Nature Study

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Environmental Awareness Through Involvement

The American Nature Study Society

Importance of Habitat

Mountains, seashores and towering forests usually come to mind when we talk about natural resources. Conservationists are warning that another resource, our abundant wildlife, could be lost in the path of progress and expansion. These hallmarks of civilization take an ever increasing toll of natural areas, destroying them as homes or habitats for wildlife forever.

Once America was a land of forests, marshes, woodlots, and fields with clean water and fresh air. Now the serene countryside is being transformed into a land of sprawling suburbs, giant airports, superhighways, and mammoth shopping centers. As these appear, the living space for our wildlife vanishes.

Before it is too late, we must stop to consider what this loss of natural environment will mean. Animals from deer to robins need food and cover, clean water, and room to roam — if they are to survive. Areas destroyed by our civilized progress are finished as far as wildlife habitat is concerned.

Spaces for wildlife cannot be treeless subdivisions; they cannot be factory sites or drained marshlands; they cannot be stream beds for sewage or speeding lanes for power boats.

Providing habitats, those vital living areas for wildlife, is a matter of choice and economics. The choice is simply: "Do we value our heritage of natural beauty?" If so, we must decide that the beauty of wild animals in natural settings is worth the expense and effort of developing and protecting habitats.

The presence of wildlife in our fast moving world means that we have not yet destroyed the delicate balance of nature. The prospect of moon travel may fire our imaginations, but the wild beauty of this world is unbeatable for giving a little peace of mind. To insure a future for this great natural heritage, the National Wildlife Federation is urging us all to "Provide Habitat — Places Where Wildlife Lives."

— Minnesota Out-of-Doors
March 1969

The Canadian Wild Goose and Mallard Duck

William Gould "Cap'n Bill" Vinal

On September 14, 1969 we watched Walt Disney's film *The Canadian Wild Goose* which brought to my attention that this bird and the mallard duck played an important part in my life.

In the 1890's I was a farm boy 4-6 miles from the Atlantic Ocean. When sky-high honks announced a flock of migrating geese headed north in the spring, or south in the fall, the family ran to see the v-shaped flock and its majestic leader. It was a great mystery to me that they knew north and south even on a dark night and that they "elected" a leader. I do not think that any of us knew that they could see the coast or that there was an Atlantic Flyway. One is fortunate to have parents that are interested in the mysteries of nature.

My grandfather was known as a "gunner" and apt to be absent during the gunning season. I recall that he "minded" a gunning stand, or blind, at Accord Pond. He had wooden decoys and "fliers." The latter were released when a flock was passing. The "blind" consisted of pine bows and rushes woven to make it look like a part of the scenery. Ducks and geese through eons of experience are suspicious of things that do not blend into the environment and especially any thing that moved. When they saw their kind feeding in a pond they would circle the water and come down to feed or rest. Gunners slaughtered them. I am sure that it was more for sport than for food. I do not recall ever having a wild goose or duck to eat. This may have been due to my mother's attitude.

Fortunately, I kept a diary. "Uncle Hosea and I built a goose yard (26 March 1897). This was for Edwin Clapp, a rich shoe manufacturer, who was known as a 'sportsman'." He had a gunning stand on Slate Island in Hingham Harbor. He wanted "fliers" and I was selected to raise them. Mr. Clapp and his friends shot geese for the fun of it and they bragged of their marksmanship or how many they killed. I had to mow grass everyday to feed the wild geese. This was for a period of about seven months. (In the dimness of nearly 90 years the memories that are indelible are of the downy young, the care of the faithful parents, and the graceful black necks and white cheek patches of the adults.) Finally, the adults molted and the young began to fly. I recall the lump in my throat when they left for the gunning stand. My pay for the all-summer labor was a pair of vici-kid shoes, custom made and the best, they said. I was somewhat embarrassed to wear such outstanding foot gear when my playmates might have cowhides. I thought it was my only pay but I got sort of an affection for wild geese and mallards. The intangibles were greater pay than the shoes but that did not occur to my sluggish brain until years afterward.

In 1914, we started *Camp Chequesset*, a nautical camp for girls, at Wellfleet, Cape Cod. In 1922 and following I had a *Nature Lore School* for leaders at the camp. One of our favorite trips was to see the Hermit at Dyer's Pond. He had a flock of Canadian Geese. The male was called "Gandy" and would eat out of Mr. Dyer's hand. On the staff of the leader's school was Edward Howe Forbush, author of *Birds of Massachusetts*, Anna Botsford Comstock, and Dr. George Wilton Field, Director of the Department of Fisheries and Game. Dr. Field, because of his position, had waterfowl and game birds on his farm in Sharon. It is said that one of the ganders became very attached to Dr. Field and not only followed him around but in migration would stop off to see him. People of the same interest flock together and the students at the early nature school still tell about the influence of it in their early life.

When a teacher has survived a certain number of years he begins to form a philosophy. The combination of a school-farm-camp "curriculum" led to the formation (Summer Session, 1929) of a *Nature Guide School* on the 500-acre farm of Western Reserve Academy at Hudson, Ohio. There, not only were teachers in training from Western Reserve University but also a group known as *Outdoor Girls*. Each girl had to assume responsibility for some animal (a pet). Doris Dietz, an 8-year-old camper, saw a pair of fat ducks and followed them home to a barnyard and toddled up to the mansion. "I want one of your quacks," she said, when a motherly looking women opened the door. At first the lady looked puzzled; then she smiled and said: "I can't separate the pair because they would be lonesome. You may have both of them." It was some picture to see Doris waddling back to the campus with a large duck hugged against her rompers, the duck's feet waving vigorously in the air. So-o-o began her understanding of nourishment, care, humaneness and neighborliness.

My work in camp and summer school led to idle acres at the old homestead. After consultation with the Agricultural Extension Department, I decided in 1926 to grow white pine where corn had flourished. I now have a pine plantation nearly 50 years old. Originally I planted them for board feet, but now I would not cut them. Nearby a blueberry orchard and a cranberry bog were started. When I retired in 1951 I built a wire fence around the pond enclosing a part of the blueberry bushes and bog. I wanted a pair of Canadian geese and a pair of mallards just as I had had as a boy. To save my voice, I would holler "Ducky! Ducky" and regardless of species they all came to eat the corn or lettuce. One of my greatest compensations came when the mallards would jump up to harvest blueberries off the same bush (1968) as I was picking. After considerable coaxing, the gander ate out of my hand.

We thought that the pair of geese had been pinioned but it was soon found out that the female could fly. At the least disturbance she would fly over our house gaining height as she circled. I tried to corner her but to no avail. She sensed what was up. I never had the fun of raising goslings again as she was caught by a fox or shot by an ambitious gunner. Canadian geese mate for life. The gander called for days for his lost one. It was most pathetic.

I called neighbors to find out how to pinion ducklings. They had never heard of it. In the dictionary I found the following:

"Pinion: — 1. n. Zool. The distal part of a bird's wing, including the carpus, metacarpus, and phalanges. v.t; to cut off the pinion of one wing of (a bird) so as to prevent flying." Having majored in zoology I knew where the duck's wrist is so proceeded to cut off the distal part of the cartilaginous wing with a scissors. The ducklings did not even peep. It was like cutting off one's fingernail.

We now have five great grandchildren and their greatest pleasure is to help great grandpa feed the ducks. The neighbor children bring bread to feed the waterfowl. One mother (B. in South Boston) was surprised to find that ducks stand on their heads (sometimes) to

SCS — USDA

Canada Goose Nesting

feed. Mallards are classed as "puddlers" as they probe the mud for food. Small boys are also puddlers. Recently I discovered that my own daughter did not know that male ducks do not quack. (However, when I see her enthusiasm with field glasses I know that I did not fail.)

I admit that I have learned too. If a dog passed the pen, the geese vocally expressed displeasure. The ducks would complain in chorus, just as hens cackle at the sight of a hawk. One day the ducks announced that there was something unusual. I hastened to the pond to see a duckling floating upside down and bobbing. I soon realized that it was a snapping turtle eating the small duck which explained why some young ducks were disappearing. Another time I heard a commotion and saw a female mallard quacking in dismay and trying to pull away from something holding her by the foot. I got my rifle but never saw the snapper. Within five minutes the adult duck was drawn beneath the surface to drown and to serve as a meal for the snapping turtle. I turned to count my ducks and found that they were all present. The snapping turtle had caught a wild mallard attracted to the pond by my tame mallards. It is amazing to see the speed of ducklings as they cross the water. That is why more are not caught by the snapper. It was evident that I did not know everything about mallards. I also learned that it took better brains than I possess to capture a snapping turtle.

About 1945, "Mother V" (The title of Mrs. Vinal) took her grandson David on the swan boat in Boston Public Garden while Grandpa sat on a bench reading. She wanted David to have the experience that she had enjoyed when a small girl. Suddenly David almost jumped overboard. He had seen the mallards. When Grandmother tried to find the reason of all the agitation, he would only say "Mummy will tell you," "Mummy will tell you." It seems that his mother had read to him the story "Make Way for Ducklings" in which a policeman had stopped traffic to allow a mallard and her brood to cross the street. For many years we had this most worthy book to give to favored children.

In the winter of 1968, while cutting the ice for my one goose and one mallard to have water in which to swim, the ice gave way and twice I was let into the icy water with the temperature near zero. "Mother V" objected to this winter swimming. In fact I found it rather cool going between the pond and house and only protested mildly to the idea of getting rid of my pets. They were released in a pond on Cape Cod where we knew that they would fare well.

Many of the authors of BIRDS IN OUR LIVES published by U.S. Department of the Interior in 1966 are known to us. We are especially proud of the copy autographed by Dr. John W. Aldrich "To Mother V and Cap'n Bill with best wishes." The title of his chapter in this book is *Before It Is Too Late*. John was at the 1924 *Nature Lore School*. He was a young boy then and I am sure that Forbush and Field meant much to him. Since 1941 he is the Ornithologist in the Bureau of Sport Fisheries and Wildlife and specializes in the classification of birds and mammals. Before that John was curator of Birds in the Cleveland Museum of Natural History. A second contributor is Gardiner Bump whom we first knew as a boy in the Columbia Teachers' College course at Bear Mountain, N. Y. in 1920. For a number of years he was superintendent, Bureau of Game, N. Y. State Conservation Department and directed the production of *The Ruffed Grouse*. Recently he retired as Biologist in charge of Foreign Game Introduction Program.

My web of life has been long (88 years to date), complex and wonderful. I have limited this essay to the Canadian Geese, Mallard Ducks and a few students. This brief perspective probably explains why I have fought to save Black Pond Quaking Bog and the North River Reservation. I would suggest that knowledge is not everything as some college professors taught me to believe, but that the application of knowledge is what counts. Experience with wild geese and ducks led to discovery and satisfaction. It pays to cast bread upon the water. I commend it enthusiastically.

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Editor's Note:

"Cap'n Bill" Vinal, a life member of ANSS, is one of the giants in the nature education field even today — almost twenty years after "retirement." His book "Nature Recreation," first published in 1940 was reissued by Dover Press in 1963. Many members have fond memories of Cap'n Bill's winsome ways on ANSS field trips over the years. The measure of a man's life is in the influence he has had on others, and Dr. Vinal's is large indeed. His annual newsletter to former students and colleagues included 190 entries in the 1969 edition. Now close to 90 years of age, his interest and enthusiasm and keen, observant senses seem undimmed. He is an inspiration to us all.

My Friend, Bufo

PAUL MOWBRAY WHEELER
St. Petersburg, Florida

When I first saw the interesting fellow that had taken up squatter's rights in my back yard, my inclination was to tell him to vamoose; but he refused to leave. However, I soon found him a very interesting chap. He is grayish brown all over, marked here and there by dark circles or spots, and with the most beautiful eyes! They are black, with gold bordering the ovals. His right foot is slightly deformed from some accident. But this does not seem to handicap him at all. The scientists call him *Bufo americanus*, but I have named him Bufo. Most people refer to him as a toad!

I decided to let him stay, and I tried to strike up an acquaintanceship. He was very shy at first. He probably thought I was some ravening monster, for when I caught him, to all appearances he died. He flopped over on his back, closed his eyes, and apparently stopped breathing. This startled me, for I had meant him no harm. After a very few minutes, however, the corpse revived! He scrabbled and twisted till he was right side up again. After that we gradually struck up a friendship. He always maintained a dignity and aloofness which I never violated. And he never toadied to me!

I soon discovered several things which he enjoyed. He would sit under a lawn sprinkler, turned very low, as long as five minutes at a time. I could understand this, because I knew that toads never drink: they absorb their moisture through their skins.

But what he appeared to enjoy most was having his back scratched. I would take several wisps from a broom and stroke him. His eyes would close, his sides would swell out, and he would subside into a completely relaxed almost shapeless blob. But I never could tickle his nose or chin. He didn't like this at all, and he would butt away the straws or push them aside with one of his little hands.

Bufo was at home in my back yard. I could always find him there, even in the day time when he had picked a comfortable, cool spot with the right humidity where he could doze off the hot hours. I took a flower pot from which a piece had been broken from the rim large enough for him to squeeze through, and I placed it under a shady bush where the ground was always damp. He did not discover it for some time. Then one day I found him hunkered away inside, and after that the flower pot became his dormitory.

Perhaps the most curious thing about Bufo is his insatiable appetite. He usually comes to my back door where I leave a light burning that attracts his food. He pays no attention to a stationary insect. But the slightest movement alerts Bufo. One evening he ate 52 ants, 6 earthworms, 4 beetles, and 11 other creatures which I am not enough of an entomologist to identify. In fact, he was so gorged that he could hardly move. Somewhere I have read that a toad eats enough during a night time to fill his stomach four times!

He has a tongue almost as long as his body, and it is fastened to the front of his mouth. When he is not using it, he keeps it packed away somewhere. The tip of this tongue must have the stickiest glue imaginable on it. Once touched by it, an insect rarely escapes.

To be sure, I have never seen his tongue! It is so incredibly fast that I am told by a friend who has successfully photographed it that a shutter speed of 30/1000 of a second is necessary. One instant the insect is there, and then it has vanished.

With one exception, Bufo was completely successful in his eating. Anything that moved would do. But on one occasion he had a bad experience. This was when he tackled a bombardier beetle. Now, the bombardier beetle has one of the most potent defenses in the insect world. He ejects a highly irritating spray. Bufo apparently did not know this, or in his ravenous hunger he forgot. It was the only occasion on which I saw him lose his dignity. After the beetle had sprayed his mouth and stalked confidently away, Bufo showed all the indications of extreme distress. On this occasion alone I saw him open his mouth. He gagged. His eyes bugged out. I wonder whether he learned from that encounter to avoid bombardiers. I never found out, because these beetles are quite rare.

Bufo also allowed me to witness a strange and personal ritual he practices, something which has not been seen by many people. One evening something seemed strange about him. Although several juicy morsels crawled close enough to tempt him normally, he did not show interest. His back was humped, and in the dim light I could see that his eyelids were fluttering. His feet were drawn under him, and his skin seemed to be covered by drops of moisture.

At first I thought he was ill. Then I began to witness one of the most unusual phenomena in the animal world. He was about to shed his skin! It wasn't a long exercise. It took somewhere between five and ten minutes. First his skin split neatly in a straight line down his back and in a comparable line underneath his body. As it peeled off his hind legs, he got an end of it into his mouth and pulled and wiggled. The last portion to come off was that near his mouth and on his front feet, which peeled backwards like the removal of a pair of gloves. Then, to my profound astonishment, he rolled the whole thing into a tight little ball and swallowed it with one gulp! What an economical way to get a new coat! What a most extraordinary manner of getting rid of an old coat!

A few weeks after this, on an October evening, I noticed that he again was much slower than usual. He let some delicious prey go by. At first, I thought this was going to be another change of costume; but it was something else. I did not discover what it was till the next evening. He did not appear at the customary time, and I went looking for him. When I flashed a light into the flower pot, at first I thought he was not there. Then closer scrutiny revealed just the tip of his nose protruding from the ground. He was going to sleep for the winter!

The next evening there was no sign of a nose. I knew that he was burrowing backwards deeper and deeper till he reached what his instinct told him was the right depth where the frost would not penetrate. The fat he had accumulated would insulate him enough so that he might get very cold by my standards; but it would be tolerable to him.

Then one warm twilight in early May, he was back at his dinner table. I identified him by his crippled foot. But what a sight he was! C. Orwell, writing in *The New Republic* (May 20, 1946) says, "When a toad comes out of hibernation, he looks like a strict Catholic after Lent." Bufo was so badly shrunken that his skin hung on him in folds, and his eyes seemed abnormally large. Even though

he was somewhat languid, there was nothing the matter at all about his appetite. When he had gorged himself, he appeared to feel a great deal better. He appeared regularly for his evening meal for several days, and then once again he did not show up.

I soon discovered what had happened. There was a small pond about a quarter of a mile from my back fence – the only one in the neighborhood. When I went to the place, sure enough, there sat Bufo, half in and half out of the water with his little maimed hand on a clump of grass. But what was this? Behind him in the water was a stringy mass of almost transparent matter, thickly dotted by black specks. Eggs! Bufo, you fooled me completely! But how could I have known. I think she knew me. She didn't try to get away, and I clumsily tried to congratulate her by gently stroking her back, while she wore what looked very much like a smug self-satisfied expression on her face!

I did a little rough arithmetic. I estimated that there must be between eight and ten thousand eggs! If a large proportion of these survived and grew up, the whole neighborhood would be overrun by toads! There were several indications in the pool that Mrs. Bufo had not been the only happy mother. Only a very few of these babies would live through infancy, however. There were too many hungry predators around to prey upon them. Dragon fly larvae, water tigers, fish, turtles, and birds would sadly deplete them even when they were tadpoles. When they got their legs and wriggled out on land, they would have to escape their worst enemy, the garter snake, as well as more birds. It would be a miracle if any of them survived.

One morning there was a heavy shower. When it was over, I made my daily inspection. The ground around the pool was literally covered by tiny replicas of Mrs. Bufo. I had great difficulty not treading on them. I realized where the old supersition comes from that toads are rained down to earth. A combination of emergencies prevented me from visiting the pool again for ten days. When I returned, I could not find even one young toad. What had happened to them? I hated to dwell on that. How many had survived? A few had, I am sure.

Bless you, Mrs. Bufo. You are a charming and harmless pet, and you have no bad habits. Besides you are economically valuable to me. The Department of Agriculture once estimated that a toad is worth twenty dollars just for the slugs that he eats. Add to this all the other crawling and flying things you get rid of, Mrs. Bufo, and I can only say that you are very much worth while having around. Besides – and I am paying you a real compliment when I say this – you don't upset the balance of nature as insecticides do.

The television and the radio blare their imperatives at us. The rockets are shattering space on the exploration of infinity. The hippies, the protestors, and the rioters clog our streets. How restful to retire to one's garden with Mrs. Bufo and, in spite of the sarcastic remarks of neighbors across the fence, study her calm detached acceptance of life!

Affluence, Effluents and Society

Conservation is an activity which seeks to provide the highest quality of life for all people. This does not mean the highest economic gain for all people, and it might mean a monetary charge people place on themselves to buy the quality of environment without which a quality life is impossible.

The seeking of economic gain for people and communities has been the preoccupation of chambers of commerce, of agricultural interests, and of industrial and political organizations. This has too often led to severe degradation of the environment. The gross national product was worshiped as the ultimate and sacred measure of progress. The headlong extraction of wealth from whatever source that would yield it is boomeranging in many quarters. The population explosion over the world has forced a need to look at the dimention of the exploitive activity of man.

Technological developments have accelerated greatly an unfavorable impact on the environmental quality. Streams, lakes and coastal estuaries have become running sewers and cesspools because industry and communities considered them proper depositories for their wastes.

The air likewise became the depository for the effluents from hundreds of industries, automobiles and home heating appliances. There are those in political power who argue that we should not insist that belching smokestacks from steel and chemical industries should be cleaned of their effluents. To do so would drive industry elsewhere.

In many quarters people are aroused against the effluents which come from the promotion of affluence while environmental degradation went unchecked. Citizen groups have arisen against continued air pollution, against noise from many sources, against roadbuilders who ignore feasible alternatives, against the urban sprawl and against the promotion of population explosion.

Such citizen groups are striving to bring quality into the environment without which quality life is impossible. The possession of gadgets and gimmicks of industry and technology have been equated with a rising standard of living. This equating is losing force and meaning as people realize that the production of these gadgets has resulted in the spewing into the air and over the landscape of effluents ranging from noxious gasses, dense particulate matter, beer cans and other containers along our roadsides and depressing views of immense automobile graveyards.

It is suggested that concerned individuals give support to the efforts of such organizations as the Sierra Club, National Audubon Society, Keep America Beautiful, Wilderness Society, National Wildlife Society, American Nature Study Society, and others. These offer specific suggestions in the various fields for carrying through programs for bringing improvement in the environment within ones own sphere of influence. Letters concerning disturbing situations sent to state and national legislators and to city and county commissioners are very effective. Try your hand at it.

INVOLVEMENT

Looking at ecosystems must be more than the discovery of facts. There must be interpretation. There must be an emotional involvement with the environment. Margaret Farrand explained the role of an interpreter in her *The Seeing Eye*:

A curve in the road and the hillside
Clear cut against the sky.
A tall tree tossed by the autumn wind
And a white cloud drifting by.
Ten men went along that road
And all but one passed by.
He saw the hill and the tree and the cloud
With an artist's mind and eye.
And he put it down on canvas
For the other nine men to buy.

Someone has described a naturalist as one who calls to our attention things we have seen all our lives but never noticed. The primary objective of interpretation is to create a sensual and personal *awareness*. To be aware one should develop a personal identity with the environment. To develop such awareness there must be some knowledge of the environment for it is here that awareness begins. Definitions, facts, mere knowledge – these do not necessarily create awareness. We must have a feeling for the environment. We must have involvement with environment. Tasting, smelling, feeling, seeing, wondering – these are the avenues for developing involvement.

After Autumn

Millard C. Davis

Only yesterday, it seems, the fading buzz of a departing cicada reminded me that autumn was here. The dust of a country fall was in the air. And then in the fields I saw the leaves of bindweed, riddled by beetles, grow old. Excited tarnished plant bugs slid at season's close among the small white disks of wild carrot. Along the weedlot border black gum was going up in flame.

Darkness gathered earlier in pools of the lowlands, bringing a chill to sphagnum moss where bald-faced hornets slumbered, cooling the rock city of clustered snakes. In the shade of hedgerows and fences of the upland pasture next year's sumacs, chokecherry, even poison ivy had been strewn by mice and woodchucks feasting and dropping seeds at the edge of cover. The bluejays had finished sowing their seeds and nuts in winter storage. In spring some would sprout as mixed thickets.

The winds of fall came. They sent birds sliding sideways above the bare branches of our woodlot. They overthrew the summer stagnation of the pond. Pulmonate snails climbing pondweed just in sight of shore migrated out toward deeper, warmer water. The water fleas had stayed, dying, their winter eggs alone surviving in the egg pouch of the mother's body. In the mud below hibernated carp, bullheads, and frogs. When the pond temperature drops below 5°C., leopard frogs wriggle into the bottom muck. While at 8° sunfish go their own ways, at 5° they gather together.

In the cove sensitive fern yellowed and wilted. Up the wooded bank coral fungus hardly a month old rotted and washed to a paste in a rainstorm. Drowsy female mosquitoes had long since poked under moldering leaves – nearly two thirds of their dry weight was fat for hibernating. Silver maples of the bottomland grinned with lop-sided smiles where brittle branches had cracked off. At autumn's end diving ducks had begun churning the pond surface, roiling up warmer water as ice came in white with trapped gases.

Now the blue flags on the way to the swamp are winterworn. Thrust aside by death, overturned at the top by winter's edge, they lie beyond the snows of December. Occasionally the icy domes of the lowland are broken by a resilient flag spear. Its warmth in the winter sun leaves a follicle at the base where cold air swirls. Beneath the snow of the open field the ground temperature is apt to be higher by forty degrees or more. Here colonies of meadow mice may ramble for great distances down tubular runways. By night they pop out and thump away over powder and crust. Yet there is no safe hour. The great horned owl hunts by night and in the dusk of dark winter afternoons.

Perhaps the rock was a perch, perhaps it had remained warm in the late sun, but there was sinking blood about it and owl wing points in the hillside snow that mid-winter day. I had been struggling across the slope and had picked up the trail of mice. One led to a hole broken in lacy ice. Another pointed toward the crest where the mouse had been torn from the snow. What had it needed to surmount on that day, that last day? A better view of the games below? The lodging of a seed or the skating pod of a black locust? Possibly the top of his rock was the best place to receive warning odors from down hill. But the owl had struck from the sky.

Deer also feed on rises during the daylight hours and sniff these heat thermals. By November white-tailed deer are shaded "in the blue," carrying their denser and longer slate-blue winter coat. It is the hollow hairs, incidentally, which may make a hide rug poor quality, for they are crinkled and brittle, while the insulating quality is proven by the little snow melt found after a deer lurches up from a winter rest.

I have watched deer roam almost invisible along the upper ridges where pasture met woodlot. At the bottom of their deer yard they were feeding on the maples and oaks, the birches and sumacs, the witch hazels of a secondary growth woods. In one field of bush and Virginia pine the tops of huckleberry had been snipped off by deer browsing. The bases of the pines bore collars of bubbled and shingled resin where mice had chewed from tunnels under the snow. Deer tracks were most evident in a nearby pine and sumac grove, marking the sort of stage of succession where deer may reach their peak. The winter green of rhododendron in a maturing oak forest, of red cedar in an abandoned pasture, is merely stuffing food, however, better left as cover. The Indians knew the nutritious preferences of deer. By carefully burning over the land, they brought on new growth and underbrush and so maintained their stock of venison. They even headed their game by burning red cedars and other trees, the cedar odor reaching the ships of incoming colonists.

In the deciduous forest winter is a bright active season. The bark of beech and young maple shines. Rectangular cavities of pileated woodpeckers stare out over the white bony hickory nuts knocked down by grey squirrels. Red oaks stand out, holding their bitter acorns another season. Scores of evening grosbeaks plunge into the heavy foliage of small oaks still keeping their leaves. The competition among downy woodpeckers, nuthatches, and chickadees is momentarily heightened by roving bands of chickadees bursting past.

Along the woodlot border mantis egg cases have been pecked open by the chickadees, while in the pasture woodpeckers may occasionally be seen cracking into cornstalks for European corn borers. The imprint of the fringed feet of winter grouse have long since marked the field where grain falls. One January morning I turned over a board up along a bare ridge of our hill and found two click beetles lying in a bed of ice crystals.

Yet in the end it is over. Forsythia blooms in the last sudden warmth of February and then again in the days of flies and green grass. Twigs killed by the cicada egg cuts wither. The tree is improved. Rosettes of puffed shield lichen cover a white pine from base to upper bole with white-greenish granules, while in a corner of the low swamp skunk cabbage metabolism warms the ground and the first coiled leaf pushes up within sight of a shaded snow patch. A horned lark courts beneath the incoming blizzard, a dark spring azure flutters by, and spring peepers duck beneath a shell of ice near shore. The dust of snow is gone.

And in the months ahead there will be a new, a warming and golden-smelling dust. This will be the burning of leaves. One autumn afternoon while I was driving through a Vermont village, the air was heavy with the breath of roadside fires. Black particles were rising in spurs, like moths spiraling toward the tree tops. It reminded me that the dust of a country fall is the end of a burning of nature.

American Nature Study Society

ANNUAL MEETING - BOSTON, DEC. 26 - 30

An excellent program has been arranged by Crayton Jackson, Professor of Science Education, Morehead State University. Headquarters for the meetings will be in the Sheraton Boston Hotel. The following program is the latest before publication date, though there may be minor adjustments at the last minute.

THEME: **Nature Study and Conservation Education for Urban Communities**

FRIDAY, December 26 **Berkeley Room**

8:30 P.M. – Annual Board of Directors Meeting

SATURDAY, December 27 **War Memorial, Room 202**

9:00 A.M. – ENVIRONMENTAL EDUCATION REEXAMINED: How are Cities Meeting Today's Challenge?

Chairman: Phyllis S. Busch (Buschwyck, Conklin Hill Road, Stanfordville, N. Y. 12581)

Discussants: Joan Rosner *(Project Coordinator of Children's Natural Science Workshop, New York City)*, Leonise Aubry *(Workshop Teacher in the Science Workshop, New York City)*, Robert Carlisle *(Education Development Center, New York)*, Edward A. Ames *(Program Officer for the Ford Foundation)*, and Martin W. Schein, *(Professor of Biology, West Virginia University)*

SUNDAY, December 28

9:00 A.M. – SOLVING ENVIRONMENTAL PROBLEMS: OPPORTUNITIES FOR EFFECTIVE CITIZEN ACTION

Chairman: Douglas E. Wade *(Northern Illinois University)*

Adult Level

Brand Konhein *(Acting Director, Public Information, and Education, New York City Department of Air Resources)*

Collegiate Level

David Perasso *(Student Research Center ASCIT, California Institute of Technology, Pasadena, California)*

Secondary Level (Curricular)

James Swan *(Lecturer, Department of Resource Planning and Conservation, University of Michigan)*

Secondary Level (Extracurricular)

Spencer Havlick *(School of Natural Resources, University of Michigan)*

2:00 P.M. – ASPHALT-CONCRETE FIELD TRIP

Chairman: Helen Ross Russell *(Wave Hill Center for Environmental Study, Bronx, N. Y. C.)*

8:30 P.M. – BOARD OF DIRECTORS MEETING

9:30 P.M. – LENSES ON NATURE

Chairman: John A. Gustafson *(State Univ. of N. Y., Cortland)*

MONDAY, December 29

12:00 Noon – ANNUAL LUNCHEON AND PRESIDENTIAL ADDRESS:

The Role of American Nature Study Society in a Changing Society

Chairman: Ruth Scott *(Co-Director, Bioscience Center, 208 Camberwell Drive, Pittsburgh, Pa.)*

Speaker: William B. Stapp *(Associate Professor, School of Natural Resources, 1501 Granada, Ann Arbor, Michigan)*

2:00 P.M. – PRE-SERVICE AND INSERVICE TRAINING IN ENVIRONMENTAL EDUCATION FOR URBAN TEACHERS

Chairman: Helen Ross Russell *(Wave Hill Center for Environmental Study, Bronx, N. Y. C.)*

Presiding: David E. Newton, *(Salem State College, Salem, Massachusetts)*

Participants: John W. Brainerd, *(Springfield College, Springfield, Mass.)* Edith H. E. Churchill, *(Elementary Science Service, Newton, Mass.)*, Charles E. Mohr *(Delaware Nature Education Center, Greenville, Del.)*, Helen R. Russell *(Wave Hill Center for Environmental Studies, Bronx, N. Y. C.)*, Lillian D. Weker *(City College of N. Y. Bronx, N. Y. C.)*, Vivian O. Windley *(Triple T Program, City College of N. Y., Bronx, N. Y. C.)*

8:30 P.M. – Board of Directors Meeting

TUESDAY, December 30

9:00 A.M. – FIELD TRIP: TOUR OF BOSTON: A LOOK AT THE BIOPHYSICAL ENVIRONMENT

Co-Chairmen: Charles Roth *(Director of Education, Massachusetts Audubon Society)* and Miriam Dickey *(Director of Urban Education Project, Massachusetts Audubon Society)*

WOLF

(Canis sp.)

Wolves . . . large and small, dangerous and tame, real and mythological, are the subject of MGMs "The Wolf Men," the one-hour color T.V. special shown as the premier program of the G.E. Monogram Series. Peabody Award-winning producer Irwin Rosten wrote and directed the penetrating study of this misunderstood and rapidly vanishing creature.

Too often the wolf has had assigned to it all the vicious characters which man alone possesses. While once common over most of North America, it is now confined to a few areas in northern United States, Canada and Alaska.

Photo by
G.E. Monogram Series
Provided by the Audio-Visual Committee
American Nature Study Society

No. 33

(May be removed for display)

Photo GE Monogram Series

Photo F. A. Smith — SCS

BEAVER

(Castor canadensis)

The beaver originally ranged over most of North America north of Mexico and Florida, but its valuable pelt was so highly prized that it was destroyed over most of the prairies and the eastern United States. Since 1900 it has been locally reintroduced in many areas.

In the Rocky Mountain area the beaver has flourished in recent decades. Trapping of beaver for pelts has been reduced and the large predators which aided in keeping its numbers in check have been largely eliminated. As a result the beaver has become locally a destructive element due to over-population. Every possible tree and twig in some areas has been cut down with the result that the food production base has been destroyed. The beavers starve and move. Management is needed.

The beaver has been one of the greatest factors on some water sheds to store water and prevent rapid runoff which might result in flooding.

Photo by
F. A. Smith
Soil Conservation Service
Provided by the Audio-Visual Committee
American Nature Study Society

No. 34

(May be removed for display)

Nature Study TIPS

Trees

STANLEY B. MULAIK

Trees have played a major role in man's interests and in his development to what he is today. He has used trees for shade, for house building, for furniture and other implements, for firewood and for boat building. While seemingly man has entered the plastic age, wood is still supreme as a substance which for many uses there is no substitute.

On the aesthetic side the older towns with rows of stately trees are among the beauty spots in America. Most old towns have a central square named Washington Square, though current residents might not call it by that name. These squares are tree-shaded parks in whose center was built the county courthouse or other municipal buildings. Many newly laid out towns have no parks set aside often with the excuse that land is too valuable for such non-commercial, non-housing, non-income producing uses. Modern housing developments with row upon row of houses of a deadening sameness, and where trees often are not tolerated, are destined in several decades to be bare, sunbaked slums.

History has often been made around trees which made them famous. Under their spreading branches treaties have been signed. A huge poplar in Annapolis, Md., was the site of a treaty signed by white settlers and Indians in 1652. The Charter Oak at the present site of Hartford, Connecticut was saved on a plea of the Indians who revered the tree for hundreds of years. When the English Governor of New England demanded the surrender of the charter which Connecticut had, the charter was hidden in a hollow in this tree. This tree was finally destroyed by a storm in 1856.

In the early readers which boys and girls have at school, trees play a large part. They have served as homes for birds and other animals. They provide delicious fruits for many animals including man. Boys and girls are featured in stories climbing trees, hanging their swings in them or playing in their shade.

Scarcely a boy or girl in America exists who has not heard of the giant redwoods. A road was cut through the trunk of one of these trees for cars to pass through, though recently this tree was blown over. Many books tell of the almost indestructive nature of redwood lumber when used for fences, posts, boats and other uses where decay would normally set in. Few of the original redwood monarchs are left, though among these are several over 300 feet tall which tourists may see.

A touch of nostalgia sweeps through the old timers of the east who remember the cool early spring mornings during the sugaring-off. This boiling down of sugar maple sap was often accompanied by picnics of family groups and friends. The New England and upper Middle Atlantic States were the centers of sugar maple trees which the first settlers from Europe quickly took advantage of.

Delving into the origin of living species of trees reveals that the present day cycads and the gingko seem to have survived since the coal age of over 200 million years ago. Today the gingko is fairly common along the streets of older towns. At Penn State University is an immense specimen, one of the largest in America. Out of the genetic pool which survived the coal age we have today over a thousand species of trees in America.

The early settlers found a dense mass of beautiful trees from the eastern seaboard to the mountains. Westward beyond the mountains and beyond the Mississippi River to nearly the 100th meridian were almost continuous dense forests. Today's residents of Illinois, Indiana and Ohio can scarcely believe that the area's continuous open farms were once dense forest lands. It was said that a squirrel could travel from the shore of Lake Erie to the Gulf of Mexico through a continuous canopy of tree tops without touching the ground except to swim the Ohio River.

Photo by SBM

This Fremonts poplar, the "grandaddy tree," measures over 22 feet in circumference. (Chase Lane, Centerville, Utah)

The open prairies had no trees except in some river bottoms. In the many ranges of mountains west of the prairies and to the Pacific again were great forests except in low dry desert valleys where the rainfall was below about fifteen inches. Today scarcely five percent of the original forest lands remain. Some of this is in national parks and the rest is being rapidly timbered. These timbered areas are either in private holdings or in national forests. Only those forests which have government control and protection are likely to survive as living

No. 41 in the Series

museums of a one-time different forested America.

These forests were a bulwark against flooding. The duff of a forest floor is capable of absorbing intense rains of up to several inches per hour with little surface runoff. With the removal of forests, even moderate rains rushed from the bare land to produce floods of great frequency and of an intensity over a larger segment of America than occurred at any time in recent geological history while there were forests. Floods swept over flood plains in record depths. Where these flood plains had been usurped by cities and industries great damage to human culture occurred. Man is slow to learn that flood plains belong to rivers and that rivers will take back what is theirs on occasion.

Trees have been recommended as buffers to screen out some of the rising intensity of noise levels from industry, automobiles, trucks, airplanes, motorcycles and radios. These are a growing menace to hearing and to psychological stability. Communities with numerous large trees and with dense shrubbery around homes and bordering freeways provide a quieter atmosphere.

Where trees line the streets and at least partially shade homes, more equitable temperatures are found. The temperature of asphalt and cement roads, sidewalks and roofs on which the sun beats down during the summer months will often rise to over 140 degrees. Sunlight heat energy striking trees is dissipated in transpiring water vapor.

Many communities and farm homes particularly in the great plains region have erected wind breaks and shelter belts. These tree plantings in the windward side reduce the velocity of searing summer and frigid winter winds so they do not strike homes and barnyards with their full fury. Where conifers are used in the shelterbelt plantings they are effective in slowing winter winds from dissipating heat from homes they protect. Such plantings along cultivated fields serve in the winter as snow fences to accumulate snows across the fields. In the summer they minimize the drying effect on crops by reducing wind velocity. Wildlife find such shelterbelt plantings of great advantage and the game birds and mammals are increased.

The forests which the early settlers found along the Atlantic seaboard contained many which were quite large, though few records were left of their size. Forests were a hindrance to the fulfillment of needs for food which must be grown in clearings, and large trees were only a challenge to the man with an axe. Few trees in the east attained an age of a thousand years. Today in isolated swamps, trees which because they were less accessible, or more likely because they were imperfect timber, are remnants of the forest of the day of the Pilgrims. Those of the greatest size are some bald cypress trees from the Carolinas and southward. None of the east, however, can match the age of some western trees. The Jardine Juniper (*Juniperus scopulorum*) in Logan Canyon in Utah is estimated to be over 3500 years old. (See *Nature Study*, Vol. 20, No. 3, pg. 10.) Trees over 4000 years old are found among the bristlecone pines in the Inyo National Forest in the White Mountains in California. "Methusela" was determined from increment borings to be 4600 years old. This is the oldest tree known anywhere in the world. The rugged beauty of these trees attracts many visitors. Undoubtedly these trees are the most photogenic in the world as well as the oldest. George Washington and other early Americans planted buckeyes, mulberries, elms, pecans and tulip or yellow poplars, and many of these still stand as partiarchs over 200 years old.

Tree Study Activities

While in general much is known about trees, there is a challenge to learn the specifics of local or state trees. Most intriguing is to discover the largest specimen of the common native trees of an area. Measurements of the girth is usually taken at breast height (BH). The height of the tree and the spread of the branches is often measured.

Where a community has a variety of trees planted, a map can be prepared showing the location of trees around a city park, school area or the church grounds. Often communities have shade tree commissions which have much information about local trees and tree problems. They could help to discover the trees which were planted by the earliest residents. Interviews with old timers often bring out interesting local history which might have a bearing on the trees.

Recently some old mulberry trees near Salt Lake City were cut down to make way for a highway development. These trees were the remnants of hundreds planted nearly a century earlier when a silk industry was hopefully started. On the Bailey property nearby are what are believed to be the largest known specimens of Northern Greening apple trees planted about 1858. These trees measure over ten feet in girth. Every community in America offers opportunities to discover the oldest fruit trees planted by early settlers. Historical societies are always interested in giving help for such activities.

Springtime and early summer is the season of most rapid growth of most trees. The leaves develop rapidly in the spring and it is best to make a collection of leaves at this time before they are injured by winds, hail and insects. A set of needles of the conifers of an area together with the cones make an excellent collection project particularly before the Christmas season. Note the condition of pine and spruce needles for blight caused by pollutants in the air. Some trees are more sensitive to pollutants than others.

A school room or scout den will be enriched by a collection of fruits of deciduous native trees. These will include the keys of maples, the acorns of various oaks, the nuts of hickories, walnuts, filberts, horse chestnuts and others, and the fruits of haws. Relating these fruits to birds, insects, squirrels and to other values is a good exercise.

A school tree farm is a project which has been very valuable for numerous New England communities. Even lacking such, a school group can start seedling beds from which developing trees can be transplanted to suitable localities. State foresters are anxious to help and may be able to supply seeds or seedlings for school garden corners.

A large portion of America's economy centers around trees. The printing industry uses enormous quantities of wood in the form of paper for newspapers, magazines and books. While a little of this paper is re-used, the greater portion goes into trash dumps or are burned to add pollution to the atmosphere. Indirectly the use of wood to make paper has added enormously to the pollution of streams from pulp mills. Quite a number of states have a thriving lumbering industry which supplies the raw product for paper manufacture.

There are many other avenues of tree study. Relating trees to the broad social, economic and aesthetic interests of people offers many hours of pleasant pursuit.

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Comstock, A. B. **Handbook of Nature-Study,** Comstock, 1939.

McMinn and Maino **An Illustrated Manual of Pacific Coast Trees,** Univ. of Calif. Press. 1946

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GOOD READING

Lost Wild America by Robert M. McClung. William Morrow and Company. 240 pp.

This timely book is a story of our extinct and vanishing wildlife. The Author relates the destruction of the abundant animal life that took place as civilization spread across the continent. He also traces the development of the conservation movement, which began toward the end of the nineteenth century, and describes both private and government efforts in the field.

Throughout this history of the ruin and rescue of American wildlife appear separate biographies of more than seventy different kinds of animals. Some are now extinct, some that were barely saved from the same fate, and many others that are in serious danger.

Individually illustrated by naturalist-artist Bob Hines, each animal is described with its natural history, the record of its exploitation, and its present status, based upon the latest information available from first hand sources.

This well-researched book is both an essential reference and a plea for the preservation of those wilderness creatures still with us today.

Robert McClung has many excellent books written earlier. For his outstanding work he was named the winner of the 1967 Eva L. Gordon Award of the ANSS for nature literature.

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Beever & Company by Joseph A. Davis. Harper & Row, Publishers, Aug. 1969. 203 pp. Ill. $5.95.

This book by a scientifically trained individual who involved himself with keeping pets in his home will delight every reader. When the main character of the book is an otter with the idiosyncracies only an otter could have, and the skill of reporting these as Davis has done, one finds pleasure in every page of reading.

° ° °

The North River Country First Annual Report by William "Cap'n Bill" Vinal. Limited Edition available from the author, R.F.D. 2, Norwell, Massachusetts 02061. $1.00

Common sense is a term which was generated in times less complicated by Man's technology, numbers and mobility. With its demise, "science" picked up a part of the burden of keeping Man out of trouble, by emphasizing discovery of facts and problem-solving. But science has contributed technology, increased human numbers, provided mobility, and thus got man into a lot more trouble. Greater than our need for science is our need for common sense.

Dr. Vinal's 84 pages of close-packed wisdom deal with people of his home region, "North River Country" near the coast south of Boston, Massachusetts. He shows people in the perspective of 300 years, people who are the product of their natural Man-modified environments. In his ninth decade of people-watching, he has maintained a vigil of concern and has slaved to collect data from daily newspapers to show what is happening to people who have largely lost their common sense in dealing with their environment and with each other.

Faced by increasingly degrading environment, Dr. Vinal has not lost his power of optimistic entreaty or his sense of humor, so typical of his long career of training conservation leaders. And he has produced one of the best of his many writings, with 18 chapters of tabulated topics. However, his ideas often make strange though significant bedfellows, because common sense cannot subscribe to one-thing-at-a-timism. Like a good puzzle, the reading is not easy. Neither is holistic conservation.

This up-to-the-minute reference report is an exemplary plea for us to avoid generalism and get down to specifics *in our own areas*. No other ANSS member can make an Annual Report like Cap'n Bill's; but we should heed his advice and "present dawning ideas year by year," creative thinking based on faithful reporting of how people are behaving in their environments. Let each succeeding annual report meld art, science, history, geography, language, and philosophy as a guide to community action. Then perhaps we can live in our own ways moderated with that old common sense. — John W. Brainerd

Hidden Animals by Millicent E. Selsam. Harper & Row. (A Science I Can Read Book) 63 pp. $2.50.

This book while intended for ages 4 to 8 is a revelation through its photographs of camouflaged animals for even the sophisticated collegiate. With a different text it could serve a much older age book with its remarkable photographs of Hidden Animals.

Mrs. Selsam has a long series of "I Can Read Books" and for these and other of her writings which are straightforward, accurate, and above all, having a welcome absence of the Jane and Dick style characteristic of many books intended for children, she has been awarded the Eva L. Gordon Award by the ANSS for her outstanding contribution to the literature of natural history.

Her *Biography of an Atom*, written with J. Bronowski, won the Edison Foundation award for the best children's science book of 1965.

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". . . There are many people who look to nature for meaning and order, peace and tranquility, introspection and stimulus. Many more look to nature and activity in the outdoors as the road to restoration and health. The best symbol of peace might better be the garden than the dove. But there are multitudes alive today for whom the cherished scene of their forefathers or their childhood scene has been defiled or obliterated in the name of progress. There is a smaller contingent who have seen areas redeemed by conscience and art."

— Ian McHarg, *Design with Nature*
Natural History Press

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Free summer education programs are conducted at eight public campsites in the Adirondack Forest Preserve. Illustrated lectures are conducted two nights a week at each campsite throughout the summer camping season with hikes and nature studies in the days.

A worthy gift to school or as a working collection of value is a packet of 18 NATURE STUDY TIPS and 24 PHOTOS. These are available from the treasurer, John A. Gustafson, R. D. 1, Homer, N. Y. 13077 at $2.50 a packet. Make checks payable to American Nature Study Society.

LAND-USE PLANNING

(Some clippings from the Editor's Scrapbook)

Abuse of the land we occupy must surely be one of the hallmarks of civilization. One need only look at the cradles of civilization – in China where the silt-laden Yellow River drains bare, eroded hills, or around the Mediterranean where once-prosperous communities lie buried beneath desert sands – to begin to realize the destructiveness of man's historical impact on the land.

Men could shrug their shoulders in a "so what?" gesture, in earlier centuries. There were new, fertile lands beyond the horizon, or across the sea, which would support them when their immediate environment became unproductive. Our forefathers brought this kind of thinking with them to North America, and carried it with them through the eastern forests, or across the prairies and into the mountains. It was with us in the "cut out and get out" era of logging in the east.

And in the west, it fostered settlement of very dry areas of prairie, against the warnings of far-sighted men like John Palliser, where the dust storms of the thirties filled the air with irreplacable topsoil. Despite the lessons of the past, this attitude is with us yet.

But there are no longer any new lands to be conquered. Civilization has spread into every habitable corner of the earth. We know that the limits of our resources constitute the budget within which we must live. The earth is our spacecraft. We cannot make any permanent escape from it, nor can anything but solar energy be received from the outside. Its life-sustaining systems must be preserved and husbanded to maintain a pleasant, productive environment truly suited to the needs of society.

There may have been a time when we could claim ignorance as an excuse for misusing the land, but this is no longer the case. We are now capable of planning, on an ecological foundation, to use land so that its natural attributes enhance the quality and productivity of our surroundings.

The way a city or town is fitted into its surroundings, the way land within the city itself and on the fringes of the city is used, will determine the kind of lives its inhabitants will lead.

– Ted Glendenning

A Paradox

The very pace of technical process served to sharpen a paradox. We produced, for example, more autos, trucks and civilian aircraft than all other nations combined and our engineers and builders engaged in the largest road, residential, industrial, and commercial construction programs in world history. Only of rocket propulsion did we yield to another nation – and even here national pride demanded, and got, a crash effort to catch up.

But speed without sufficient thought about where we were going was too much a part of the national pattern. We began annually to kill nearly fifty thousand people in auto accidents, yearly to maim nearly two million as a result of a preference for road speed over highway safety, for horsepower over sound engineering. Mislocated airports made the lives of millions miserable, and freeways needlessly sliced up cities, making noise, congestion, and foul air an inescapable part of the urban millieu. Our auto obsession made road building the main handmaidens of "development" and multiple auto ownership the badge of personal success. A roads-for-cars-only approach to transportation drove the cyclist, walker and horseman from the scene. Our preoccupation with speed so impaired our ability to see that the late Frank Dkbie was heard to lament, "We Americans don't travel any more, we're just transported."

The seventy percent of our people who lived on one percent of the land urgently needed convenient mass-transit systems. Detroit's engineers and the aerospace technicians could have designed them. The United States, however, did not put into operation a single modern mass-transit plan from 1945 to 1968. Japan built "bullet trains" to connect large cities. Montreal's subway system made New York's look like a rattletrap in a medieval dungeon. But we were determined to stick with our auto-freeway formula even if it strangles out cities and shortened our lives.

Our option in favor of suburban sprawl constituted a conscious avoidance of a clear preference for wise growth. A penchant for planless, individualistic "development" shortchanged the homeowner. Like the land raiders of the nineteenth century, who leveled the forests and slaughtered the buffalo, the speculator – developer who now carved up the countryside were looked on as the honored agents of necessary growth. Build-and-run speculation led inevitably to nontown Levittowns. We wanted housing, not humane communities. And that is what we got – with the developers acting as the chosen instruments of an inchoate policy of urban expansion. Their formula was quite simple: buy an attractive outlying tract, treat it as a commodity, cut it up into same-size lots, bulldoze them in salable shapes, get a federally guaranteed mortgage, build structures, advertise them as "estates," throw in a shopping center, call it a community – and let the country worry about schools, amenities, and the general environment – and move to the next development.

– Udall

The Modern Migration

Three centuries ago and more, America was invaded by immigrants from Europe. Most of these people came from a rural environment, and those who were from the cities from the very nature of the predominance of culture understood agricultural pursuits. Even these were knowledgeable of rural husbandry. A new dimension to immigration has occurred in America during the present century. This is the movement of people, truly immigrants, into cities from a rural setting. Today we find people whose culture, crafts, and skills were those for a rural life thrown into strange urban surroundings. The challenges of urban life were strangers to them. The close proximity of many strange faces, the harrowing city noises, the lack of skills for city employment, and the frustrations growing from these could not be met successfully.

Whereas the early immigrants to America became attached to the land, the present immigrants from the land – from the farms and small rural communities became landless immigrants.

Skills in city management, in city planning, in policing the city, in the care of indigents has been based on what was formerly a landed and well integrated city citizenry. Today's problems are unique to city management for neither the immigrants understand the city planners and managers, and the planners and managers are frustrated in not knowing how to handle this new kind of immigration. To attempt to apply the old rules to this new situation just won't work, and this has been found out in the most bitter fashion when frustrated ghettos explode not knowing what to ask for or what to expect. These are human biological problems. These are problems which schools must in some manner meet and consider for solution or at least for better understanding.

People - Crowds - Mobs

Technological developments have been very prominent in forcing people to change from a rural to an urban life. There have arisen many questions resulting from this urbanization which entailed living in dense masses in cities. The human psychological base developed through many millenia cries out in bewilderment against this new density which taxes the social fitness for it. There are psychological limitations with man as well as all animals to such crowding, and students of population studies feel these limits have been reached and perhaps locally exceeded.

The changes for mankind from a rural to an urban life demands that he accept the challenge to investigate means and methods of solving the problem technology and increased population density forced upon him.

America has over 200,000,000 people of whom about 80% live on a scant 2% of the land. Disturbances in these densely crowded areas brings doubt whether as a species, mankind has the genetic capacity to live under the conditions imposed. There is much unrest nation-wide as well as world-wide which brings doubt of this capacity.

There is concern for the heart of big cities which in less than a decade have rapidly decayed into ghettos of poverty and discord. To rebuild these with homes of a better quality is questioned as the answer if the density is maintained. Here in its starkest reality is a human ecological setting, an unhealthy setting for claustrophobia or a related condition.

"Central City" everywhere shows a deep rooted decay not alone of the physical facilities, but of the spirit and emotional stability of the inhabitants. There is a futility and aimlessness in the lives of the inhabitants. There is desperation which is not always born in silence.

Conditions in "Central City" will get worse rather than better. Technology in the use of resources, technology aimed to eliminate honest labor on farms and rural communities will drive more people into Central City, aggravating the situation. Technology applied to the obsessing idea that the gross national product must show an annual increase can only lead to disaster. — S.B.M.

Ecology Along the Road

A backward look, a reminiscing showed a great wealth of urban ecology to be observed in a bus trip such as that taken in Washington, D. C. over a year ago by the American Nature Study Society. Touring through a portion of Rock Creek provided an overview of a streamside association of trees, an area for congregation of people to savor the offerings different from that of the higher surrounding land.

Coursing along city roads revealed that some American elms still persisted though in the outskirts were numerous skeletons now serving as temporary perches for flycatchers and other birds. Dead elms in the city were quickly removed. Trucks and cars have had their impact in the street-side trees, and physical contact has left numerous scars of collision. Where branches spread over the roads, trucks did a pruning which left highlining marks as clear as that left on trees by cattle in pastures.

Since it had snowed a day or two before, the contrasting melting evident on north and south facing lawns was pronounced. The difference in the more successful plantings on these two faces was likewise evident. Differences in temperature near the houses on these two sides could well have been discovered with a sensitive thermometer.

Man's structures in cities and country provided facilities which various birds find to their liking. Pigeons, starlings and English sparrows are homophylic but for different reasons which need not be discussed here. While squirrels may be thought of as inhabitants of woods, certain species were to be seen favoring the sparsely wooded residential areas. Squirrel nests were particularly evident since fall had denuded the deciduous trees.

In some places fleeting views of glazed ice were noted over cavities. Within these little greenhouses, the temperatures on a sunny day were usually well above the freezing level while the air temperature might be at the freezing level.

For the observant there were many ecological wonders to be seen.

— S.B.M.

Even in the initial stages of exploration of the north slope of Alaska there have been many signs of irreparable damage to the fragile tundra. Oil companies have proposed construction of immense pipelines (48 inches in diameter) that would cross Alaska. A mile length of this pipeline would contain approximately one-half million gallons of oil. A break would flood over thousands of acres of tundra and woodland into miles of streams and lakes to destroy nearly all life in these pristine environments. The pipe has been ordered by the oil companies for one such pipeline that would extend nearly 800 miles from Prudhoe Bay on the Arctic Coast to Valdez on Prince William Sound, and plans for construction are in the final stages. Survey work has been authorized by Secretary of the Interior Walter J. Hickel, although a go-ahead for construction has not been given.

Among the conservation organizations which are in the forefront working for minimizing impact on the Alaskan wilderness are the Wilderness Society, Sierra Club, National Audubon Society, Alaska Conservation Society, Alaska Wilderness Council, and several others.

If the Alaskan wilderness is lost, there seems little hope for saving anything else from the behemoth of progress toward a better "civilization."

WELCOME NEW MEMBERS

Woodrow W. Barber, Morehead, Ky.
Miss Jan Callaghan, Forest Park, Ill.
Miss Eppie Convel, WNYE-TV, Brooklyn, N. Y.
James Decker, Cortland, N. Y.
Dexter High School, Dexter, Mich.
Brad Drenttel, Tustin, Calif.
Gerald Fox, San Diego, Calif.
I. A. Lewis School, Ruston, La.
Carole Lindroth, Valley Stream, N. Y.
Miss Kathy MacRae, Elsah, Ill.
Marshfield Elementary School, Marshfield, Vt.
Miss Betsy Mauro, Morris, Conn.
Dr. John F. McCarthy, Cortland, N. Y.
Eldon Miller, State College, Pa.
Gary Nelson, Novelty, Ohio
James Okesson, Ogdensburg, N. Y.
David W. Parfitt, Brookline, Mass.
Michele Perrault, New York, N. Y.
Rockford Nature Study Society, Rockford, Ill.
Charles H. Rockwell, Canton, Pa.
Mrs. Esther J. Shaffer, Butler, Pa.
Simpson Elementary School, Easley, S. C.
Jacquelyn Volk, Huntingdon Valley, Pa.
Wanamingo Public School, Wanamingo, Minn.

"We need nature as much in the city as in the countryside. In order to endure we must maintain the bounty of that great cornucopia which is our inheritance. It is clear that we must look deep to the values which we hold. These must be transformed if we are to reap the bounty, and create that fine visage for the home of the brave and the land of the free. We need, not only a better view of man and nature, but a working method by which the least of us can ensure that the product of his works is not more despoilation."

— Ian L. McHarg, *Design with Nature*
Natural History Press

NEWS *and* NOTES

REPORT FROM WESTERN SECTION

The annual meeting of the Western Section of the American Nature Study Society, an affiliate of the AAAS, was held August 22-23 at the University of Washington in Pullman, Washington. Mrs. Dorothy K. Platt, president, presided over the meeting that was attended by members and visitors from Nova Scotia, California, Washington, Oregon and Utah. Mrs. Platt reported on the progress of the Desert Hiking Trail that is plotted over Oregon and Nevada.

Mrs. George (Bess) Hudson, an active conservationist in Pullman, lectured on "The Local Scene." Her informative presentation alerted members to the problems of the Palouse area, the heart of the wheat and pea country where overfertilization and misuse of insecticides are of great concern. The Woman's Faculty Wives "Nature Study Group" have formed an effective method of spearheading action on all environmental problems through their Bugging Committee which arouses citizens to contact Congressmen and other influential people. Through the Nature Conservancy several unusual areas have been preserved for inspirational and educational purposes. The ANSS members were very much impressed by the enthusiastic and forceful action of the local conservation groups in combatting ecological problems from air and water pollution to preservation of Hells Canyon. Mrs. Hudson stressed the importance of all citizens whether in form of organized conservation groups, Girl Scouts or individuals to get on the band wagon in producing progress in combatting environmental problems.

Dr. Ruth Hopson Keen, Professor of General Science, Portland Center, Oregon, presented her paper on "Western Natural History" through her experiences and knowledge of this area. Dr. Keen related an educational interpretation of the ecology of life from the exciting changing seacoast to the animal and plant life of the Western Cascades. The Three Sisters area of Oregon has been one of Dr. Keen's special interests. Her talk was illustrated with slides of this area, in which she has back-packed over a period of 36 years which gave the audience a visual observation of the bird, plant and animal life as well as a study of Collier Glacier.

The thought provoking subject, "Western Environmental Problems" was discussed by Dr. Stanley B. Mulaik, Department of Biology, University of Utah. Man's interference in the natural flow of water through overgrazing, denuding areas, altering stream channels, and man's lack of interpretation of the total environment was presented as a major problem in conservation and flooding. Dr. Mulaik's slides of the man vs. water issues proved scientifically that tampering with water streams was detrimental to man's environment. Dr. Mulaik's lecture emphasized the fact that man must be aware of his role through education of himself and others in order to preserve our natural resources and environment.

The Saturday field trip was conducted by Warren A. Hall, Dept. of Biology, Lewis and Clark High School, Spokane. Mr. Hall offered a realistic picture of the unique characteristics of the wheat and scab lands, pothole lakes and forest lands. The trip also included a visit to the Trunbull National Wildlife Refuge and Coeur d'Alene. Through the lectures and the field trip, the ANSS members were stimulated to positive action in confronting the environmental problems.

Utah Section Active

The Utah Section of the ANSS has been active with several field trips, and members as individuals have given helps to numerous groups with lectures, leadership on field trips, and attendance at several conventions.

One of the field trips under the leadership of Dorothy Platt, chairman of the group, hiked up the upper end of Emigration Canyon to the beaver pond area which is one of the best examples of this in the Salt Lake City area. Mrs. Marie Atkinson's summer home served as the headquarters and the place where the group had its lunch.

Dorothy Platt has been particularly active visiting schools and leading groups of children on field trips in the school area.

The Utah Section was well represented at the western Section meeting at Pullman, Washington. Maxine Hullinger, Connie Sedlar, Dorothy Platt, and Stanley B. and Dorothea Mulaik attended the meetings after attending the meetings of the Conservation Education Association in Arcata, California.

Plans are being made to take a field trip in the Centerville area north of Salt Lake City. One part of the trip will be a visit to what is known as the Grandaddy Tree, an old cottonwood monarch still in excellent condition. This tree measures 22 feet nine inches in circumference, breast high. The group would like to hear from others who have some record size trees in their communities. (Redwoods don't count!)

India Joins World Conservation Union

The Government of India has declared its adherence to the Statutes of the International Union for Conservation of Nature and Natural Resources, thereby becoming a Government Member, it was announced by E.J.H. Berwick, Secretary-General of the Switzerland-based Union.

India's action brought to 29 the number of State Members of the International Conservation Union. In addition, more than 200 organizations from all parts of the world are members. ANSS is one of these.

Founded in 1948, IUCN is one of the world's oldest international conservation organizations. It operates in the fields of species survival, ecology, education, legislation, national parks and landscape planning. IUCN seeks to perpetuate wild nature and renewable natural resources, advocating rational use of resources as essential if mankind is to maintain or improve the quality of his living.

Charles E. Mohr, a past president of ANSS, is currently director of the Delaware Nature Education Center, and administers a unique arrangement of conservation education programs. Mr. Mohr has developed a program greatly in demand by students, scouts, as well as adults who request guided tours of the Center. A new program was developed with the Wilmington, Delaware schools to encourage teachers to make nature education an integral part of their teaching.

Mr. Mohr has had a distinguished career. For twelve years he directed the National Audubon Society's educational center at Greenwich, Connecticut. Before that he was director of education at the Academy of Natural Sciences in Philadelphia. Prior to coming to Delaware, he served as educational director of the Kalamazoo Nature Center in Michigan.

His part on the program at the annual meetings in Boston is looked forward to with interest.

The use of camping trailers at New York State Public Campsites has increased at the rate of eight percent a year.

Nature Study

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Nature Cultivates Perception

"Nature study cultivates the child's imagination, since there are so many wonderful and true stories that he may read with his own eyes, which effect his imagination as much as does fairy lore; at the same time nature study cultivates in him a perception and a regard for what IS true, and the power to express it. All things seem possible in nature; yet this seeming is always guarded by the eager quest of what is true. Perhaps half the falsehood in the world is due to lack of power to detect the truth and to express it. Nature study aids both in discernment and in expression of things as they are."

— Anna B. Comstock
Handbook of Nature Study
