

# Fifty Years of Nature Study

## and the American Nature Study Society

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JANUARY, 1958, marks the beginning of the second half-century of the existence of the American Nature Study Society. Since the Society has been an important factor in the growth and evolution of the nature study movement, it is appropriate that this educational insert be devoted to these past fifty years. Also, the American Nature Association and *Nature Magazine* have collaborated closely with the Society and have furthered many of its educational responsibilities.

More and more funds and professional support are becoming available for the advancement of science education in its broader aspects. Equally, there is more and more competition for these funds and for this support. Historically in education, there have been many educational fads, temporarily winning public support. However, through it all, there are fundamental truths that must be accepted, and any honest student must recognize in the nature study movement values that are essential. We wish to call attention to some of these values. We must first accept the validity of a philosophy that asks that one look to proof for authority, rather than to authority for proof. And the essence of nature study is that we "study nature, not books." There have been and will be attractive fields to explore in which camping, recreation, health, and citizenship suggest ways of advancing "the nature study idea." A position of leadership in conservation, for example, is being sought by recreation leaders, many of whom have scant understanding of the real significance of conservation. The term science has been abused by many who have little concept of what science really is and little desire to submit to the disciplines necessary for such understanding. We tend to determine what we do in part by seeing how the pack is running, buying cars that sell in the greatest numbers, smoking cigarettes that are smoked by public figures, and supporting movements that are urged by the ablest propagandists. By none of these methods can truth be determined, and by truth alone can progress continue. Some of us feel that the nature study movement has features that are unquestionably fundamental and vital. It is to propound these truths that this summary of a half-century of nature study is given.

## The Seeds of Nature Study, before 1800

TO UNDERSTAND any organism it is essential to consider its structure, how it works, what it does, and to know something of its ancestry. This is true whether it is a pine tree, a swamp, or a professional organization such as The American Nature Study Society. To know how it came about may be as important in understanding it as to see what it does today, did yesterday, or to predict what it may do tomorrow. The philosophy of the Society was evolved over a span of many years by some of the best of minds.

Comenius was credited with producing, in the 1600s, the world's first pictorial school book. In doing so he said: "Since the beginning of knowledge must be through the senses, the beginning of teaching should be made by dealing with actual things. The object must be a real, useful thing, capable of making an impression on the senses." He suggested that geography "begin with the study of the child's room," that "instruction must begin with actual inspection, not with verbal description."

Writing in 1749 of his proposals relating to the education of youth in Pennsylvania, Benjamin Franklin said of nature study: "Besides this Study, if it is to be called a Study, instead of being painful and tedious, is pleasant and agreeable.—A Garden, a Country, a Plantation are all so many books which lie open to them [children]; but they must be taught and accustomed to read in them."

During the first half of the eighteenth century in America began the production of a literature about our plants, animals and mineral resources. In this, the names of Mark Catesby and John Bartram were prominent. In the last half of the century Alexander Wilson and John James Audubon described our birds; Peter Kalm, the Michaux family, and the Bartram family's second generation wrote of plants. All of these men studied their science first hand. They had no choice, for we had scant American literature in the field of nature study.

In Europe, Gilbert White was writing intriguingly about the tortoise in his garden, and of other things he saw, in his classic *Natural History of Selborne*.

Even though war raged in Europe and in America it was fought along more gentlemanly lines than modern warfare. The British army that moved into Philadelphia had orders not to harm the Bartram gardens because of what they had meant to European biologists.

The educator Rousseau described his education "according to nature" and wrote: "In general never substitute the sign for the thing itself, save when it is impossible to show the thing, for the sign absorbs the attention of the child and makes him forget the thing itself."

By the end of the century Pestalozzi, who definitely affected American nature study, was becoming influential.



## A Century of Nature Growth—1800-1899

THE FIRST half of the nineteenth century finds Pestalozzi hammering away in Europe on the idea that sense perception is the basis of all knowledge, while Froebel added to this philosophy a religious and a practical significance. Froebel emphasized the use of agricultural materials as a basis of learning, feeling that learning was improved if the child participated in intelligent management of affairs of living things. Agassiz influenced Old World thinking about natural history in this period.

America was boiling with activities of interest to nature study. Thomas Say, under the Bartram influence, had begun to create an American entomology and zoology. Audubon reached his climax in this period, and Maclure was helping to make an American geology. He was identified with the brief New Harmony movement, which began in 1825 and laid an educational mosaic that eventually, in one way or another, enjoyed wide adoption. Botany came into the programs of the academies in 1800 and zoology in 1825.

It was in 1847 that Edward Sheldon had to leave Hamilton College because of ill health. He became concerned over the education of his home town folks after he found that in Oswego, New York, there were 1500 illiterates. To correct this situation he started his own school for 125 youngsters without any specific philosophy and with no budget. The results that he obtained were phenomenal.

In 1859, Sheldon went to Toronto to improve his ability as a teacher. There he saw a demonstration of the Pestalozzi system of teaching from objects. He was overwhelmed, returned home and, in 1861, started his own teacher-training program. In 1863, he demonstrated his philosophy of object-teaching to the National Education Association, and in 1865 New York State took over his teacher-training program and at Oswego started the "mother of American normal schools."

In 1862, H. H. Straight suggested the appropriateness of studying things in a natural rather than an unnatural setting, and in 1870 Harris published in St. Louis his syllabus of lessons in nature study. This was the first such syllabus published in America and proposed an organized sequence of studies.

In 1873, Agassiz had his famous summer school at Penikese, which set a pattern for American biology for many decades. At that school were a number of the founders of the American Nature Study Society. Agassiz emphasized self-stimulated investigations of real materials.

By the end of the century Chicago had been greatly influenced by Straight and also by Wilbur Jackman, who, in 1891, published his *Nature Study for the Common Schools*, which asked but did not answer questions.

High school interest in science shifted toward the end of the century. Morphology began to replace natural history. By 1880, 78 percent of the high schools of the Northeast were teaching physics. This should cause some thought today, when the teaching of physics, in quantity and quality, lags behind the national need.

## At the Century's Turn—1900-1907

THE SEVEN years immediately preceding the founding of the American Nature Study Society were most significant. Man's thinking seemed to be in a state of flux. Maurice Bigelow, a well-trained biologist, began teaching biology at Teachers College, Columbia. This was in 1899, the same year that Liberty Hyde Bailey had offered a summer school program at Cornell for nature teachers. Cornell had just founded the first forestry college in America and Yale followed suit the next year.

Under the guidance of able scientists the Department of Science Instruction of the National Education Association had been formed in 1895, and in 1900 the publication of *School Science and Mathematics* began, in part, to provide a medium of expression for those interested in teaching science. In 1903, the magazine's supporters formed the now powerful Central Association of Science and Mathematics Teachers. In 1901, Jackman, often called "the father of nature study," became dean of the School of Education at Chicago. In 1904, he published the Third Yearbook of the National Society for the Study of Education, which dealt with nature study fairly, and which proposed a regular cycle of physics, chemistry, geology, astronomy, botany and zoology, but apparently was not read critically by those who later prepared the 31st Yearbook of the same organization. The Third Yearbook is still well worth reading.

In the following year, 1905, L. H. Bailey published his classic *The Nature Study Idea*, the first national forestry congress was held, and Bigelow of Columbia started *The Nature Study Review*, which three years later, in 1908, became the official organ of the newly organized American Nature Study Society.

The driving force of this group was Bigelow, but associated closely with him were Bailey of Cornell, representing agriculture; Hodge of Clark University, representing biology; Fairbanks of California representing geography, and Woodhull of Columbia, representing the physical sciences. Working with these men was a group of 62 scientists and educators in the United States, Canada and abroad. In the list, we read such well-known names as Miall and J. Arthur Thomson of England. Among the Americans were Locy, Needham, McBride, Vernon Kellogg, W. F. Ganong, Stanley Coulter, and Frank Chapman, known to every biologist by their writings if for no other reason. There was also Carver of Tuskegee, known affectionately for his service to his race and to society in general. Among the educators were such men as Boyden and McMurtry. These were the people who served as midwives for the new Nature Study Society.

It is probably significant, too, that in this period the influence of President Theodore Roosevelt was great through the land. In the year before the Society was formed, or in the same calendar year, our National Forests were increased tremendously. The Reclamation Act was implemented by an independent government agency. About this time forestry schools appeared in Oregon and in Washington.



## The First Decade—1908-1917

ON JANUARY 2, 1908, at the University of Chicago, The American Nature Study Society was formed. L. H. Bailey, chairman of the organizing committee, was unable to attend and the meeting was opened by Otis W. Caldwell, the vice-chairman. It was agreed that "nature study adapted to young children differs sufficiently from the science of higher schools to warrant the name 'nature study' at least as a matter of great convenience." In a discussion with the writer years later Caldwell expressed his conviction that nature study had a major significance beyond the elementary school, and it would seem that history has borne out that viewpoint. Bailey held that nature study involved learning to see what one looked at and drawing proper conclusions from what one saw.

At this initial meeting, Stanley Coulter said: "It is doubtful, indeed, if any modern educational movement has been so hampered by definition, so obstructed by material, so deflected by sentimentalism." Its survival he said was "evidence of the vital quality of the movement." He said that it is "regarded as a movement to relate education to daily life," and to "accomplish this end by a wise training of the senses, using for its material the natural objects or phenomena surrounding the child." He said "the material should be as varied as the surroundings demand," and that it was "measured in an attitude of mind in the presence of facts." Other speakers of equal caliber agreed essentially with Coulter's analysis of the situation.

Some of the speakers emphasized aspects that they thought were "the matter with nature study." Hodge, for example, felt that much that was considered to be suitable lacked significance in the life of the child. His book *Nature Study and Life* had a title that indicated this interest. He emphasized the importance of a sound education during the period when we face the "problem of feeding the human soul and mind during its period of active growth." One of the attacks on nature study made twenty years later justly pointed out the fallacy of implying such limitation of the growth of the human mind to the earlier years of life. Hodge also emphasized responsibilities greater than those of the individual as being of major importance.

C. R. Mann of Chicago devoted much attention to weaknesses in what was accepted as science and which nature study might correct. He preferred to define science as "problems solving" rather than as "organized knowledge," and felt that both lacked the spontaneity that the nature study idea might provide. He felt that the good of both schools of thought should be joined, and that really there should be no difference between nature study and science. He suggested that a major responsibility of the Society was to develop a research problem in education that should be solved by methods of science. He concluded with the hope that nature study teachers would "take enough work in science to have mastered the subject matter to a sufficient degree." It would seem that such a warning might with equal justice be given to teachers of science, as well as teachers of nature study.

For the first decade of the Society, the presidents who helped define the nature of the organization were as follows: Liberty Hyde Bailey, 1908 and 1915-17; C. F. Hodge, 1909; Otis W. Caldwell, 1910; B. M. Davis, 1911-12, and Anna Botsford Comstock, 1913-14. In 1911 Mrs. Comstock had first published her *Handbook of Nature Study*, now in its twenty-fourth edition and still a best-seller in its field. It was based largely on experience gained through junior Nature literature published at Cornell since 1896.

The period marking the beginning of the Society was rich in literature. It included works by Holtz, Schmucker, Rogers, Hodge and others. The year in which the Society was formed was also the year in which the Federal government established 36 wildlife refuges, the year when the present Grand Canyon National Park was established as a National Monument, and the year when Theodore Roosevelt called his famous Joint Conference of Governors, which led almost immediately to the establishment of conservation departments in almost all of the States. It was a dynamic year, with dynamic leadership in strenuous times.

During the first decade of the Society, the Boy Scouts of America were organized (1910) and the Girl Scouts and Camp Fire Girls (1912). The first junior high school in America had been established in Columbus, Ohio, in 1910. The School Garden Association had been formed. The Agassiz Association (1908) began the publication of *The Guide to Nature*, and Bailey had developed the program initiated by Roosevelt's Commission on Country Life.

This was the decade in which general science began to come to the fore and found expression largely in the publication of texts. The *General Science Quarterly* began publication in 1916. Later it became *Science Education*. Many colleges of forestry were established following the establishment of State conservation departments that had been stimulated by Theodore Roosevelt's Joint Conference of Governors. Among these States were California, Massachusetts, Idaho, Colorado, and, in New York State, the forestry college at Syracuse University.

During this period, some heated discussions on Nature and wildlife began to appear. Theodore Roosevelt had his ill-advised controversy with Abbott Thayer about concealing coloration. William T. Hornaday, who had spent much of his life collecting large game for use in museums, became aroused about the fate of wild animals and wrote his energetic *Our Vanishing Wildlife*. In 1917, the National Park Service was established and gave a dignity to national park work that it had not previously enjoyed.

In the field of education the National Society for the Study of Education published its 15th Yearbook, which had some bearing on the problems of high school science, and a few leaders made shifts which were subsequently significant. In 1912, David Starr Jordan headed the Department of Science Instruction of the National Education Association. Caldwell went from Chicago to Columbia in 1917.



## The Second Decade—1918-1927

IN THE second decade of the American Nature Study Society, many of the responsibilities that the Society had carried began to be assumed by other more specialized groups. New leadership appeared along with new opportunities and new difficulties. Literature appeared that made it easier to do good work in the nature study field, and some that made it more difficult. Financial support appeared and financial obligations multiplied. It was an interesting decade.

During this decade, the affairs of the Society were administered by five persons—three represented teacher training institutions, one a forestry school and another the supervisory field. Of major importance and significance was the recognition by the Federal government of responsibility to support training in agriculture and in home-making. Much of this work had been supported by the nature study leadership, and new leaders appeared with the new development. 4-H Clubs were doing much of the work previously done by the nature study leadership if we examine the literature at the beginning and at the end of the decade. This represented a natural, normal and encouraging growth of public interest in views originally sponsored by the Society.

It was during this decade, in 1922-23, that publication of the Society's official organ *The Nature Study Review* was discontinued and *Nature Magazine* began to assume some of the responsibilities it had carried. This was made possible by generous support from the Pack organizations in many ways.

The first five volumes of *The Nature Study Review* had been edited by M. A. Bigelow of Columbia. Volumes 6 and 7 were edited by Frederick Charles, of Illinois, who died in 1911. B. M. Davis of Miami edited a few interim numbers and was succeeded by Elliot Downing of Chicago, who edited volumes 8-12. Anna Botsford Comstock of Cornell edited the last four volumes. She continued in a school editorial capacity with *Nature Magazine* subsequent to the dropping of the *Review*.

The Society's presidents during this decade were: S. C. Schmucker of West Chester, Pennsylvania, Normal School and author of *The Study of Nature*, 1918-19; J. Andrew Drushel of St. Louis and later of New York University, 1920-21; W. G. Vinal, of Rhode Island School of Education, later of Western Reserve, Syracuse, Massachusetts and Boston Universities, author of *Nature Guiding* and founder of the Nature Lore School 1922-23; George Green of Pennsylvania State College 1924-25, and M. R. VanCleve of Toledo, Ohio, 1926-27. Each of these individuals gave different emphases to the work of the Society. Vinal and Green in particular added strength to those interested in teaching Nature work through the channels of camping. Drushel gave the Society a high professional standing, and VanCleve gave the views of a supervisor. Schmucker recognized a fine religious significance in Nature work. Schmucker, Drushel and Vinal had all completed their doctorates in a field of academic science. These men made contributions of considerable significance in terms of the leadership that developed in the succeeding decade in fields related to the nature study work.

During the second decade of the Society's existence a number of changes took place that had importance in subsequent developments. Powers and Craig began their work at Columbia, and the influence of Caldwell and Bigelow waned there. Curtis began his work at Michigan. Drushel went to New York University and Pieper was working at Chicago. Palmer came to Cornell during this period and began his editorship of *The Cornell Rural School Leaflet* and his work with *Nature Magazine*.

There may be some significance in what was taking place outside the direct influence of the Society. At the beginning of the decade, in 1918, The American School of Wildlife Protection was founded at McGregor, Iowa. Within a few years The Nature Lore School was founded in New England and the Yosemite School of Field Natural History in California. The National Parks Association was formed in 1919 to provide an advisory group to the government units controlling our national parks. In 1921 the first National Conference on State Parks was held. The succeeding year The American Nature Association and the Izaak Walton League of America came into being. In 1924, the Camp Directors Association was formed and the first Yearbook of the American Nature Study Society was published.

The Coordinating Council on Nature Activities, sponsored by Bertha Chapman Cady and supported by Rockefeller funds, came into being in 1925 with the valid idea of preparing core material of use to the many agencies that were developing in areas where there was a common need for sound help in the nature field.

In 1926, the first of many editions of *The Forestry Primer* of The American Tree Association, a Pack organization, appeared, and the Department of Superintendence of the National Education Association published its Fourth Yearbook dealing with nature study and elementary science, but possibly not representing the pooled judgments of the supporters of either field. In that same year, Frank published his *How to Teach General Sciences*; Curtis published his first *Digests* of research in science teaching; Jennie Hall and Eva Gordon of Minneapolis published their *Nature Stories for Children*, and the Anti-Steel-Trap League came into being. That year, L. H. Bailey was the president of the American Association for the Advancement of Science and the American Nature Study Society gained representation on the council of that organization.

In the last year of the decade, The American Nature Association published the first *Nature Almanac*, prepared by Arthur Newton Pack and E. L. Palmer with the cooperation of most of the Society's leadership, and Craig published his doctorate thesis outlining his convictions on how science in the elementary school should be developed.

As stated before, many of the responsibilities that had belonged to the Society at the beginning of the decade were being assumed by other groups. This alone should be evidence of the importance of the field that was becoming recognized by the government, by foundations, and by professional groups. What more could be asked?



## The Third Decade—1928-1937

MANY OF the trends started in the second decade of the Society's existence continued in the third. A few new areas of opportunity appeared to catch the attention of the public, and some of these are of current importance. Some groups that ignored the nature study philosophy, enunciated at the beginning by the Society, find themselves today in a world that recognizes the soundness of that philosophy. It was in the third decade that many important dies were cast, most of them, to be sure, a refurbishing of features that had had recognition earlier. For example, during this decade textbooks for teaching science and Nature work in the elementary schools began to appear in abundance, but they did not equal the flood tide of the next two decades. A renewed interest in conservation work was aroused during this period, but it was hardly of sufficient importance to forecast the interest of the present time. A strong group began to "play down" the term nature study in favor of the term "elementary science," in complete disregard of many of the teachings of the past. All of these phenomena and developments made the decade an important and an interesting one.

As in the preceding decade, five persons held the Society's leadership from 1928-37. These were Bertha Chapman Cady, 1927-29, who had directed Nature work for the Girl Scouts and for the Coordinating Council of Nature Activities; A. F. Satterthwait, 1930-31, an economic entomologist at the time representing the Webster Grove division of the Society; Ellis Persing, 1932-33, of Cleveland, Ohio, author of a series of elementary science texts; E. L. Palmer, 1934-35, of Cornell and *Nature Magazine*, and Edith M. Patch of Maine, author of several Nature books for children and of a popular series of elementary science texts, 1936.

During this decade, the Society had no official publication other than space that was available through the pages of *Nature Magazine*, and no means to keep the group together except the annual meetings. Dr. Cady severed her connections with the Girl Scouts at the beginning of her work with the Coordinating Council and worked rather closely for a while with the American Museum of Natural History. While she had been able to get funds for the financing of the Council, and had reason to be encouraged for the future, the depression set in and it became difficult to get support such as she had received in the past.

It may be best to give a chronology of the decade rather than to deal specifically with the functioning of the Society for this period.

In 1928, the National Association for Research in Science Teaching was founded. It attempted to assume responsible leadership for coordinating research in science teaching generally. Two years after it was organized it purchased the *General Science Quarterly*, which was facing difficulties, and, in its place, gave us *Science Education*. This organization has had almost invariably as its leaders those whose basic training has been in the field of professional education and contended with justice that an obligation existed to win the support of school administrators if a school program in the sci-

ence field was to make progress. It was many years before this group was identified with the American Association for the Advancement of Science, and then it was with the education division.

In 1928, the Pack Foundation, through the American Nature Association, established at Cornell their fellowships in forestry and Nature education. In 1936 emphasis was changed to conservation education. These fellowships helped more than fifty persons to gain their doctorates. Almost all of them now in service are in teacher-training work, and many, including the present president, treasurer, and secretary of the Society are playing important parts in the functioning of the Society.

In 1930, Dr. Harold Bryant, long prominent in the Society, became director of education and research for the National Park Service. In that capacity, he had the opportunity and the ability to establish a valid Nature program for the interpretation to the public of the resources of our national parks. In the same year, The American Nature Association published the second *Nature Almanac*, prepared again by Arthur N. Pack and E. L. Palmer. Also in that year San Jose State College in California began publication of *Western Nature Study*.

In 1931, Hornaday published his famous *Thirty Years War for Wildlife* in which he summarized the difficulties of that period in getting public recognition of the tragedy of our vanishing wildlife. The present public support of that general program may stem largely from the aggressive Dr. Hornaday and his contemporaries.

In 1931, the American Tree Association backed the publication of *Forest Facts for Schools*, which was designed to implement for school use what was known in the forestry field.

The field of forestry and wildlife management progressed during the years following the publication of this book. Unfortunately it cannot be said that the book was responsible for these developments. In 1935, The American Game Protection Association became The North American Wildlife Institute (now the Wildlife Management Institute) and The Wilderness Society came into being. The next year, 1936, President Franklin Roosevelt called the First North American Wildlife Conference, which has served effectively ever since to guide the work of wildlife conservation education and management, and which gave birth to the National Wildlife Federation.

To return to the science education field, we find these events of importance. In 1932, Craig published his *Pathways in Science*. The same year there was organized the Northeastern Conference in the Education of Teachers in Science, and the National Society for the Study of Education published its Thirty-first Yearbook on *The Teaching of Science*. It seems unfortunate to some that this Yearbook undertook not only to destroy the work in nature study but to ignore rather completely much of the sound philosophy advanced by Jackman in the Third Yearbook by the same organization.

At the end of the decade there were 5000 junior high schools in the United States, a remarkable growth from the first school in 1910.



## The Fourth Decade—1938-1947

THE SOCIETY's fourth decade, like its third, saw a continuation of the assumption by other organizations of responsibilities that had originally been assumed by the American Nature Study Society. To some, the period was discouraging. To others, it was obvious that a change of direction must eventually take place in the field of science education and it would seem that this became increasingly evident in the fifth decade.

During the period from 1938-47, the affairs of the Society were the responsibility of another five leaders, although Edith M. Patch served as president the last year of the third decade and the first year of the fourth. The presidents for the other years were as follows: Ellen Eddy Shaw of the Brooklyn Botanic Garden, 1939-40; George Free of Pennsylvania State College, 1941-43; Charles Mohr of Philadelphia and later of the National Audubon Society, 1944-46, and Edwin Way Teale, the Nature writer, 1947.

Without an official publication of its own, the Society had faced considerable difficulties for some years. Finally under the administration of Ellen Eddy Shaw, a way was found to identify membership in the Society with support of *Nature Magazine* and of *Canadian Nature* through group subscriptions. This provided the Society with a better source of revenue than had existed and made possible more effective work, including the publication of the *News Letter* through which information on the activities of the Society and its members could be circulated. This arrangement has been continued and the *News Letter* is a catalyst.

This was the decade of World War II with its impact on all of the affairs of all men. As is the case in all wars, our institutions of higher learning found their classrooms empty. A generation was learning what it meant to live next to reality and to be prevented from living lives characteristic of the years of peace. Men at the front lines were living close to nature. Men at home were facing challenges on every front. Nothing was inert except institutions and individuals that for one reason or another were insulated from life and untouched by change.

Following the publication in 1932 of the 31st Yearbook of the National Society for the Study of Education, there had been a period in which it seemed easier to teach your science from a textbook than from your own immediate physical environment. Generalizations were the watchwords of the times and deductive thinking took a place in science programs where induction had been advocated by the nature study philosophy. Education began to flourish like the green bay tree. The higher echelons of science teaching were becoming manned by Ph. Ds. in science education, many of whom were inadequately trained in academic science. Bandwagon techniques were recognized as important. Elementary science textbooks that could not possibly be approved by any well-trained scientist were accepted as gospel by school administrators and by some science teachers, and sold in numbers that assumed an authority actually in inverse ratio to the scientific value of the work. The uncertainty, fear and dedication to getting

a job done characteristic of the first half of the decade was replaced in the latter two years by relief from worry and unconcern about dangers that were not too evident.

It would seem unfair to make generalizations about invalid textbooks without being at least slightly specific. One of these books, prepared by a high-ranking science educator with a doctorate in the education field, is a part of a series of books which, for ten years, had great popularity and was revised and adopted on the West Coast within the past five years. In it, we are shown a picture of a fight between a Cretaceous dinosaur and a Jurassic dinosaur, which lived on the earth millions of years apart. Such a fight would be worth seeing. Another picture shows a Jurassic dinosaur meeting a Cretaceous dinosaur head on, and still another shows a plesiosaurus labelled as an "ichthyosaurus." This series of books, crowded with such errors, has been used regularly in our public schools from coast to coast for more than 15 years. How could this sort of thing possibly have occurred had we followed Comenius' recommendation of the 1600s that "the beginnings of teaching should be made by dealing with actual things," or Coulter's recommendation at the initial meeting of the Society that we should advance our interests by "using for material, the natural objects or phenomena surrounding the child?" Thus the writer has felt justified in repudiating much of our so-called current "elementary science."

He supports without apology "nature study" as it was advocated by the founders of the American Nature Study Society, although he agrees with many of the founders that there *should* be no great difference. At the initial meeting of the Society, Mann recommended that nature study teachers "take enough work in science to have mastered the subject matter to a sufficient degree." It would seem that this rule should apply also to pre-college science teachers and to writers of school textbooks, to supervisors and to holders of Ph.Ds in science education.

It might be well to indicate here that the first Yearbook of the American Nature Study Society declared that nature study material should be local and seasonal, that it include both biological and physical science aspects. It also stipulated that it be organized progressively. It emphasized developing acquaintance in the world in which the learner lives through direct observation, and decried sentiment.

During this fourth decade of the Nature Study Society, the National Association of Biology Teachers was founded, in 1938, and, in 1944, the National Science Teachers Association united the National Council of Science Teachers and the American Science Teachers Association. During recent years the National Association of Biology Teachers has worked closely with the American Nature Study Society in joint meetings and in other fields. During this period *Canadian Nature* began publication and has found many common interests with the Society. As the decade closed a tendency developed to emphasize recreational aspects of Nature work.



## The Fifth Decade—1948-1957

POSSIBLY the fifth decade of the existence of The American Nature Study Society may be considered as a period of reckoning and of dedication. Certainly anyone cognizant of the picture for the last half-century should feel greatly encouraged by much that has happened in the past five years, and in particular in the past two years. Unfortunately some developments may be reminiscent of the behavior of an inebriated man of the sea. Practically everything may be taken as a challenge to take advantage of existing circumstances and to take measures to safeguard the future in every way. This dual obligation calls for sound judgment and unselfish dedication to valid programs. Anyone who contends that precollege and college science teaching is not under serious fire by a critical public and by critical situations just is not sensitive to the situation. Let us examine the last decade in which we have begun to re-examine philosophies that are accepted as valid. Unfortunately, fear rather than faith and dedication to truth may be back of the present re-evaluation of what we have been doing.

In the Second World War, Hitler had held to the idea that if you accepted a shibboleth and repeated it often enough and loudly enough it would eventually be accepted as truth. He was proved to be wrong. During our fourth decade and the first half of the fifth, our educators had been told that science was the key to the solution of all of our troubles. If an educator merely called something science, or scientific, this seemed to be all that was necessary for its acceptance and for the advancement of the educator. There had to come a reckoning, and our fifth decade might be called the decade of reckoning. The hot war started by Hitler and his associates was over but the inflation started by our government was not. The cold war started by Russian activity imposed a new threat, and the atomic situation magnified that threat so that the inflation spiral was accelerated and magnified. The easy years of freedom from discipline represented by the progressive education movement in part vanished with this new threat, and people began to look under the rug to see what had been hidden there. Some of the very persons who had backed or even created our phony science were the loudest in pointing out the new danger to which they had contributed, but the responsibility for which they, of course made no acknowledgment. Almost everyone seemed to think that the only solution was through spending money and money became available in unprecedented amounts. One school that had had a subsidy for 25 years for a conservative program that gave doctorate training to half a hundred graduate students, had in one summer about twice as much available to give six weeks' training to individuals who were not necessarily candidates for advanced degrees. This situation was made possible by grants supplied by the National Science Foundation with the approval of the National Research Council, and by grants from private industrial concerns possibly influenced by income tax situations.

In droves, our school folk were deserting the progressive education philosophy and returning to emphasis

on intellectual discipline and the teaching of the basic skills. They sought the mastery of information that would help us as individuals and as a nation to meet the practical threats of world turmoil, of the technology of the Atomic Age and of a decaying intellectual and practical integrity so tied up in legal red tape, in public indifference and in governmental gobbledygook that real growth and advancement were completely stymied. It is this situation that the first half-century of the American Nature Study Society hands over without too much pride to the leaders of the next half-century. This responsibility should be recognized as an opportunity rather than as a limitation.

Back in 1749 when, as reported earlier, Benjamin Franklin said of nature study "This Study, if it is to be called a Study" he implied that study might be unpopular and discouraging. There are those in nature study circles today who have toyed seriously with the idea of changing the name so that study is not a part of it. There are at least two fallacies in this proposition. In the first place, study is necessary if we are to meet the demands of the present and of the future. In the second place, study is not necessarily unpleasant. Teachers who may think it necessary to try to eliminate what lazy students think is unpleasant should give at least double the effort to demonstrate that serious study may not only be consumingly pleasant but phenomenally rewarding in every way. In fact, it seems to some that there are few things in life more rewarding, personally and practically, than the habit of enjoying study. I hope that the word never vanishes from the title of the American Nature Study Society. Someone has defined an educated person as one who has learned how to enjoy doing what has to be done. Certainly we cannot face the future without study, and education should show us how to enjoy doing what necessity demands we do. This does not imply, of course, that everyone should be trained to enjoy the mastery of every field of human knowledge and experience. But everyone should learn to enjoy developing stature in some worthwhile field of personal interest and of social value. Those who do this should be rewarded. Those who do not should not find it easy to shirk their responsibilities.

The presidents of the American Nature Study Society during the past decade were as follows: Edwin Way Teale, the nature writer, 1948; Richard W. Westwood, president of the American Nature Association and editor of *Nature Magazine*, 1949-50; Ellsworth Jaeger of the Buffalo Museum, 1951; Roger Tory Peterson, the nature artist, 1952-53; Ruth Hopson, of Oregon, 1954; Malvina Trussell of Florida State University, 1955-56; and Richard Weaver of the University of Michigan, 1957.

During this decade there has been a pronounced increase in interest in conservation, which is really an implemented nature study. With the assistance of funds from the American Nature Association and the cooperation of The National Association of Biology Teachers, many of the Society's leaders figured prominently in the preparation of *The Conservation Handbook*, published in 1955. Numbers of workshops in the conservation field



were established at the end of the decade. This may be one evidence of a growing recognition of the need and value of studying one's environment to survive and to be happy.

In almost complete disregard of what nature study is, as defined by the published work of the American Nature Study Society, and as developed at the meetings through most of a half-century, the 46th Yearbook of the National Society for the Study of Education says that nature study is characterized by "the opposite of natural history, namely the practically exclusive use of exotic materials; by anthropomorphism, chiefly through nature fables; by teleology; and by moral and religious interpretations of biological phenomena." One is tempted to defy the author of this statement to show where the Society has supported any such definition. Certainly a fight between a Jurassic and a Cretaceous dinosaur, presented as elementary science by opponents of nature study would not be defended by the nature study group.

Within six months representatives of the same agency that gave us this fantastic charge published a report on an elementary science television program in which children studied a bean seed by being shown, on television cards, the story that "In the heart of a seed buried deep so deep a dear little plant lay fast asleep." The "dear little plant" in a bean seed is buried by the thinnest of integuments, as anyone with a smattering of biology should know, and I have yet to hear such anthropomorphism defended by a contemporary leader of the American Nature Study Society. Unfortunately there is too much of this sort of stuff in "elementary science" textbooks written by critics of nature study. The writer has complete faith that any honest, adequately trained scientist who will take the time to investigate will support this statement. Scientists and school administrators are respectfully requested to make such a comparison between the best-seller elementary science texts of the past fifteen years and the nature study advocated at the meetings of the American Nature Study Society and sponsored by its leaders. The writer believes that there should be little if any difference between good nature study and good elementary science.

At least in recent years the meetings of The American Nature Study Society have almost invariably presented symposia by the best leadership available on the use of modern media of education. Television, photography, writing, sound-recording, workshops, urban and suburban conservation, radio, exploration, camping, and survival education have all been presented and will continue to be developed under sponsorship of the Society and within the traditions of the organization, in the light of modern thought, and with the use of modern devices. Field trips have featured these annual meetings and if there has been anything exotic featured on these trips the writer has yet to see it. Such material is as rare on an American Nature Study Society annual field trip as are the critics of what nature study is. If you want teleology, anthropomorphism, fables and moral interpretations of biological phenomena you should stay away. If you like natural history in a natural environment you will get it.

## What of the Future?

**S**EMANTICS should not dominate the future of the American Nature Study Society any more than it should be able to destroy its past. Challenge, opportunity and promise may well be the watchwords if such devices are needed.

We need not here reiterate the valid criticisms that have been directed recently toward the failures of pre-college science and the shortcomings of the undisciplined progressive education philosophy. World crises and their concomitant fears provide ample stimuli for an action program to help man to understand and manage his environment for his own survival and for the survival of the race. Basically this calls for a sound sensory appreciation of the environment by a substantial proportion of the public as a first step. It calls for experience in the intellectual interpretation of what the senses have reported and intellectual integrity to insist on the validity of major premises. It calls for the stimulation of intellectual curiosity as well as the use of controlled imagination.

This can guide prognostications efficiently into fruitful channels of investigation. More than any of these, it must establish habits of behavior that will use our material resources intelligently. It will also rally our intellectual powers and our financial and strategic influences to get things done for the good of man and of society today and tomorrow. Technology may free some from the necessity of effort to make a living through much of their lives. To guarantee survival in a competitive world we must learn to capitalize on the experience and resources of those who have the ability, the resources and the leisure to advance the welfare of mankind. This is quite obviously one of our major current challenges.

Never before in the memory of the present generation has there been a time when financial subsidy for worthwhile work was more generally available from government and private sources. Never has there been a greater need for a revival of a recognition of the merit of discipline and the rewards that may be expected from its wise use. Never before has the teaching profession been faced with such a period of expansion in which the developing generation may be significantly influenced. Never before has there been available a greater resource of inventive genius for making this a better world and a greater promise for a rewarding future for those who develop such genius as they have. Never before has the world faced a head-on conflict between two ideologies of government and possibly at least two ideologies of education. We must measure up to this opportunity that is being presented to us.

Only uninformed, dishonest or blind folk can read into the record of The American Nature Study Society what its detractors have said of it. Few if any can deny that had the teachings of the Society been followed more closely we would not now be facing crises that have arisen from the adoption of other philosophies. Only a blind person can fail to see a bright future as a possibility if we use wisely what we know. 