to affect, to effect any kind of change. And I think we've fallen out of step with the audience that we are sworn into getting a message to.

Weaver:

Seton did that very thing at Greenwich Connecticut. The very thing happened; he painted his fence, and kids came along, and

repainted it a different color-splashed paint on it. A neighbor said: "We know who these hooligans are--they ought to be locked up in jail, those trouble makers". Seton had studied wolves; he knew that every wolf pack had a leader. He found out who the leader was, and got the kid pledged to bring his gang over to Seton's property to fix an outdoor meal. Seton had a friend help prepare an outdoor meal. The kids didn't want to come; the leader said, "Hey look, I said we're gonna be there, and you're gonna be there see, or--" The kids came, and Seton showed them how to make a snare, how to catch a rabbit; he showed how to make a fire without matches, and so on. The boys asked him to teach them. Out of that came the Woodcraft League of America. That's why Seton's so powerful as a founder of the Boy Scouts. He turned these boys around to positive behavior.

Spector:

Dr. Peterson last night mentioned the meeting that they're sponsoring at the Peterson Institute next fall, that apparently is an attempt to look at, in some way, just the thing you are suggesting. Whether that's the forum to address this, I don't know.

Ruth Melvin:

Well, all the organizations are having trouble-- Audubon, and others. It's time we coordinate this with representatives from various environmental groups.

Spector: Well, I think that's their idea, from what I understand, but we can certainly look into it.

Busch:

Well, I think we should do it on a small scale such as ours, and then see whether there should be a national meeting, and review what we come up with.

Spector:

If anyone has any suggestions, pass them along to Frank, and we'll see what we can put together. Well, it's getting very late, I know folks are tired--it's been a long day. I just want to thank everyone for coming, particularly the people on the program, and also everybody who has been independent. It's been a real treat for me; I've met some people I've not met before, and seen a lot of old friends. I do appreciate everyone coming; we will see some of you tomorrow morning, and the rest of you have a safe trip home. (Applause)

If anyone wants there is probably still coffee out there, and you're welcome to sit and chat about Verne's idea, or--

[end of taping]