Nature Study

Spring, 1968 Vol. 22, No. 1

Theme of This Issue:

Nature Study and the Years Ahead

The American Nature Study Society

Nature Study

The journal of the American Nature Study Society

NATURE STUDY is published quarterly in March, June, September and December by the AMERICAN NATURE STUDY SOCIETY, and is sent to all members and subscribers.

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

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

Nature Study, Natural History and the Last Third of the Twentieth Century

H. Seymour Fowler

Presidential Address, Annual Meeting, New York, N. Y., Dec., 1967

We in the American Nature Study Society have, for many years, gloried in our past and well we might because it is a splendid record of achievement of which we may all be rightfully proud. We should never forget that heritage. However, we are living in an era which will soon literally blast us into the 21st century. Hence, we must, of necessity, look ahead. It is a sobering thought for those of us who teach to realize that those we teach will not only live into the 21st century but will be responsible for adapting to a magnitude of change the nature of which we can only hypothesize. We know there will be more of us and that we will live in ever more crowded conditions. Can natural history and nature study survive in conditions which will be extant at the beginning of the 21st century? It seems to me we must investigate two things before we can answer this question. First, what changes can we expect if we compare conditions in 1967 to those in 2000?

Knowing what to expect as changes, what can we see in an understanding of nature study or a study of natural history which will make these two areas of competence of value to an individual living in the year 2000? This is our second question.

First, let us look at some of the predictions of changes which will occur between 1967 and the beginning of the 21st century.

In the November issue of Natural History there is a fascinating exerpt from "The Year 2000: A Framework for speculation on the Next Thirty-three years" by Anthony J. Wiener and Herman Kahn. These prognosticators report some likely innovations in the last third of the 20th century.

1. Widespread use of computers for intellectual and professional assistance (translation, teaching, literature search, medical diagnosis, traffic control, crime detection, design analysis, and, to some degree, intellectual collaboration);

2. Extensive genetic control for plants and animals, development of new and useful species;

3. New techniques for preserving or improving the environment, based upon new understanding and concern for the ecosystem;

4. Human hibernation for short periods (hours or days) for medical purposes;

5. Great development of new drugs, electronic devices, and other stimuli affecting emotions and thoughts: to include control of memory, learning, fatigue, relaxation, alertness, personality, perceptions, and fantasies;

6. Flexible penology without necessarily using prisons (by use of new and perhaps pervasive methods of social surveillance, monitoring, and control);

7. Use of nuclear explosives for excavation and mining, generation of power, creation of high temperature-high pressure environments;

8. Extensive and intensive centralization (that is sharing) of personal and business information in high-speed data processors;

9. Some control of weather and/or climate;

10. Other (permanent or temporary) changes – or experiments with the overall environment (e.g. the "permanent" increase in C14 and temporary creation of radioactivity by nuclear explosions, the increasing generation of CO2 in the atmosphere);

11. Cheap and widely available central war weapons and weapons systems, new methods for lethal chemical and biological warfare;

12. New kinds of cheap, convenient and reliable birth control techniques;

13. General and substantial increase in life expectancy, postponement of aging, limited rejuvenation.

Vice-President Hubert Humphrey in an address at the University of Minnesota in June 1966 reported the following:

A group of modern day oracles – engineers, physical scientists, mathematicians, economists, and social scientists foresee the following developments within the next 20 years:

In agriculture, the large-scale use of de-salinated sea water, making many of today's deserts bloom;

In medicine, the routine transplantation of natural organs from one person to another and the use of artificial ones;

In psychiatry, the widespread application of drugs that control or modify personality;

In education, the use of more sophisticated teaching machines and really radical teaching techniques;

In worldwide communication, the everyday employment of translating machines;

In industry, the extensive use of automation, up to and including some kinds of decision making at the management level;

In space, the establishment of a permanent manned base upon the moon.

Other Views Ahead

The Vice-President goes on to report that by the year 2000, the experts foresee some really far-out developments:

The virtual elimination of bacterial and viral diseases;

The correction of hereditary defects through the modification of genetic chemistry;

The stepping-up of our food supply through large-scale ocean farming and the fabrication of synthetic proteins;

Control of the weather, at least on a regional scale;

In space, the landing of men on Mars and the establishment of a permanent unmanned research station on that planet;

The creation, in the laboratory, of primitive forms of artificial life.

Humphrey concludes, "This will indeed be an age of scientific and technological miracles. But will it be an age fit for – or even safe for – human beings to live in? That depends largely upon what we make it."

If one examines the educated guesses, or prognostications as proposed by Wiener and Kahn and by Vice-President Humphrey, one thing becomes quite apparent; indeed perhaps even obvious. All of the predictions deal with man and/or man and his environment. This leads us naturally then to what an understanding of nature study and natural history can contribute to man's knowledge of himself and his environment.

First, let us assume the posture of the devil's advocate and state bluntly that an understanding of nature study and natural history can contribute little or nothing to man's understanding of himself and his environment. This becomes perfectly obvious when one begins to look about him. As Marston Bates has reminded us, Webster's Third New International

Dictionary defines natural history as "a *former* branch of knowledge embracing the study, description, and classification of natural objects." It becomes perfectly apparent then that natural history as a branch of knowledge is "former," passé, gone. Also, it becomes apparent that natural history is extinct or perhaps vestigial if one examines the programs of preparation of modern day biologists. Most are extremely well prepared in biophysics, biochemistry, and cytology – however, few natural historians are being educated. I think one of the cleverest commentaries on this direction of training comes from the story going about the biology of one of our large universities. It seems two of the noted staff members met in the hall when an opposum came ambling along the corridor. One of the biologists turned to the other and queried, "What in the world is that?" To which the other biologist replied, "I don't really know. My guess though is that it is some form of animal life."

Natural history or nature study has not grown in prestige in recent years. If anything, it probably has lost considerable momentum. Why? It seems apparent that biology, the son of natural history and nature study, has during the first 60 years of this century developed in a direction quite the antithesis of natural history and nature study. Biology has, in its most recent glory, left the out-of-doors and established itself, along with chemistry and physics, as an indoor laboratory science. No longer, does the biologist ask his questions of the out-of-doors, the real living world. Instead he employs, in his comfortable, indoor laboratory, the machines, tools, and gadgetry of the mathematician, statistician, the physicist and the chemist. For evidence of this, witness some of the chapter headings of introductory college-level biology texts: e. g. the chemical and cellular basis of life; cells, units of structure and function; energy transformations, nutrient procurement and processing, gas exchange, internal transport, regulation of body fluids, chemical control, nervous control, cellular reproduction, patterns of inheritance, and the nature of the gene. One need not be bothered with field work to accomplish the objectives in these chapters.

We need only step back one pace to the high school level and to recently developed programs, federally supported, and see, in miniature, the same emphasis. With one exception, the authors of these programs have utilized modern college-level biology programs as the framework for their texts. The recent developments at the cellular and molecular level in biology are emphasized and the natural history aspects of biology are deemphasized if not ignored. No comment concerning the appropriateness of this development is to be considered now. Conclusions are reported only, with no attempt to criticize or commend. However, we repeat, natural history and nature study are ignored.

It would seem clear that the modern biologist has become more and more a mechanist and, in so doing, has progressively divorced himself from the fields, the forests, the prairie, the streams, lakes, ponds, oceans, and deserts. No longer is it important to know what an object is or how it fits into the scheme of things – or so it would seem.

New Developments Foreseen

However there are developments now beginning to emerge which may change all of this. It will be our goal now to look at some of these developments and to evaluate them in terms of their import to us who are oriented toward natural history and nature study. The results emerging from these developments can be, at this point, only conjecture.

For many years the American Nature Study Society led the professional science teaching societies' thrust in conservation education. In later years the National Association of Biology Teachers became active in this same area. Recently the National Science Teachers Association devoted a complete issue, April 1967, to the topic of conservation. This certainly is a straw-in-the-wind. Conservation education builds upon a framework of many disciplines, foremost of which are nature study and natural history. One of the best definitions of conservation comes from that April 1967 issue of "Science Teacher" and is attributed to Paul F. Brandwein.

"Conservation consists in the recognition by man of his interdependence with his environment and with life everywhere, and the development of a culture which maintains that relationship through policies and practices necessary to secure the future of a sanative environment."

Much of the thought of this definition has been recognized by persons interested in natural history and nature study from its early beginning. Perhaps where we erred was in our apparent lack of emphasis on the social implications of a study of the environment. Certainly the proponents of nature study have pleaded endlessly for the maintenance of a sanative environment although we may have used a different descriptive adjective in presenting our pleas. Be that as it may, we now see many societies voicing a real and sincere interest in conservation. This is certainly evidence of a potential resurgence of the nature study idea. We must capitalize on it.

Cooperative efforts and a concern for the environment and its management, which is a part of the nature study philosophy, is in evidence in recent developments at the Pinchot Institute for Conservation Studies. Recently, as the membership is aware, a joint conference of officers of societies interested in conservation and the out-of-doors was assembled there. This, too, could be interpreted as a favorable development in the resurgence of the nature study idea. It would seem appropriate for the Society to exploit its position of leadership in this area. Our concern, it seems to me, in this regard must be for the development of sound programs which are scientifically based. At the same time since the nature study philosophy is humanistic, we must guard against an over emphasis on the cold factuality of objectivity without some understanding that man is a being with feelings and emotions. Perhaps we should remember that sentimentality coupled with realism can serve us well. To return to our earlier prognostications for the year 2000, let me remind you that almost all dealt with man and his relationship with his environment. Certainly, the philosophy of the American Nature Study Society has as its base an understanding and an appreciation of man's relation to his environment. It would seem, then, that the educational community has become aware of its responsibilities here too in the apparent reawakening of an interest in conservation. The Society must give leadership to this reawakening.

Nature Study Idea Reemphasized

There are other evidences of changes in attitude at the national and international level which may make possible an increased emphasis on the nature study idea – if we accept the challenge. For example, there is an organization, Scientists' Institute for Public Information. Their journal, *Scientist and Citizen*, published by the Committee for Environmental Information, carries articles prepared by scientists and of timely interest to the lay public but readable and understandable by the person not specifically trained in the sciences. Two of its recent issues carry articles concerning water pollution and the water crisis and leaf burning as an economic case study. In each of these articles information of a scientific nature is made palatable to an understanding public. Can one find such forms of reporting in earlier decades of the 20th century? Yes, I believe so and much of it originated as a result of efforts of early leaders of the nature study movement. Should we not, now, again accept this responsibility which is apparently available to us? Is it not our responsibility to help

man interpret his environment and recognize that his alteration of it may be to his detriment. The weather vane seems to point in a direction which answers "we can, we should, we must."

Another scrap of evidence – During the past year the American Nature Study Society has taken a militant stand on several issues in which the public domain has been threatened. The most recent of these stands related to the exploitation of lands in the Great Smokies National Park. This type of activity, again, gives us a focus, a *raison d'etre*, so to speak. Further similar efforts should, will, and indeed must be forthcoming if we are to attain the position of leadership which is available to us.

One of the most recent expansions of great magnitude which should give nature study and natural history a real and new awakening is the increasing emphasis on the out-of-doors as a recreational resource. Witness the multitude of publications from the Bureau of Outdoor Recreation of the Department of the Interior. Almost every week some new publication originates from this federal agency. Some of the data presented in one of their publications, *Outdoor Recreation Trends*, published in April 1967 compares recreational uses in 1960 to those projected for the year 2000. Frequently, their comparisons are staggering even to those who may possess the most far-flung imaginations. It is predicted that: (1) By the year 2000, our participation in the major forms of summer time outdoor recreation activities will be 4 times greater than it was in 1960. It is predicted that frequency of camping will increase 238%, that hiking for pleasure will increase 218%, boating 215%, swimming, 207% and nature walks will increase by 156% All of these activities can be accomplished with or without a knowledge of the environment; but all can be more rewarding if a knowledge of the environment is present in the user. Here, it seems to me, is the real challenge to ANSS. The need is great for a vast array of skills in nature interpretation. If groups like ANSS do not accept this responsibility, fields, streams, and forests will be passed through, over, or under but little or no understanding of the interrelationship between man and the fields, streams, and forests will be gained. These understandings must be based on scientific knowledge served up with a philosophy which is humanistic. This I claim is the message of nature study and natural history. We must be ready to help those who now are responsible for the development of the out-of-doors as a recreational resource. The recreational aspect of the resource should not be the only objective emphasized. Recent developments would seem to point to this development. On the contrary, the enjoyment of the recreational resource should be coupled with some scientific understanding of the resource. With this, the user has the potential of an even greater enjoyment of the resource. ANSS should provide the leadership required to accomplish this objective.

Recent reports related to biology, conservation education, and science education have emphasized the "scientific," and the "objective" appraisal of all data. It is the responsibility of ANSS to inform the public that these research efforts are based on statistical treatments. As such, any individual entry in the treatment is just that, a statistic. Statistical manipulations are seldom focused on the individual. Instead, each conclusion is based on random sampling and statistical programming. Hence, the individual, as a statistic, is completely ignored. Perhaps the philosophy as espoused by ANSS can restore the dignity of the individual in forthcoming research studies.

At the national level, there are other developments which indicate that a very real opportunity exists to support and enchance the philosophy of natural history and the nature study movement. There is the "President's Council on Recreation and Natural Beauty." Since the inception of the Council in May 1966 many local, state and regional conferences on natural beauty have been held. Several ANSS members have been active in these conferences. Our society will be remiss if it does not adopt a positive stance related to the maintenance of natural beauty. In the future, we may well be considered deficient if we do not adopt a positive program related to the maintenance of natural beauty in the land. Here, too, as in the other cases described, ANSS must accept a leadership role. The opportunity to do so has presented itself.

There are numerous other federally-sponsored programs on which we must assume a positive posture. Several of these have their origin in publications of the Department of the Interior. Two publications of this Department deserve special notice; these are: "Quest for Quality," and "The Population Challenge – What it Means to America." Our Society must accept the responsibility to study such reports and apply pressure for those recommendations in the reports which we deem sound and feasible.

Another indication of the resurgence of the nature study and natural history philosophies is The Yearbook of Agriculture, 1967, *Outdoors USA*. Here is an excellent example of why the ANSS must be ready to accept a leadership role in contemporary outdoor education and conservation education activities. It will be a major task to implement the numerous endeavors suggested by the 1967 Yearbook of the USDA. The American Nature Study Society must be ready to accept a commitment to assist with the implementation of acceptable programs in outdoor education and conservation education, be they local, county, state or national in origin.

It would seem apparent, then, that there is much to be done. With any program which might be proposed, there needs to be careful evaluation and concerted action when a proposal is both practical and beneficial.

ANSS stands on the threshold of potential greatness. We must not wait to be asked to participate. We must deem it our duty and responsibility to participate and also to strengthen our position of leadership in nature education, conservation education, and science education.

Western Section Meets

The Western Section of ANSS meets at Utah State University, Logan, as an affiliate of the Pacific Division of AAAS. Mrs. Dorothy Platt, local chairman, has arranged an excellent program of papers, June 27; a field trip to Bear River Migratory Bird Refuge on the 28th; and a trip through Logan Canyon on the 29th.

On April 21 when the Cooper Ornithological Society met in Utah, it went to Bear River Refuge for a field trip and spotted 57 species of birds. Even more are expected in June for the ANSS trip. At the top of Logan Canyon is a nature trail in the Cache National Forest along which is one of the largest known Limber pines. Logan Canyon is one of the most scenic in Utah with a great variety of plants, birds and such geological features as large springs, limestone sinks, and great block faulting.

The Utah group of ANSS members and the Utah Nature Study Society offered to provide interpreters for any field trip which AAAS or ANSS members would take and the offer was generally accepted. The Utah ANSS and UNSS members are hosts for the Western Section meetings. Housing will be available on the campus, in local motels, or in campgrounds in Logan Canyon.

Contributions of Stephen A. Forbes (1844-1930) to the Development of Nature Study

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Stephen A. Forbes was the leading naturalist of his generation in the state of Illinois. He was outstanding in original research and as a leader in biological education and the administration of scientific institutions. His contributions to economic biology and applied ecology involving research on fishes, birds, insects, and river biology are well known. Here will be treated his contributions to the promotion of Nature Study in public schools and in colleges.

He was born 29 May 1844 at Silver Creek in Stephenson County, Illinois. After teaching school for four years, he became Curator of the Museum for the Illinois State Natural History Society at Normal, Illinois, in 1872. Three years later he was appointed an instructor in zoology at the Illinois State Normal College. In 1877 he founded the Illinois State Laboratory of Natural History which he directed until 1917. In 1882 he became State Entomologist for Illinois which office he also held until 1917. Also, during most of this time, he served as Professor of Zoology and Entomology at the University of Illinois. In 1891-92 he took part in a biological expedition to the Rocky Mountains as an agent for the U. S. Fish Commission. The following year, he served as Director of the Aquarium at the World's Columbian Exposition held in Chicago, and prepared the natural history exhibit for the state of Illinois at that exposition. Immediately following the World's Fair, he established the Illinois Biological Station on the Illinois River. This was established in 1894 at Havana and became the first field station in the world to make a continuous and thorough study of a river system.

In 1917 he became chief of the Illinois Natural History Survey which post he held until his death 13 March 1930. Upon his death H. B. Ward (1930) stated that "He will always be looked upon as the first and the leading worker in America on equatic biology." He was also the first to carry out detailed studies on the food habits of fishes and birds, and his essay on "The Lake as a Microcosm" was one of the first to expound modern concepts of community ecology. Altogether he published over 400 titles, 19 of which were concerned with the teaching of natural history. Frank Smith (1926) published a brief sketch of Forbes and his work, and later L. O. Howard (1934) published a detailed biographical memoir for the National Academy of Sciences.

Pleas For Natural History

Forbes published his first educational paper in 1872. He made a plea for teachers to study natural history at first-hand in the field and to encourage their students to undertake independent studies in the field. He wrote, "There is probably no other field of study which offers so great encouragement and such generous reward to unassisted individual labor as that of natural history." The following year (Forbes, 1873) he continued his discourse writing that "Our own experience must at least furnish the test to which we bring all else for trial; and if the test is unreliable, then nothing can be sure and sound." He further pointed out that "the peculiar value of the study of natural history for culture of the memory results from the fact that it has to do with things rather than words, that it accustoms the mind to grasp and retain exceedingly complex conceptions, cultivates, that is, a comprehensive habit of thought, and that it's matter is held in memory by associations based upon purely natural relations."

Over the next two years he published (Forbes, 1874-75) suggestions to the teachers of zoology. In these he advocated the study of natural history partly for its own sake, but also as a means of training the mental facilities. He wrote. "It is, in brief, for a culture of the observation, the judgment, the memory and the imagination (using the last term in the limited sense), that the study of zoology is peculiarly fitted; and the subject matter must be so selected and presented as to train these powers to the best purpose." In 1875 Forbes published an account of "The High School and College Association of Natural History of the State of Illinois." This Association was organized by Forbes as an adjunct to the Illinois Natural History Society. The main purpose was to distribute duplicate specimens to public school teachers for the study of natural history. He encouraged teachers to send him specimens available locally for distribution to other teachers in return for their contributions and to provide materials not available in certain areas. Following the meeting of the State Teachers Association in 1873, Forbes with a group of teachers, founded the School and College Association of Natural History of the State of Illinois "to collect, study, and exchange specimens in natural history, and to contribute to a natural history survey of the state; to form a state museum; to obtain for schools suitable cabinets of specimens of natural history for study." Forty-one teachers joined the group the first year.

Forbes continued to spread his ideas of nature study with frequent articles in the educational journals published in Illinois. In 1876 he admonished (Forbes, 1876a), "Began with the simple, and proceed to the complex. Begin with the known, and proceed to the unknown. Pass from the concrete to the abstract." That same year (1876b) he pointed out the importance of a school museum. He stressed that "the museum is fast coming to be regarded by all intelligent persons, as among the highest results of human labor and learning, as a most efficient instrument of human progress, not less essential than the library or the gallery of art." That year he also issued a list of duplicate specimens available for public schools.

In 1877 Forbes issued a report on the Illinois Museum of Natural History at Normal. The Museum had been transferred to the State Board of Education by the Natural History Society of Illinois several years earlier. The society had been founded originally in 1857 through the stimulation of Cyrus Thomas, and its museum became a strong force in fostering studies in natural history throughout the state.

After a period of time devoted to research and administration, Forbes returned to his campaign for the teaching of natural history in the public schools. In 1891 he reviewed past accomplishments and the present status for the state of Illinois. In a series of articles he published in 1892 he raised the question, "What good thing can we do with zoology in the public school which we cannot do at all, or at best not nearly so well, with any other matter?" He then answered his question with the conviction that, "Beyond a doubt, it is first to teaching the laws and forms of sentient life, its essential unity, its varieties, its gradations, its human relationships,

its conflicts and its sympathies, its dependencies upon the outside world, its powers, its history, its failures, and its successes, and the causes of them."

Between 1896-1898 Forbes directed a summer school of field biology in connection with the Illinois Biological Station. In 1903 and 1904 he continued his campaign for nature study and science education in the public schools. He pointed out (1904) that, "Nature study may thus be said to sow the seed from which the study of science cultivates the crop, and, in due time, reaps the harvest."

When the Illinois Academy of Science was founded in 1907, Forbes gave an address on the "History of the Former State Natural History Societies of Illinois (Forbes, 1902). In reference to the first State Natural History Society founded in 1857 Forbes said that "It did much to stimulate a general interest in scientific knowledge and research, and thus it hastened sciences into the public schools." The second Natural History Society, organized in 1879, followed the summer school of natural history at Normal at a time when "This was the period of the return to nature in the study of science."

During the last two years of his life Forbes made efforts to stimulate the teaching of nature study in public schools by the utilization of certain publications of the Illinois Natural History Survey (Forbes, 1929, 1930). Sixty-eight publications of that organization were designated as suitable for high school use and were evaluated by a committee of six as to their probable usefulness.

Thus from the beginning of his career as a young school teacher until the last year of his life as director of a major state-wide Natural History Survey, Stephen A. Forbes gave much of his time and energy to the promotion of nature study in the public schools of Illinois. Very appropriately a park near Salem, Illinois, has in recent years been named the Stephen A. Forbes Park.

References

FORBES, STEPHEN A. 1872. The independent study of natural history. Chicago Schoolmaster 5:313-316.

1873. Natural history in the public schools. Illinois Schoolmaster 6:363-373.

1874-75. Suggestions to teachers of zoology. ibid. 7:291-395; 8:73-79.

1875. The High School and College Association of Natural History of the State of Illinois. Illinois School Report 10:143-150.

1876a. The beginning point in zoology. Illinois Schoolmaster 9:273-276.

1876b. The museum and the school. ibid. 9:273-276.

1877. Report on the Museum of Natural History at Normal. Illinois School Report 11:324-331.

1891. History and status of public school science work in Illinois. Educational Papers by Illinois Science Teachers 1:6-20.

1892. Zoology in the public school: choice and arrangement of material. Illinois Public School Journal 11:319-321; 375-377; 429-431.

1903. The scientific method in high school and college. School Science 3:53-66.

1904. The teaching of the scientific method. National Education Association: Journal of Proceedings and Addresses 43:879-888.

1907. History of the former State Natural History Societies of Illinois. Science 26:892-898.

1929. What can the Natural History Survey do for the high school? Proceed. High School Conference. — 1928. University of Illinois Bulletin 26:41-44.

1930. Progress of cooperation with the State Natural History Survey. ibid. 27:77-83.

HOWARD, L. O. 1934. Biographical memoir of Stephen Alfred Forbes (1844-1930). Biog. Mem. Nat. Acad. Sci. 15:1-54.

SMITH, FRANK 1926. Stephen Alfred Forbes — an appreciation. Audubon Bull. 17:18-25.

WARD, HENRY B. 1930. Stephen Alfred Forbes — a tribute. Science 71:378-381.

Noise as an Environmental Pollutant

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The concept of noise as an environmental pollutant is a relatively new one. It falls well within the concept of pollution, which may be defined as anything having to do with the defiling of the environment or making it unclean or impure.

Noise is commonly equated with sound. However, the fact is that noise is not synonymous with sound. All noise is sound, but not all sound is noise. Noise may be defined as undesirable sound. It is the din we so commonly encounter in the streets, on the highways, in the sky, at work, and even at places of recreation.

At our present stage of technology, population growth and technological development makes noise increase inevitable. With the proliferation of machinery, the noise level is rising progressively, not only in our cities, but also in the countryside. Noise has become a serious public problem which demands a solution. It has been authoritatively predicted that if no action is taken, at the rate we are going, within ten years our cities will be twice as noisy as they are today.

Many adverse effects have been attributed to noise. Laboratory experiments with rats have shown that they can develop gastric ulcers, thymus-gland atrophy, overstimulation of adrenal glands, high blood pressure, asocial behavior, deafness, etc. when subjected to noise. It has also been claimed that noise, especially long exposure to aircraft noises, has driven mink on fur farms berserk and has even denuded chickens.

So far as humans are concerned, controlled observations have been limited up to this point. However, many effects have been attributed to exposure to noise. Many social, psychological, and physiological effects have been blamed on noise. In random order these include deafness, disturbed sleep and insomnia, increased divorce rates, heart failure, exhaustion, indigestion, high blood pressure, nervous breakdown, insanity, epileptic seizures, ill temper, headache, ulcers, impairment of vision, and loss of ability to concentrate. A person who is under stress and who is subjected to a barrage of noise will tend to become further aggravated by noise. His ability to cope with problems will be lessened. He might be triggered into a neurotic reaction such as anxiety, mental breakdown, insanity, or into fits of violence. Without the noise he could be expected to handle his problems adequately. Noise can slow down mental activity and it can interfere with satisfactory communication. Sudden noise can raise blood pressure and can cause the heart to beat rapidly, resulting in increased oxygen consumption, which in turn brings about exhaustion and nervousness.

Hearing Loss Common

The most serious effect of noise on the human being is impairment of hearing. Deafness resulting from noise has affected large numbers of people of all ages; the degree of their deafness depends on their sensitivity to noise. Awards have been granted to employees as a result of workmen's compensation cases and court rulings which have established that noise is a legally recognized occupational hazard. In the United States alone at least 11,000,000 adults and 3,000,000 children suffer from hearing loss induced by noise. Two-thirds of all cases of deafness in working males are attributed to occupational noise. Among the worst offenders are such occupations as riveting, metal cutting, drop forging, boiler making, iron working, rock crushing, pile driving, aircraft-engine maintenance, paper shredding, and weaving. Other people who are commonly affected are truck drivers, subway workers, skeet shooters, gunnery instructors, combat soldiers, and artillery

men. Even musicians are affected, especially orchestra and band leaders.

Noise is measured in decibels (see accompanying table for a list of noises with their decibel ratings). The human ear can tolerate up to approximately 140 decibels of sound. Depending on the individual, the upper limit may range from 125 to 145 decibels. Beyond this threshold, it may actually become painful to be exposed to the noise. Continued exposure to noise above 80 decibels may result in loss of hearing. Even short exposures to 100 – 125 decibels can result in temporary deafness. Beyond 150 decibels, even shorter exposures can cause permanent hearing damage. Primarily the damage results from injury to the sensory nerves of the ear.

In so-called civilized countries it is fairly common for hearing loss to accompany advancing age. It is a fact which has long been taken for granted as part of the aging process. However, recent studies indicate that this situation is more common in noisy environments than in quieter ones. For instance, Dr. Samuel Rosen, the noted New York ear specialist and surgeon, has recently made extended and detailed studies of the Mabaan tribe of Africa, and has shown that loss of hearing does not necessarily follow as a consequence of aging. In this isolated area of Africa, where the Mabaan live, noise is uncommon and Dr. Rosen has shown that Mabaans have hearing which is just as acute at 75 as the average American has at 25. One of the inferences of this study is that repeated exposure to our every-day noises, even at low levels, for us, still affects our hearing in the long run.

City Noises Irritate

Among the noises which irritate are street and traffic noises, not the least of which include horn blowing, motorcycle and scooter motors, air compressors, trucks with inadequate mufflers, and even lawn mowers, planes and helicopters flying overhead can drown out conversation. Chatter in crowded rooms can become unbearable. Under such circumstances it becomes impossible to concentrate on any discussion, and it may bring on a headache. True symptoms of pollution! Noisy apartments with their thin walls and ceilings are disturbing. Loud talk, radio and television noises and record players can be heard in adjacent apartments. Bathroom fixtures, equipment for central air conditioning, elevators, and incinerators can be annoying, especially at night.

The sonic boom made by supersonic jet planes flying faster than the speed of sound is a new disturbing note. Not only is a startling noise created, but there are said to be physical effects resulting from the passing of the boom which may be damaging to property and even possibly to life.

Remedies for noise have so far been makeshift. For instance, under noisy working conditions, employees may be provided with ear plugs or ear muffs, as in the case of airport employees working in the immediate vicinity of planes and their engines in operation. Increasingly mufflers and enclosures are being used on noisy machines. These practices are in their infancy and require improvement. Large trucks on highways need far better mufflers and noise-dampening housing. So do farm tractors and air compressors. Entirely new engineering techniques are needed to deal with these problems. Sonic jackhammers and pile drivers are already being tested. They operate not only more quietly, but also more efficiently. It is even possible that some development along the same line can make riveting less noisy. It has already been demonstrated that trucks, railroad engines, diesel engines, air compressors, etc. can be made more quiet. Aviation designers are seeking to reduce jet noises without affecting efficiency and safety of their equipment. Research is under way to see if it is possible to eliminate the sonic boom or at least to reduce its objectionable features. Likewise, means of reducing helicopter noises are being studied. Now if only someone would undertake to do something about the nerve-shattering noise of the motorcycle!

Plants Absorb Noise

The best way to reduce noise along the highways, especially close to inhabited areas, is by landscaping schemes utilizing sound-absorbing plantings such as appropriate kinds of trees and shrubs, which would muffle noises. Improved paving materials and better-designed tires are already on the market to help reduce traffic noises. The only reason they are not more widely used is their high cost, but as demand grows their prices should be coming down.

Better sealed buildings and sound proof (anechoic) rooms would prove a boon to people who want more quietude. Walls, ceilings, and floors would be built to absorb sound. Unwanted noises would not penetrate such barriers. What is needed is a building code which includes provisions for sound insulation. In this country soundproofing of ordinary homes is only now beginning to receive any concerted attention. One way in which this can be brought about more quickly is for consumer demand to be made more vocal.

Noise producing industries should be planned away from residential and even commercial areas. There should be zoning regulations for this purpose which can be readily enforced. These codes should work both ways, so that neither industrial establishments nor homes are constructed on the wrong sites. Preferably there should be a green belt between noise-producing areas and non-noise generating areas.

TABLE OF SOUND DECIBELS*

10	Breathing
10	Rustle of leaves
20	Whisper
40-50	Low street noises
55	Ventilating fan
60-70	Ordinary conversation at 3 feet
80	Alarm clock
81	Rush-hour traffic outside Grand Central Station in New York City
90	Vacuum cleaner
93	Food blender
95	Subway train (rounding a curve in the track it reaches 104 decibels)
96	Pneumatic jackhammer at 15 feet
99	Motor truck passing through tunnel
102	Newspaper pressroom
102-107	Power mower
105	Sybil Christopher's discotheque in Manhattan (seldom does it seem to go below 103)
111	Loud motorcycle
112	Commercial jet plane, 3 miles after take-off
120	Whistle of the SS Queen Mary
130	Structural steel riveting
130	Machine gun
150	Commercial jet plane at take-off
175	Jet rocket being launched

*These values were obtained from a variety of sources.

The Meaning of Conservation

"Conservation is . . . the doctrine that aims to preserve the health and productivity of our only home, the planet earth of which we, too, are a part. It involves facets of our religious, political and economic attitudes. It is built on our scientific understanding of nature's laws, not only in the working of atoms but in a running stream and in the relationship between mice and foxes.

"Its success – which will also be the success of our particular civilization – depends on our ability to be humble as technological power continues to multiply; on our care in passing the earth and its resources from one generation to another like a treasured legacy; and even on our willingness to love one another. Rather than discard the word, as some impatient with its misuse have suggested, we should recognize that the growth of human numbers and the discoveries of science and technology have made conservation the crucial human enterprise." – Roland C. Clement

BEAVER WORK

Often the energy of the beaver, **Castor canadensis**, seems misplaced as seems to be the case in this photograph. They are dam builders with powerful jaws. Beavers played a great role in the shaping of the west; of the building of fortunes for many who sought their pelts, and in modifying the streambottoms over much of the continent.

Photo by
U. S. Soil Conservation Service
Provided by Audio Visual Committee
American Nature Study Society
No. 21

(May be removed for display)

Soil Conservation Service

nion-Gazette Community Living

EDUCATORS CONVENE AT PINCHOT INSTITUTE:

Conservation Concerns Outdoor Teachers

By NORMAN B LEHDE

(This is the third and final article in a series concerning a symposium on conservation and outdoor education recently held at the Pinchot Institute for Title 111 program directors).

Discussions during the symposium concerned the why and how of environmental education in every phase from idealistic approaches to the hard core facts of financial support.

During the general session around the big conference table at the Pinchot Institute, where portraits of such noted conservation minded leaders as Gifford and Amos Pinchot, Theodore Roosevelt and John F. Kennedy, gazed down at the assembled educators, a number of remarks and observations stood out in the mind of this reporter.

We pass them on to help convey the depth and general tone of the symposium.

Dr. Matthew J. Brennan, Director, Pinchot Institute, "If man is the only one who can manage his environment, the knowledge of how he should do it, should be a basis of understanding" "You and the things you are doing will have an effect on curriculum in 10 years and in the next century" "Not all persons may want to sketch at a beauty [illegible] some may just want to sit [illegible] joy it" "Have you been [illegible] textbook to s[illegible]

[illegible] can be [illegible]
"A ca[illegible]
wa[illegible]

Dr. Phyllis Busch, Director, Project SPRUCE, Pine Plains, N.Y. "Indoors is also part of the total environment" "Do enough indoors to motivate an interest in outdoor investigation--then go back outdoors"

Richard Cole, Middletown-Sandy Hook Outdoor Education Program, Highland, N.J. "We are an area which suffers from much affluence from the affluent society".

George Hellinger, Warrensville Heights City Board of Education, Cleveland, Ohio, "We don't feel we are plugging a new program--you can't take outdoor education out of education" "What an interested child brings home is part of reaching the community with a program" "Self confidence and ecology training are needed for the discovery approach" "We must think in terms of the total environment integrated into the total curriculum".

Dr. Ed Ambry, N.J. Title 111 Project for Environmental Education." Something has to be done to evaluate these projects".

Dr. Wilhelmina Hill, U.S. Office of Education, Washington, D.C. "Project PRIDE helped clean up in Washington, D.C. and it was headed by an ex-convict" "I think a balance is good--both the teacher and pupil should be doing something" "Our beauty spots must be made safe".

Dr. joseph Strehle, Science Education Research Center, Houston, Texas. "We must work the program in harmony with the school district so it doesn't stand out"

Edgar F. Neal, Specialist in Outdoor Education, Shoreline School District, #412, Seattle, Washington. "Let the teachers find out where they can work in the outdoors and how--don't always tell them" "Only in the outdoors can a precious lawlessness experience be provided"

Dr. Eugene Vivian, Director, Conservation and Environmental Science Center, Glassboro State College, Glassboro, N.J. "Make use of people who are naturals in conservation teaching to help teachers although these people, themselves, may not be certified to teach".

Mrs. Catharine Bonney, Director, Outdoor Lab, Newark, Del. "The University of Delaware has teachers to relieve classroom teachers for a year so the latter may train"

Charles A. Lewis, Director Outdoor and Conservation Education Program, Arrondale School, Great Neck, N.Y. "A survey shows that 19 per cent of the schools in New York State have some form of outdoor education and 73 per cent of the administrators would approve a resident program if facilities were available"

Harry Shimada, Project Director, Outdoor Education, American Falls, Idaho. "We try to give the child half of what he wants and half of what we think he needs"

BLONDIE

SNUFFY

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Outdoor Education Site Set At DV

(Second in a series of three articles on a recent symposium on Conservation and outdoor education held at the Pinchot institute, Milford.)

By NORMAN B. LEHDE

In his opening remarks to the administrators and educators present at the November conference, Dr. Matthew J. Brennan, Director of the Pinchot Institute, told them that, for the first time, they had money to implement conservation education programs. He challenged them to show how their programs were contributing to the overall management plan for education.

What are some of the programs for conservation education in various areas of the country that are receiving Federal aid under Title III of Act. 65? What are they accomplishing and what do those operating them purport to do in the future to advance the cause of environmental education?

These things may be of special interest to residents of the Delaware Valley School District at the

jects. The average teacher, when confronted with the prospect of taking a group outdoors is apprehensive, mainly for two reasons. First, she is unfamiliar with the outdoor environment and feels her lack of knowledge may prove embarrassing. Secondly, she is worried that the discipline problem will be greatly increased in an outdoor setting.

Teacher Training

Training of teachers for outdoor classroom work is deemed one of the foremost problems by those who would broaden the concept of the total environment in the field of education. In many areas, teachers and future teachers are being exposed to environmental education techniques in both in-service and undergraduate programs.

One new and very novel method of acquainting the embryo teacher with classroom problems before she steps into a classroom was explained during the symposium by Robert R. Wells of Napa Valley Unified School District of Napa, California. The teacher faces her classroom on a screen. Action takes place and questions are asked by the "movie" class. The teacher responds, reacts to the screen action her classroom aptitude is evaluated on this response. This is believed to be an excellent medium for helping to train teachers for ventures into the outdoor classroom atmosphere.

Symposiums like the one at the Institute in November give persons working in allied fields a great opportunity to exchange ideas and views. This takes place not only around the conference table or in workshop periods, it occurs during coffee breaks, during meals and far on into the evening.

Community reaction is important in any educational program. Vital, also, is the support of local school directors and administrators. Involvement has no substitute in the kindling of interest. A number of nature centers and conservation education projects have made excellent use of advisory boards. These are boards composed of professionals in the conservation field, business executives and even school directors wearing a second hat.

Vital Factor

Another vital factor in the involvement of the community is the need to

Tri-States Area Events

TV Key Previews

7:30-8:30 (7) OFF TO SEE THE

6:00 2 4 News (C)
5 Flintstones (C)
7 Movie (C)
9 Mike Douglas (C)
11 Superman (C)
13 What's New
6:30 5 McHale's Navy
11 Munsters
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4 News (C)
5 I Love Lucy
11 F Troop (C)
13 University Forum
7:30 2 Wild Wild West (C)
4 Tarzan (C)
5 Truth Or Consequences (C)
7 Off To See The Wizard (C)
9 From The Bitter End (C)
11 Debutante Ball (C)
13 Power Of The Dollar
8:00 5 Hazel (C)
13 Washington: Week In Review
8:30 2 Gomer Pyle, USMC (C)
4 Star Trek (C)
5 Merv Griffin (C)
7 Hondo (C)
9 Movie
13 NET Playhouse
9:00 2 Movie
11 Perry Mason
9:30 4 Accidental Family (C)
7 Guns Of Will Sonnett (C)

13 Sport Of The Week
11:25 4 Sports (C)
11:30 2 Movie (C)
4 Tonight (C)
7 Joey Bishop(C)
12:00 11 Code Three
12:45 5 News
1:00 4 News (C)
7 News
9 Film Short
1:05 7 Movie
1:15 2 News (C)
4 Movie
9 Whirlybirds
1:20 2 Movie
1:45 9 News And Weather
3:25 2 Movie

SATURDAY MORNING

6:30 2 Sunrise Semester (C)
4 Modern Farmer
6:50 7 News
7:00 2 Have You Read (C)
7 Davey and Goliath (C)
7:30 2 Shape Up (C)
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7 Casper (C)

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What are some of the programs for conservation education in various areas of the country that are receiving Federal aid under Title III of Act. 65? What are they accomplishing and what do those operating them purport to do in the future to advance the cause of environmental education?

These things may be of special interest to residents of the Delaware Valley School District at the present time as plans are currently being presently for use of a wooded and grassey area on the high school grounds for outdoor education purposes.

Project Sites

Project sites represented at the Nov. 29-30 symposium ranged from Staten Island, N.Y., to Napa, California; from Westfield, Mass., to Houston, Texas; from Glassboro, N.J., to American Falls, Idaho; from Lincoln, Mass., to Seattle, Washington.

Many procedures are similar in these widely separated areas. Getting children into the out-of-doors was deemed essential by everyone present and out-of-doors could range from a walk on the school ground to a field or camping trip into special nature and wildlife areas being preserved for educational study and closely allied with the project.

Teacher education in environmental science is part of all projects. The average teacher, when confronted with the prospect of taking a group outdoors is apprehensive, mainly for two reasons. First, she is unfamiliar with the outdoor environment and feels her lack of knowledge may prove embarrassing. Secondly, she is worried that the discipline problem will be greatly increased in an outdoor setting.

Teacher Training

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Vital Factor

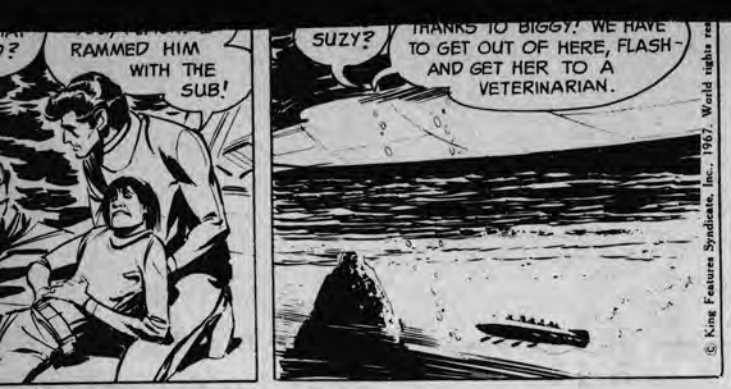
Another vital factor in the involvement of the community is the need to establish the solidarity and worth of a program so that the program will be continued when federal funds are withdrawn, wholly or in part, in the future.

Harry Shimada, Project Director of Outdoor Education at American Falls, Idaho, probably spoke for many of the conferees when he remarked, near the end of the symposium, "I am like a kid in a candy store, reaching for all those goodies in the form of ideas."

In the third and final article of this series, some of the remarks and suggestions of the conferees in regard to environmental education will be detailed.

(To be concluded.)

Tri-States Area Events



TV Key Previews

7:30-8:30 (7) OFF TO SEE THE WIZARD. "Zebra in the Kitchen." (1965). If the title intrigues you, you'll find out how it was derived in the final half of this Ivan Tors family movie about an animal-loving lad and his adventures. Jay North of "Maya" stars as the boy who causes an uproar when he frees all the animals from the zoo, including his recently captured pet mountain lion. The animals are the scene stealers here and the kids will enjoy their antics. (color).

* * *

7:30-9 (11) INTERNATIONAL DEBUTANTE BALL. Highlights of last night's International Debutante Ball, with 64 presentees from 14 countries, held at the Waldorf

6:00 2 4 News (C)
5 Flintstones (C)
7 Movie (C)
9 Mike Douglas (C)
11 Superman (C)
13 What's New
6:30 5 McHale's Navy
11 Munsters
13 TV High School
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13 Power Of The Dollar
8:00 5 Hazel (C)
13 Washington: Week In Review
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4 Star Trek (C)
5 Merv Griffin (C)
7 Hondo (C)
9 Movie
13 NET Playhouse
9:00 2 Movie
11 Perry Mason
9:30 4 Accidental Family (C)
7 Guns Of Will Sonnett (C)

13 Sport Of The Week
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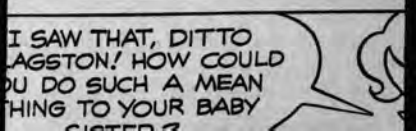
8:30 5 Wells Fargo
11 This is the Life
8:55 9 News and Weather
9:00 2 Frankenstein Jr. (C)
4 Super 6 (C)
5 Eleventh Hour
7 Casper (C)
9 Movie
11 Davey and Goliath (C)
9:30 2 Herculoids (C)
4 Super President (C)
7 Fantastic Four (C)



Tons of dirt and rock span across Shohola Creek, a few yards above Shohola Falls as construction workers change the flow of the creek in order to erect the monolithic concrete dam. The dam will be situated in the center area of the picture.

Project Behind Schedule

SHOHOLA -- Completion of the Shohola Dam, which will flood 1,154 acres of land, will not be completed for several months.

Wilmer Peoples, land manager for the Pennsylvania Game Commission's 8,351-acre Shohola Waterfowl Area, said Friday that the dam will not be completed by the January 15 contract date.

The Burly Construction Corp. of Hewitt, N.J., began construction of the 400-foot high dam last May 15.

Peoples said the firm encountered many difficulties during the construction. He explained that the firm apparently was unaware of the excessive rock formations in the area.

The firm for some time this past summer has dynamited rock formations. Peoples said concrete will be poured for the dam within the next few days and then construction will cease until spring.

The firm is erecting a monolithic concrete dam across Shohola Creek, a few yards above Shohola Falls in Pike County. The 768-foot wide dam, which will rise 28 feet above the existing stream bed, will back-up the creek waters to flood the 1,137 acres of land in about four feet of water.

Located at an elevation of 1,154 feet above sea level, the dam will create a four mile lake with an irregular shoreline.

After the dam is constructed, the area will be open to the public for waterfowl hunting.

Education: The Total Environment

(First of a series of three articles on a recent symposium on conservation and outdoor education held at the Pinchot Institute, Milford.)

FOREWARD

By NORMAN B. LEHDE

MILFORD -- The average middle aged person does not need to study a statistical chart to be made aware of the growth of education in the United States. He, or she, can still remember rural one-room schools, small high school graduating classes and parents who thought a young person was wasting time in school and the quicker he went to work, probably with pick and shovel, the better for all hands.

In a town like Milford, a half century ago, the college graduates were few in number. The lawyer, the minister, the priest, the doctor, a few members of wealthy families. Perhaps not even the local teacher, as prior to 1919 in Pennsylvania, a high school graduate could teach in the public school.

In view of this ever-growing expansion of education, what would one expect to hear when leading educators and school administrators gather? What about conservation and outdoors education? Is the present educational system the best of all possible worlds in the training of people to live in their environment? What are its strength and weaknesses?

Symposium Held

On November 29 and 30, a symposium was held at the Pinchot Institut e at Milford. Two dozen administrators of Title III programs in conservation and outdoor education were in attendance at this conference at the former home of the Nation's first Chief Forester. What are some of the things they discussed? What do they hope to accomplish in the future?

This writer was privileged to "sit-in" on the discussion periods during the symposium. Since the discussions touched not only on Conservation education but on many facets of the educational process, we believe a report on the symposium will furnish information on the direction that educators, who are responsive to the environmental problems of the present and future citizens, are pointing.

The report will be presented in a series of three articles. This is the first article which appears today.

1. Can Conservation Education be a sometime thing?

Dr. Matthew J. Brennan Director of the Pinchot Institute, explained in an opening address, that since the establishment of the Institute, he and his associates, Dr. Paul Brandwein and Clifford Emanuelson, had deplored any attempt to treat conservation education as a one period a week subject. To them conservation education means environmental education; the response of man to his surroundings, the awareness of his interdependency.

The Environment

Man is both a factor and a pawn in his environment. His involvement is complete. So it has been; so it will continue to be. If the child is destined to be totally involved, how may he be taught a responsibility that may serve to prolong his existence on planet earth?

Assuming that an hour or two a week is completely inadequate for this purpose, what is the answer? The Pinchot Institute is concerned with the total curriculum. The indoctrination into every subject of the relevance of the environment.

How may this be accomplished? How say, in a group studying home economics? To the environmental expert, such a class is a perfect target. For instance, a little research on the journeys of Marco Polo could literally add "spice" to a classroom project.

The History and Social Studies groups are naturals for environmental education. Why sailed the Vikings, Christopher Columbus and Henry Hudson? Why did some cities die and others thrive? The story is even there in spades for the "Wild West story" fan. The ghost town, the Cherokee Strip, William F. Cody and what happened to the buffalo.

Deep Analysis Urged

In his keynote address, Dr. Brennan urged a deep analysis of what could be taught outdoors. Certainly, he pointed out, the math class with practical problems in the field. Music and art are naturals for outdoor classes. English and foreign language classes can be nicely fitted in.

The very breakfast the child had that morning, the location of the town in which he lives, its past history, its industry or lack of it, all may be the subject of lessons in the environment. The child's involvement in his environment is destined to be complete. The Pinchot Institute is certain that only through a complete curriculum indoctrination will the child be made aware of this ever present involvement.

(To be continued)

(In the second article of this series some conservation education efforts under various Title III projects and the problems involved, will be discussed.)

Read The Union-Gazette
CLASSIFIEDS
Page 9

'What The People Don't Know Will Hurt Them '

Port Jervis, N.Y. 12771

The Union-Gazette

Thursday, December 28, 1967

Milford, Pa. 18337

Parker Proposes New City

Area News In Brief

City Business

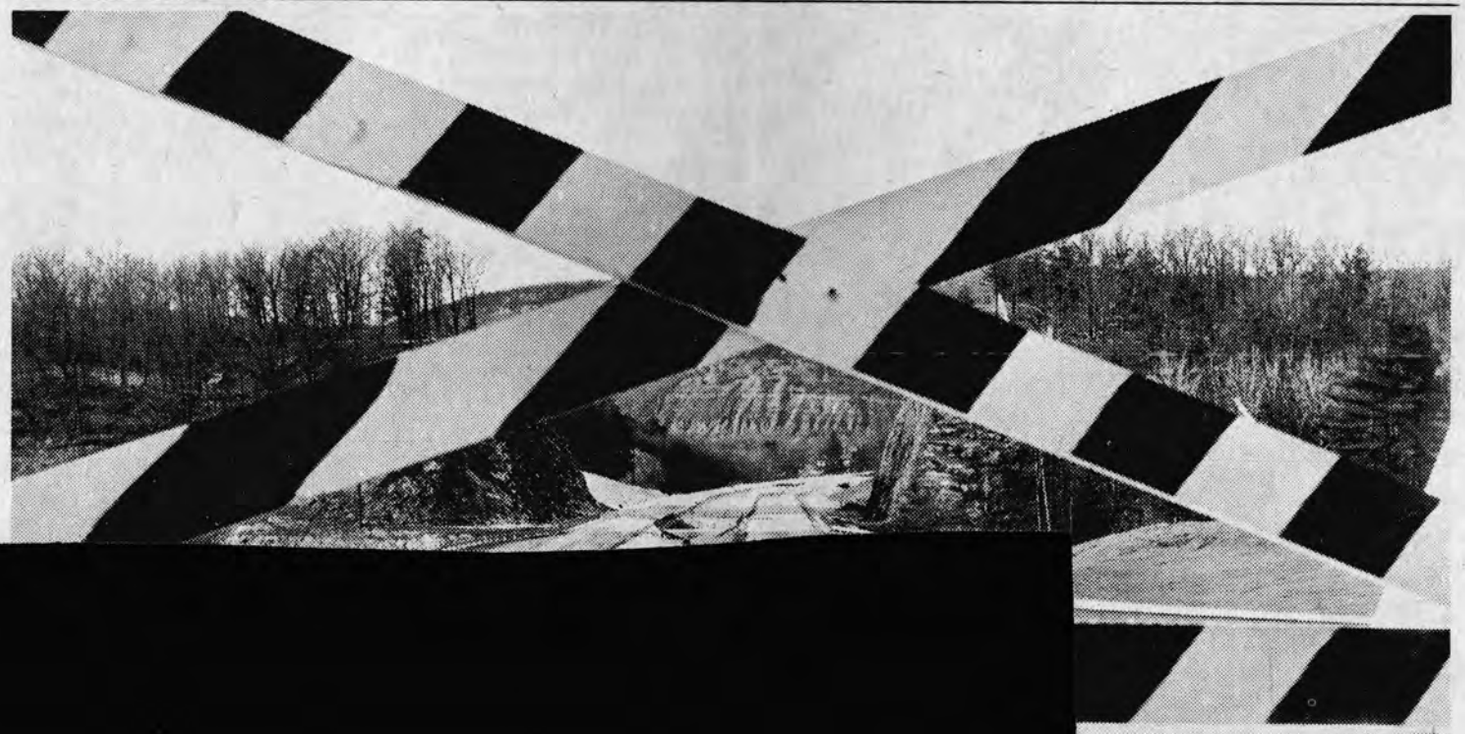
PORT JERVIS -- Director of Public Works Richard Onofry will confer in Albany Jan. 5 with representatives of a new state agency, the Pure Water Authority.

Onofry said he would seek to learn what benefits and assistance programs might be available to Port Jervis.

On Jan. 9, representatives of the New York City Board of Water Supply (which operates a filter plant in the city) will meet members of the New Port Jervis Common Council in a "get-acquainted" session.

Court Date

LIBERTY -- Allen Slavin, 39, and his wife, Shirley, 36, face a Jan. 2 hearing in Sullivan County Family Court. They are charged with neglect of their sons, aged 4 and 9, who were found alone and unclothed



om using the highway until the
are completed.
Case

Mayor In Speech To

By HOWARD MacDONALD

PORT JERVIS -- Mayor Philip ing common council to consider Cleary Memorial Parking lot, on

He proposed that the first stag would shelter the city's Civil De said, would be $150,000 for this come available, a first story cou tive offices. Further stories coul

Parker said his administratio he been re-elected, they would h administration.

"These plans were on paper," carry them out."

Parker was defeated for re-elec

"The present city hall is pretty will take an arm and a leg and $1 hall, as Parker conceived it, woul became available.

Parker also submitted his resig ban Renewal Agency.

"It's a matter of form," he sa that lawyers differ in interpretatio must be a member of the agency, year, he will leave incoming Mayo agency member if he wishes.

"I wish Mr. Sakofsky all possib "farewell address."

"I believe," he added, "that Mr coming council are going to do a g

Reviewing his administration, iest issues had involved the Tow Jervis operating a landfill in the jected by Deerpark, and a new fir

"I am sure that these issues ca

Parker also did some philosop ics.

Verne N. Rockcastle

PYXIE CUP LICHEN

The pyxie cup lichen, **Cladonia pyxidata**, with a drop of rain water which magnifies the areolate surface of the cup. These widespread lichens are often found growing in the company of various mosses whose darker green makes a striking contrast to the grey-green lichens.

Photo by
Verne N. Rockcastle
Provided by Audio Visual Committee
American Nature Study Society
No. 22

(May be removed for display.)

NATURE STUDY TIPS

Snails and Slugs

HELEN ROSS RUSSELL

Except for desert regions snails and slugs have an almost universal distribution. They are easily collected in the wild. Even in big cities they will be found under logs or rocks or in ponds and streams in parks. Children who live near the ocean or who go there for vacation will almost always return with some snail shells that they have collected on the beach.

Any of these can provide a starting point for science observation and research. In a few areas where snails cannot be collected in the wild they can be purchased in pet shops or aquarium supply houses.

Slugs and snails belong to the group of Mollusks known as Gastropods. They get this name from the Greek words for stomach and foot. The action of this single muscular foot may be observed as the animal walks up the side of an aquarium or terrarium. When he wants to let go the foot is folded lengthwise. Eyes and tentacles are pulled inside the head. First one end of the body then the other is pulled into the shell. As students watch this process they will quickly discover which end is pulled in first.

Some aquatic snails have a horny plate or operculum which tightly closes the opening when the snail retreats into his shell. Careful observation will lead to answers to the following questions:

Where is the operculum attached?

Can you locate it when the snail is moving?

How does the snail get all of his body in the shell before this door closes?

The rasping action of the chitinous jaws and the tongue may also be observed as the animals feed on algae on the side of an aquarium or terrarium. A snail's tongue is called a radula. It is covered with rows of horny teeth and functions like a flexible file. Sometimes the snail cuts a path through a green field of algae, at other times it clears one whole section. It is because of this feeding habit that snails are frequently sold to help keep an aquarium clean.

The actual rasping action may sometimes be felt by rubbing lettuce or some similar vegetable material on fingers then holding a land snail in your hand.

Some people object to handling the gastropods because of the mucus that they secrete. However, it is harmless and easily washed away. This mucus trail enables the snail to travel on smooth surfaces and to hang upside down with his heavy shell pulling on his body.

It also protects the soft body from injury for it serves as a cushion between it and the material it is moving over. As a result, snails and slugs can move over broken glass, razor blades and other sharp objects. They leave a silvery road behind them. The "nature detective" can not only use the trail to reconstruct the animal's nocturnal wanderings but also to fix the blame on the culprit that is eating holes in his vegetables.

Slugs can frequently be collected by putting a board on the ground near leafy vegetables or other succulent plants. All land gastropods are extremely sensitive to drying out and shell-less slugs are particularly vulnerable, so they avoid light and heat.

Some snails not only retreat into their shells when the weather becomes hot and dry, but they also close the shell with a plug of mucus or mucus and calcium carbonate. Snails in areas that have a climate characterized by a wet and a dry season aestivate during the dry season with their shells sealed in this way. Aestivation can sometimes be induced in the classroom.

Students can observe snail activities without disturbing the snails. Land snails and slugs have their eyes located on the ends of a pair of long stalks or tentacles. As the snail moves around he tips his stalked eyes from one side to the other, now up, now down, now straight ahead. With such mobile visual organs it would seem that the snail should have a good view of his world. But a snail's-eye view is limited to distinguishing between darkness and light and his lack of interest in those who stare at him is partly lack of knowledge of their presence.

It is easy to demonstrate snail vision to a class by having them close their eyes while someone flicks a light on and off. The amount of light that can be seen through the eyelids is comparable to snail vision – no form, no color, no motion – unless the motion throws a shadow and changes the light.

Aquatic snails have the same type of vision but their eyes are located on their heads at the base of a single pair of tentacles.

After the students discover how little vision snails possess a logical series of questions arises: "How do they find their way around?" "How do they find food?" "What senses are well developed?" "Do they respond to t o u c h, odors and sound?"

These are only a few areas where students can devise their own experiments to learn answers to questions that the snails may lead them to ask.

Aquatic snails may be used to demonstrate a balanced aquarium or a complete ecological unit. Little equipment is needed – a tumbler, a sprig or two of Elodea or some other fresh water plant, scrapings of fresh water algae and a snail. Oxygen, carbon dioxide, nitrogen and food cycles will be in balance if there is enough plant material to start; so will the plant and animal processes.

In fact, the unit can be set up in a test tube and sealed with a cork. If the balance is not correct one or more of the organisms will die. Even so, the experiment has not failed. The question is "why?" Was it over-grazing? Lack of oxygen? Would lack of carbon dioxide effect the story? What other factors might have influenced the biological community?

Snails are hermaphroditic – producing both eggs and sperm. Generally two snails mate and exchange sperm so that there is an inheritance from both parents. There is no problem in obtaining a pair, however; any two adult snails of the same species will do.

Some snails hold the eggs in their body until they hatch but most snails lay eggs. When these are deposited on

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the sides of the aquarium the development from single cell to young snail can be watched with a hand lens.

When the young snails hatch they have a shell that has only one whorl. In general pattern it is a miniature of the adult shape. As the snail grows it adds to the edge of the shell in a spiralling manner. Each spiral or coil increases in length and diameter. The shell also increases in thickness. When the snail has reached adulthood it frequently secretes a special phlange or decoration around the edge of the shell. A few marine species like the cowries cover the entire shell with a smooth surface completely obliterating growth lines and burying the original miniature shell. The story of their growth can only be "read" by sawing the shell in half.

In other snails the small original shell incorporated in the apex and the growth lines are all visible. A collection of shells of one species can be arranged according to age and the preceding stages of shell development may still be seen in succeeding periods of growth.

In studying this growth students may be given an immature shell and a small piece of modeling clay and asked to add the next section. To do this they will have to note the special proportions and angles involved to maintain the pecular pattern of their specimen.

The shell is secreted by the tough outer body covering called the mantle. It, like the bones of the vertebrates, is formed without any thought or control on the part of the animal.

Most species of snails make shells that spiral in a clockwise direction. Shells with a clockwise spiral have the opening on the right side as the shell is held with its apex up. They are called "Right-handed" or "right-spiraled." Counter-clockwise spirals produce a "left-handed" or "left-spiraled" shell.

In the evolutionary process snails have lost some of their paired organs. Thus they have only one gill or lung and only one kidney. Slugs lack a coiled shell but also have an assymetrical arrangement of body organs with only one lung and one kidney. This leads us to conclude that slugs are descended from snails.

Another instance in which we can trace ancestry by bodily development is found among the fresh water snails. One group of fresh water snails has gills and breathes in the water. The other has lungs and must come to the surface for big breaths of air which it traps under its mantle cavity. While snails originated in the water the aquatic snails with lungs are descendents of ancestors that left marine waters to live on land.

Some snails are a source of food. On the west coast of the United States the abalone has been almost exterminated in some places by over harvesting both for the delicious abalone steaks and for the beautiful shell interior which is used for jewelry. In southern Europe snails are a prized delicacy.

Euell Gibbons in *Stalking the Blue-Eyed Scallop* tells that in Charles Dicken's day restaurants specialized in serving periwinkles and London alone consumed 1900 long tons of these little snails in a year. When the European colonists arrived on the east coast of North America there were no periwinkles or other edible snails. It was not until 1850 that the periwinkle appeared in Nova Scotia and gradually made its way down the Atlantic Coast. By that time snails had slipped out of the culinary cultural pattern of most people in the United States. So periwinkles by the millions go uncollected on the rocks of the coast from Nova Scotia to Delaware.

At the last wild food dinner which I prepared with college students, periwinkles appeared on the menu in two ways. One student boiled the periwinkles, pulled them from the shells, and set them aside until serving time when she heated them in melted butter and garlic. A committee made a periwinkle omelet following Gibbon's recipe.

In evaluating their reaction to the meal almost half of the students rated the periwinkles in garlic as the best thing on the menu. These were the seafood lovers, the adventuresome ones, the students of French background. On the other hand the students who didn't like to try new things and ones who were strongly influenced by ideas and appearance listed it as the poorest thing on the menu. But some of this latter group highly praised the omelet. All of which simply proves that periwinkles are good food. It takes a bit of adjusting to get by the corkscrew shape, for the snail's body snaps right back into a spiral when it is pulled out of the shell but the omelet nicely masks the appearance without destroying the flavor.

Snails in the pot, in a terrarium, in an aquarium or in a shell collection can introduce new experiences for little or no money in the classroom, in camp, on a playground or in a child's home zoo.

This large grey slug is a common visitor to damp, decaying logs and stumps at night. By day it often remains hidden under bark or beneath debris where it is damp and dark. However, on windless, rainy days it may wander about, leaving a trail of slime wherever it goes.

The white-lipped land snail is a common resident of moist woodlands, where it moves slowly over decaying stumps and leaf litter. Its empty, partially nibbled shells indicate that shrews and other small animals have attacked it.

Good Reading

BIRDS OF EUROPE by BERTEL BRUUN. Golden Press, 850 Third Ave., New York, N. Y. 10022. $1.25. 160 pp.

This paperback answers a need for Europeans and those who come from other lands to do birding there. The colored illustrations are well done, and the distribution maps aid in limiting identification by locality. The price of the book makes it accessible to all and the book should lead to a greatly expanded interest in the feathered friends.

A FIELD GUIDE TO WILDFLOWERS by ROGER TORY PETERSON *and* MARGARET MCKENNY. Houghton Mifflin Company, 2 Park Street, Boston, Mass. 02107, 420 pp. 1340 illustrations. $4.95.

For those "who are inclined to identify flowers by the picture-matching method will find this admirably adapted to their style. The system is based on visual impressions such as color, general shape or structure and distinctions between similar species. The more conventional part of the book is the introductory part where descriptions of the 84 families of flowers is covered in the book." The book is subtitled as "Northeastern and North-central North America" though the dispersal of many eastern plants across the Rockies to the west make it useful there. This is truly a book of a visual approach and a companion to Peterson's Field Guide to the Birds.

Cities and Opulence

Everyone would profit by reading the series of articles entitled "Strained Resources and the Good Life" by Ernest Swift, published in Conservation News by the National Wildlife Federation. The first appeared August 15, 1967.

The issue of resources has had some optimists who predict a bright future, but there is a growing flood of concern that all is not well in this world with the extremes of opulence and of poverty.

Swift writes that "The issue causing most soul searching is that of increasing human populations. How many people per acre can this old world tolerate and still retain enjoyable living standards? Standing room only has become an intruiging subject to economists and one of troubled alarm by church leaders. At worst, too many people can mean poverty, pestilence, and starvation; at best no elbow room."

In his pungent way Swift likewise comments that "Since MAN first became a herdsman, he has known that too many livestock will destroy pasture and range. Some historians credit destruction of ancient civilizations in the arid mid-east and Africa to erosion caused by long continued over grazing of sheep and goats on elevations above irrigating systems. In simple terms, the soil, devoid of cover, slid into rivers which fed irrigation canals and choked them. Just why it has taken MAN so long to discover that human numbers can be as destructive as livestock – more so by documentation – is an indictment of MAN's egotism and supposed intellectual superiority."

Man has arisen as a creature of the earth. For untold millenia he was little more than another organism on the land competing with the physical factors of climate and weather, and with the other organisms. He learned to domesticate some plants and animals and slowly freed himself from his true animal nature, yet in his agricultural pursuits retained a close identity with the good earth. However, in less than a half century, a migration of man from this good earth has taken place which was more massive and more destructive to his own tranquility, than any other migration of peoples in history. Farmlands are being abandoned worldwide as people flock to the cities to enjoy its overrated cultural and economic opportunities. This migration of millions produced disillusioned hordes who had no cultural ties with cities, no occupational skills demanded of the city dweller, and no way to get back to the land over the bridges they burned behind them when they left.

Before the coming of these migrant hordes, the city centers were the areas of opulence and culture. As the migration flooded in, the old dwellers of the cities migrated to the suburbs, and the city centers became the ghettos with vice, hunger, and frustration the dominant character.

Perhaps it is industry which painted a glowing picture of the opportunities of high wages. Chambers of commerce struggled to have the populations of their cities grow, and to grow some more. Industries are begged to come in, but they have not absorbed the new migrants who lacked skills very different from those needed in the rural areas from which these migrants came. The opulence of some increased while the unemployed did likewise.

There are a few voices crying in the wilderness of struggle for greater affluence while ignoring the plague of people which threatens the very existence of the human species. There are choices to make, but legislators, economists, federal agencies and business people are struggling to create conditions which will insure a burgeoning of the population to plague proportions. It would be well to heed the words of such men as Ernest Swift. A critical look at the ecology of man is in order. Man must learn how through ages past his psychological and physical being was nurtured by contact with nature, and that he may not put himself above nature without danger of destroying himself. Nature study in all of its manifestations may eventually be the key to insure his survival.

NEW HANDBOOK OF ATTRACTING BIRDS by THOMAS P. MCELROY, JR., Alfred H. Knopf, 501 Madison Ave., New York, N. Y. 10022.

In the introduction Roger Tory Peterson writes, "A garden without birds would seem as sterile as a pond without fish, although we have heard of someone who wrote to the National Audubon Society requesting information on berries that birds would *not* eat." Most people enjoy seeing birds about their gardens and flower beds. Even the salesmen who make a living selling pesticides might decry the loss of birds.

To attract birds is the theme of this book. It is highly recommended. It is recommended for personal possession as well as for the community library. It answers many questions about birds which Audubon members and libraries are asked.

Volume 1, No. 1 of *Heron Tracks* published by the Seven Ponds Nature Center is a worthy effort. This is currently a four page, two column effort with some illustrations, justified margins, and good accounts of nature. The first issue had such items as Reflections from the Ponds; A Blanket of Snow; Projects to Do; and Books to Read.

This center is located at 3854 Crawford Road, Dryden, Mich. 48428. ANSS members are urged to pay this group a visit. Edward M. Brigham III is Director, and Walter A. Jones is the Editor.

Dr. Phyllis S. Busch, Director, Project SPRUCE, has prepared "Seven Steps for Developing an Outdoor Area For Teaching Science." This is a guide to Extending Teaching to Include the Total Environment. This 49 page mimeographed study is distributed by Project Spruce, Box 96 A, Pine Plains, New York. S.B.M.

SOME THOUGHTS

STANLEY B. MULAIK

There is a preoccupation in much of our science teaching with problem solving. Much of this, if we can judge by textbooks and manuals, is strictly cookbook. Much is made of the questions supposedly leading the student to "think" in a manner to lead to the solution of the problem.

The thought arises that situations must be created which will lead to the student's formulating fresh and stimulating questions which had not occurred to the textbook writers or teachers. It is such ability to ask such questions rather than merely to solve problems (most of which the authors never experienced solving) which identifies creative thought. One cannot teach creative thinking. A teacher or text should provide a climate for free enterprise, giving encouragement to every glimmer of original brain-storming a student might show. Through such activity there is real mind-stretching.

At the university level, most instructors in fields of science are themselves producing original research. Their activities are generally founded on grasping at odd phenomenon out of which arise questions whose solutions are sought. The excessive student loads of high school science teachers is deadening for mind-stretching by the teacher. No free time can be devoted strictly to pondering some research problem and solving the questions the problem creates. Early childhood shows occasional spark of creative questioning, but the usual goose step education system severely represses most of it.

The following quotation by Nancy Newhall which appeared in a Sierra Club publication seems pertinent:

From what immortal hunger, what sudden sight of the unknown, surges that desire?
What flint of fact, what kindling light of art or far horizon, ignites the spark?
What cry, what music, what strange beauty, strikes that resonance?
On these hangs the future of the world.

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Boost The Nature Study Idea

Many ANSS members are acquainted with authors who are writing books on some phase of the broad field of nature study. These authors should be urged to strengthen their slant toward "The Nature Study Idea" as presented by Liberty Hyde Bailey over half a century ago.

"The Nature Study Idea" is as important and applicable to today's living as it was when first presented. Its implications and its philosophy have not changed. What has changed is the enormously increased awareness by a far larger proportion of our people of the intricacies of interrelationships in our environment. There is an explosion of knowledge of the failure of our scientific fraternity which is rapidly increasing our technology to recognize that there are limits of environmental change which mankind can stand and still survive.

There has been too little concern with understanding the environmental changes which technology has produced related to the gross national product, stock market index, automobile production, bank deposits, steel production and housing listings. Among these changes are the tear-producing air pollution which at times approaches lethal proportions as shown in smog deaths in London, New York, Donora, Los Angeles and other cities. Many streams and lakes are dead. Lake Erie, Lake Michigan, and The Delaware River are examples, along with many others.

Our soils have been made sterile over many areas from pesticides, which have been really omnicides. Today, DDT as the greatest culprit, and one which has brought immense profit to the pesticide producing industry, has been spread worldwide. Waters draining from farmlands carry DDT and other chemicals into streams, and in turn these empty into oceans. The ocean currents have distributed these chemicals worldwide. The Antarctic penguins have DDT in their tissues. These come from the marine animals which provide their food. DDT is found in the tissues of man everywhere. This illustrates well the saying that everything in nature is hooked in some way to everything else.

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Classifying What?

How far can some education schemes escape from reality? On the market are gimmicks whereby children can be taught to sort out various shaped cards, blocks, etc., into categories of similarities or differences. Their existence stems from an understanding that children need to develop skills in classifying. The exercises related to these artificial items are carried out in what perpetrators call *science*. Let's call these exercises what they are; – exercises in developing skills in separating various cardboard shapes. Cardboard *shapeology* would be a more accurate term.

Children as well as adults need skills in differentiating elements in their environment. How will they learn to differentiate the score or more common cloud forms, to classify them with respect to their meaning? They need to learn to differentiate trees by the shape of their leaves, the character of their buds, leaf scars, by the fruit, or by bark. They need to learn to classify differences among blades of grass, or of snow crystals, or to develop skills in differentiating and classifying the insects, or nuts, seeds, shells, or rocks by their similarities and differences in form, behavior and ecological niche. A child thrills in differentiating flower types when given guidance by someone who knows them. But what kind of guidance could anyone who works with the artificially-grasped world give children to help them understand the fascinating natural world which is the realm of science.

Many educators with some flair for writing have climbed the band wagon crowded with others like them. However, in writing so-called science books, their lack of knowledge led them to create cardboard "shapeology" in the name of "science." The stories of plants and animals some write about reek with imaginative anthropomorphisms and teleology. The realities of Nature are too challenging to the imagination in unravelling her mysteries to require faking. The class of these writers is on the level of those who place great emphasis upon classifying artificially created forms, shapes and sizes. There is no argument against children learning the terminology for shapes of pieces of paper, if there is no neglect of the real world around them. Perhaps those who have said "This is something new" when referring to children being taught to observe, need to learn of the philosophy of Liberty Hyde Bailey concerning these things; or of the philosophy of Agassiz, or Jackman, or a host of others of whom many modern educators seem never to have heard. These men were excellent scientists and primarily naturalists or ecologists. Jumping on the bandwagon of "observation and classification" does not make one an expert, and certainly it does not make one a scientist; nor do some activities become *science* merely by labeling them so.

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There is a distinct shift in philosophy in America regarding our land. There has been a shift from the idea of land-use related to economics to landscape-use related to the economics-aesthetics complex.

News and Notes

ANSS Committee For Natural Areas at Schools Produces Two Leaflets

Dr. John W. Brainerd, Chairman of the ANSS Committee for Natural Areas at Schools, announces the publication of two leaflets, now available from The Broad Brook Press, 933 Main Street, Bennington, Vt. 05201 for 20¢ each. ANSS Leaflet No. 1, entitled "Promoting Natural Areas at Schools," deals with the need for such areas and how to go about getting local school boards and teachers to support their acquisition. There is a helpful guide to organizing to promote the idea of natural areas at school sites.

ANSS Leaflet No. 2 is entitled "Outdoor Environments for Indoor-Outdoor Education at Schools." It contains a useful list of the various environments that can serve for outdoor education at schools, and how these areas can be used. Attention is given to urban as well as suburban situations.

Both these leaflets are illustrated and written by Dr. Brainerd. They are available in quantity at the reduced rate of 25 for $4.00. The Committee is working on additional leaflets in this series. Anyone involved in teaching or school administration, or in the planning of new schools, should read them. ANSS members are urged to give copies to key people in their communities.

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Southern Illinois University Expands Its Outdoor Conservation Education Area

By special arrangement with the Bureau of Sports Fisheries and Wildlife, Department of the Interior, Southern Illinois University has initiated a program whereby an additional 1000 acres of land adjacent to its Outdoor Laboratory at Little Grassy Lake will be available for use in conservation education.

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"Nature Study" Included In The Combined Periodical Exhibit

Arrangements have been made for this periodical to be exhibited at the 87th Annual Conference of the American Library Association in Kansas City, June 23-27, 1968.

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ANSS Members at AIN Meeting

A number of ANSS members attended the annual meeting of the Association of Interpretive Naturalists in Gatlinburg, Tenn. April 3-7, 1968. An impromptu "board meeting" was held to assist Ruth Scott in her planning for the annual meetings scheduled for Dallas in December, and also to talk over several publication proposals from the Publications Committee. In addition to President Douglas Wade, former presidents Howard Weaver, Glidden Baldwin, and John Gustafson were present.

* * *

IUCN Prepares Convention

The International Union for Conservation of Nature and Natural Resources of which ANSS is an affiliate, has prepared an extensive draft Convention on the Import, Export and Transit of certain species of animals. This provides a regulation by the signatory nations of the taking by any means and their export and import of various species of protected animals. Provision is made whereby the Contracting States shall take the necessary legislative and statutory measures to repress on their territories infringements of the present Convention.

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Howard Michaud of the Department of Forestry and Conservation, Purdue University attended the meetings of the International Union for Conservation of Nature and Natural Resources (IUCN) at Lucerne, Switzerland last June 22 to July 2 where he delivered a paper on the "Ecological Impact and Patterns of Use of American Forest Recreation Area." Following these meetings he spent nearly two months touring a variety of forestry areas.

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BRIEFS

The MAINE COAST is still there, but its natural complexion gets more pimply all the time as man continues to monkey with it. Bowdoin College, Brunswick, Maine 04011, now has a Center for Resource Studies which promises to be an ally of Nature as well as of Man. John McKee of its staff has made a photographic exhibition entitled "As Maine Goes," illustrating the plight of the commercializing coast. An illustrated booklet describing the exhibit may be obtained free from the above source either as single copies or in quantities for distribution to classes or other groups. The brief, well written text can form a good basis for discussions.

NEW ENGLAND is pulling itself together as an ANSS Region. Mrs. Allan Bonwill, 48 Grannis St., East Haven, Connecticut, has accepted leadership in that state. Leaders are still needed in the other New England States. If you live in one of them and can help promote ANSS there, please contact Dr. John W. Brainerd, Springfield College, Springfield, Mass. 01109, Regional Chairman.

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The physiological laboratory of the firefly concocts many phenomenal chemicals of which one is luciferin. This substance in itself is of no seeming concern until the laboratory pours out a catalyst luciferase. These two substances in contact produce from the luciferin a yellowish-green light with practically no heat. Not to be wasteful, the laboratory of the firefly takes the oxidized waste material and by reaction with hydrogen, luciferin is reconstituted for use again.

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Nature study, fully developed, will encompass all phases of the human environment. It will involve not only the plants and animals, their interactions, but the whole gamut of the social and ecological factors which impinge on human welfare.

Edward D. Eddy, President of Chatham College has a related view which brings the problem into focus. He says "Teachers may have a moral conscience and live by a narrow Puritanical code of ethics; but do they have a social conscience where no recognition is given to needs to be fulfilled by adventuring in their lives and in the lives of their students? There should be a stress not on the reality of facts and ideas for their own sake, but the connection these have to the problems the human has. It is safer to leave pressing social problems alone. One's security is better established . . .

"Teachers – the education profession as a whole – have seen fit to take a middle path, or a very neutral one on the social problems in their community. Fear . . . failure to relate to society . . . silence and serenity.

"The love of security ends in the warm embrace of mediocrity."

* * *

"Wild" Rivers

Under an Act of Congress passed in 1966, a number of rivers in the country were to be designated as "wild rivers." These are now to be redesignated as "scenic rivers." This change probably reflects the realization that many of our so-called wild rivers are not really very wild, and the best that we can hope to do is to maintain their scenic value for recreational purposes.

Welcome To New Members

Bruce Baker, Wheaton, Ill.
Harry R. Buchanan, Kintnersville, Pa.
Charles River School, Dover, Mass.
Mrs. Marion H. Cole, Deerfield, Ill.
Cooperative Outdoor Education Project, Marion, Ill.
Francis R. Costello, Hillsdale, N. J.
Donald A. Dixon, Massapequa, N. Y.
Tom Gaskins, Palmdale, Florida
Raymond L. Gehling, Millis, Mass.
Nora Gittings, Pittsburgh, Pa.
Rev. Rolf A. Hellum, Fitchburg, Mass.
International Service Co., Brooklyn, N.Y.
Clifford E. Knapp, Carbondale, Ill.
George Lippert, Pine Plains, N. Y.
Harry Lubrecht, New York, N. Y.
William Lunt, Chicago, Ill.
Elmer Magnussen, Brockton, Mass.
Bruce R. McLeland, Midland Park, N. J.
National Park Service, Western Region, San Francisco, Cal.
Miss Ramona C. Pickering, Pueblo, Colo.
Richard Presnell, Ithaca, N. Y.
Monroe Richardson, Hamburg, N. Y.
Robert E. Rutkowski, Springfield, Mass.
Miss Mary Schnitker, New Concord, Ohio
J. W. Shiner, Syracuse, N. Y.
Neil B. Stevens, Newark Valley, N. Y.
Martin G. Treash, Sachville, New Brunswick, Canada

Susquehanna Conservation Council

Under the leadership of ANSS member Nancy Ayers, the Susquehanna Conservation Council has been organized, bringing together regional organizations concerned with conservation of natural resources and interested individuals. The Council provides a communicating link among these several groups, and helps to marshal public opinion in favor of certain conservation issues and against misuse of natural resources. In an attractive brochure issued by the Council, the following statement appears: "Conservation includes the total environment, everybody, everything and you; but people are our most important natural resource — because they can control the environment and themselves, if they wish. The countdown to survival has begun. Many scientists and conservationists currently predict that this may become a dirty, starving world in a few short generations. Wise management of our resources and continued research for better alternatives than presently available will prevent this from happening. The key to conservation is education, and its a do-it-yourself world."

Every community should have a conservation council of this kind, to bring together the various groups interested in the natural environment, for more effective action.

SAVE ESTUARIES

While man's impact on the land in America is now a clear story of abuse and despoilation, a recent onslaught of its offshore bays, estuaries and tidelands has become a new frontier to destroy. Even over a century ago floodwaters rushing from forest lands laid bare in the upper reaches of such eastern watersheds as the Potomac, Susquehanna and the Delaware, brought great loads of silt which were dropped at their mouths. Here onetime vast beds of oysters, clams and other shellfish were suffocated.

In the past decade, American affluence has brought a wave of humanity seeking the beauty of the shores of lakes, streams and oceans as a setting for homes. Some very undesirable results came from this. The onetime isolated beaches and shorelines became areas of crowded humanity whose sewers and filth emptied into the water.

In the Florida Keys, those onetime gems, we find home after home interspersed with real estate promoters, shopping centers, and cheap shacks passing as business places catering to fishermen and boaters. Land is becoming scarce in this developing megalopolis. Land hungry promoters began dredging up the shallow bays and coral bottomed tidal flats to make new acres on which to build.

Centuries of slow growth of corals in these areas were disturbed. An acre torn up by a dredge released sludge which the waves carried up and down the coast to smother other beds of coral and feeding and breeding grounds of myriads of fish and other organisms.

That such wanton destruction of the environment had disturbed many people is reflected in the Estuary Bill HR-25 and S-295. These would provide some regulation. Those involved in despoiling the estuarine waters are ones who oppose the bills. Congressman John Dingell said at the last March hearings ". . . they (estuaries) are an invaluable and irreplacable source of enjoyment for recreation, sports and commercial fishing, and for their natural and primitive beauty. However, because of the rapid expansion of cities, urban areas and commercial enterprises, these valuable areas are rapidly disappearing. And once they disappear, they are gone forever. It is our responsibility to act now to save our remaining estuarine areas."

Will Johns writing in the June 15 Conservation News, and from whose article the above quotation by Congressman Dingall is taken, comments: "Any contractor can take an estuary and in a matter of a few months turn it into a boat marina, parking lot, housing development, garbage dump, airport, or highway. After that, however, it is impossible to rebuild or reclaim an estuary if several years later we find the area is more urgently needed to provide food, recreation, a maternity ward or nursery for a wealth of ocean fishes, a barrier to protect cities and towns against hurricanes or other storms, or simply a place to get close to nature.

"Who has nature's time or blueprint to build an estuary?"

CULI Resists "Progress"

Conservationists United for Long Island are concerned that the land values will be degraded if present trends for population growth and the resulting building goes on. The law of Eminent Domain needs revamping to prevent road builders from destroying old established homes in the name of progress.

CULI awards plaques to builders when certain standards are met. Among these are the following:

1. Keep lawns small in settings of natural growth, saving all varieties of trees, saplings, shrubs, wildflowers, laurel for beauty, wild cherry for birds, and more.
2. Contours as nature made them. Well designed roads.
3. Open water, protected and clean.
4. Shores, rivers, wetlands, marshes protected. They are our golden goose who lays golden eggs.
5. Boat channels maximum depth at low water six feet, width fifty feet.
6. Learn what a natural kettlehole is and SAVE it. They are absorbant and beautiful, too.
7. Provision for adequate sewage disposal.
8. Groups of homes with a variety of price levels.
9. Get adult courses, as well as grade courses in Conservation into our schools on pollution, water, relationships of everything to every other thing in Nature, and all the gorgeous truth.

* * *

The 33rd North American Wildlife and Natural Resources conference held in Houston, Texas in March called for action to protect and improve man's environment. The warning was clear that conservation education is out of touch with seven out of ten Americans and needs to expand its concern to include the crisis in our cities, to actively consider the problem of human conservation.

There must be a hard look at what kind of world people want to live in, and how to achieve this world. There must be action, not just more studies to prevent degradation of the environment.

Will the Day Come?

"Will urban sprawl spread so far that most people lose touch with nature? Will the day come when the only bird a typical American child ever sees is a canary in a pet shop window? When the only wild animal he knows is a rat – glimpsed on a night drive through some city slum? When the only tree he touches is the cleverly fabricated plastic evergreen that shades his gifts on Christmas morning?

"None of us want to condemn our children or grandchildren to such a barren, unnatural existence as this . . . I don't think for one moment that it is either inconsistent or unrealistic to believe that room can be made on this planet for both the full expression of nature and the full realization of material progress."

— Frank N. Ikard, President American Petroleum Institute

WHY CITY PARKS

Frederick Law Olmstead designed and had established Central Park in New York City which he protected all his life. He had a clear concept of what parks were for, and with our increasing population density it would be well to consider his comment on this: "Neither recreation, in the specific sense of amusement, nor education, even under its most attractive guise, but refreshment pure and simple, for body and mind, is the primary office of the public park. And nowhere should this fact be insisted on more strenuously than in eager American communities, where there is little inclination to give either mind or body their needed quota of peaceful, unambitious hours."

Olmsted's comment was produced when America was by far a rural world where the woods were not far away, where the local brooks were unpolluted and had good fishing, where even in the cities were many open fields to graze or run the buggy horse many people kept for transportation.

Today's modern housing developments are row upon row of tiny houses on tiny lots built too often by housing developers who were here today and gone tomorrow. They had no thought of "wasting" land on playgrounds for the children of the area. They set aside no areas for parks or open spaces except as needed for roads.

The past century has not changed man's psychological base built through many millenia as a species of the fields, woods and stream and lake shores. Today's vast crowding on weekends, or during summer vacations, into forest camps, into state and national parks and monuments is a seeking for "refreshment pure and simple." Man today has not had his instinctive skills sharpened through the contacts earlier man or even the agriculturist of the past century had. He has, on the other hand been sold a bill of goods by the chamber of commerce oriented propaganda that he must buy a vast array of camping equipment or that he must surely not miss staying at certain motels while he is away from home. It is even pointed out that recommended motels are equipped with color TV.

There is a serious need to give people – and this must start with children – a sense of value in "peaceful, unambitious hours." Educators must do some soul searching to come up with techniques of procedure to accomplish this. A few can find serenity and peace on foot in a park, or woods, or other areas untrammeled by the gadgetry which many of today's recreationists feel necessary to enjoying the environment which was the daily role of almost endless generations back through time.

The current trend in efforts by many agencies to provide outdoor experiences through a variety of purchased gadgets satiate, but hardly satisfy, the participant. There must be given to today's youngsters as well as to the middle aged, a taste of a gadgetless experience and an interpretation of the outdoors to arouse latent psychic urges and to submerge the hectic confusion in which today's urbanite finds himself.

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NATURE'S WHOLE

A lonely massive oak.
Amid an open field of swaying grass
A gently blowing breeze
Sheds the dying leaves
And tiny precious seeds.

A seed is caught and holds;
Then washed by nature's rain
It lives to sprout and grow.

A tree alone, and yet
By wind and earth and sky
And all that falls between
It shades a hundred fields.

A sole and silent man
So starkly opposite,
In conflict with his world,
Denying nature's whole.

Mike Provencher
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