THE CONSERVATIONIST

State of New York Conservation Department December-January 1967-68

Policy And Power

The Hudson River Valley Commission and the Niagara-Mohawk Power Corporation disagree on how to preserve scenic beauty and their differences deserve examination. The Commission has disapproved the Corporation's proposal to build a third aerial super-high-voltage power line across the Hudson River eight miles south of Albany, and has recommended that Niagara put it underground.

The power corporation made no immediate public decision whether it would conform, but indicated its dissatisfaction and promptly filed notice that it planned to build a fourth aerial high-voltage line close to the other three. The Commission undoubtedly will reaffirm its earlier finding that "as a matter of policy, no new aerial power transmission lines should be placed across the River."

The Commission has no direct power of enforcement, but it is charged with reporting its findings to other public agencies and to the public. If Niagara disregards the Commission, there is likely to be renewed agitation for stronger regulatory powers in the Valley.

The two existing lines of towers and the two proposed ones would all converge at a giant generating plant. Thus Niagara has stated that the additional power lines would be located in a highly industrialized section. The statement is only half true, because the eastern shore is clean countryside with the exception of the two existing rights of way cut through the wooded hillside.

The cost estimates announced by Niagara were equally confusing. It first said that the 2.3 mile section of the third line if built in the air would cost $1.8 million, then later dropped the figure to $1.4 million. Its estimates for putting that section underground at first were "at least $12,000,000 more" than an aerial line. Later it said "$11,000,000 more." Then Niagara warned that this would cost its customers $1.7 million annually. This would seem to be amortizing capital construction completely within seven years. The Commission correctly pointed out that the added cost would not be a major factor in the light of the total cost of the 80-mile line "amortized over a long period of years." In fact, the additional cost would amount to a few pennies — if that — on the electric bills of most consumers.

The recent Constitutional Convention clearly stated that it was the policy of this State to protect natural resources and scenic beauty. In Connecticut, the Water Resources Commission has ruled that all aerial power lines over the Connecticut River must go underground within five years.

Consequently, we think that the Commission's policy is sound. Two power line slashes across a hillside are enough; four are a punishment to the eye. — Editor

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Partridge berry

Virgin's Bower

Winter Fruit

Wild grape

Barberry

Pasture Juniper

THE time of year between Indian summer and spring is not ordinarily considered to be a good period to look for color in the landscape. Nonetheless, a walk through woods will turn up a surprisingly large number of plants that form a contrast to the characteristic gray of this barren time.

A few of these, such as the European barberry, are so obvious that they tend to be overlooked. Originally imported for hedges, it has now escaped into thickets and along roadsides, especially where the roadbuilders have left a belt of sand as part of the shoulder. Any child who has tried one knows that the red berries are not for eating, although some authorities report that they make good jams and jellies.

The thick drooping clusters of the choke cherry can often be found close by. It is not confined to roadsides, however, it spreads along river banks and into rich woods. Its very sour fruit is, if anything, less edible to children than the barberry.

The high swaying grape vines are easier to locate and look gnarled and ancient after their leaves are gone. The small puckish fruit hangs on into winter and often into the following spring.

Partridge berries can often be found under the leaves in moist woods in the same general area as grape vines, their leaves evergreen and their berries a bright contrasting red.

Higher up on a hillside or cliff, windswept junipers stand like sentries with

Mountain Ash

Highbush Cranberry

Pasture Juniper

Blueberry

by Robert Flynn,
(Illustrations by R. Bauer-Flynn)

rows of grey berries on their branches. The juniper can grow either as a low shrub or as an erect tree, but in either case it grows best where it is cool.

Low-bush blueberries can sometimes be found close by. Although not evergreen, the blueberry leaves last longer into the dormant months than many other plants and the berries cling on, unless of course picked by animals or humans.

One of the prettiest berries is also one of the least accessible. An experience highly recommended is to hike along a mountain trail and to come across an area that includes the native mountain ash. It grows best at elevations of about 3,000 feet and higher, usually to a height of 15-20 feet but sometimes as high as 30 feet. Its berry is smaller and redder than its imported relative found on lawns, the European rowan tree.

This group of berries is just a start; there are many more to find during the months of late fall and winter and when looking you may come across other interesting plants. The milkweed is accessible and easy to find, like the barberry so commonplace as to go unnoticed. But fleabane and related plants such as everlasting and pussy-toes may come as a surprise; blooming in the usual months of summer, some varieties linger on into the winter, dried out as if a silhouette. Incidentally, they are easier to find than to identify. Their variable forms make it difficult for even the experts to tell them apart. But that pastime can take up the winter evenings.

These are the population explosion, too

Natural Resources And The Cult Of Expansion

A Noted Biologist And Director Of A Classic Wolf–Moose Study Examines Our Attitude Toward Population And The Economic System

Dr. Allen

AS PROPRIETORS of North America, we have custody of a great freehold. How we handle it will identify us in times ahead. Probably the most exacting demands on our skill and conscience are in dealing with replaceable natural assets, those that can be improved in use through biological processes — soils, waters, forests, ranges, wildlife, and scenic beauties.

Historically, the management of renewable resources has been a threshold of frustration and delay. Accomplishments, often good in themselves, fitted only by chance into any reliable outlook for tomorrow. There has seemed to be no plan at work, nor even a comforting philosophy.

Despite the difficulties, we must invoke what foresight we can in resource use, and in terms of major issues I think we have much to work with. Our context is the field of human, or resource, ecology. This is a developing scientific discipline concerned with relationships of humanity to the total environment. Characteris-

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by Durward L. Allen, *Professor of Wildlife Ecology, Department of Forestry and Conservation, Purdue University*

tically, it involves synthesis and generalization. Inevitably it includes conceptual trial and error.

The ecologist is aware of his limitations, but he is learning to distinguish rights from wrongs. I suspect he knows considerably more now than anyone can apply. If this is true, then a weak link in our resource management effort is the information function that should be telling the customers what they need to know. Information people strive with great diligence to sell the conservation idea. But it probably is good for anyone to have an occasional review of premises and a more critical focus on the issues.

What is the Objective?

To put first things first, what is the objective of our concern with the resource environment? What do we want for mankind now and in the future?

I suppose the only reasonable answer is this: *We are after the best possible living standard for every individual.* Such a statement identifies a worthy goal but does not define it. How could anyone describe an idealized life pattern for the future? This involves personal attitudes, and for each of us standards are likely to change with time. For my part, I cannot accept a common viewpoint: I doubt that the output and consumption of material goods is a satisfactory measure of living standard. It is part of our well-being, but there probably are more fundamental things. Surely, good health is the greatest beneficence that modern science has to offer. No doubt a quality existence includes being well fed, well clothed, and well housed; but space and pleasant surroundings must also be high on the list. In social terms, we take for granted all the freedoms that are a part of human dignity. Freedom from work is not one of these.

Solving Resource Problems

Resource problems are characteristically a national concern. At local level they frequently are obscured and fragmented by provincial attitudes and politics. It seems right to expect of any government that it consider responsibly the needs of the whole public and use our unmatched technology to plan ahead for human welfare. Surely a century hence is not beyond our limits of responsibility.

Assuming that there is a science of environmental relationships, how does it go about its problem solving? Probably you could not get the same answer from any two people. However, I think there are basic aspects of the population-resources equation on which many thoughtful persons could agree:

First, we are dealing with a strictly limited quantity, the finite earth, its space and raw materials.

To this we apply our atom-age culture, a variable of bewildering complexity that includes our industry, science, and all we do to make resources useful.

Another variable is the number of people who divide the benefits, today's steeply ascending curve of population.

Finally, a living standard is resolved from relationships of the other three. The concept can be represented this way:

$$\frac{\text{Resources} \times \text{Culture}}{\text{Population}} = \text{Living Standard}$$

It is common knowledge that over half the earth's inhabitants are perpetually hungry, and that on this continent we have the highest living standard of any major area. The relationships I have cited are inherent in some calculations by sociologist Philip M. Hauser, of the University of Chicago. Hauser states that all the goods and services now available in the world would support about half a billion people at our level of living. Yet the total population of this planet now numbers 3.4 billions!

Since the resource professional is trying to raise living standards, and since he is working with an earth whose space and raw materials are fixed, it behooves him to consider how many people he is trying to serve. He must be concerned with what is happening to human numbers.

Where to Put Population

Gross trends of this kind are illustrated by some figures the United Nations published several years ago: In 1700, the earth's population was growing at such a rate that it would double in 178 years. By 1800, the gain had stepped up a bit; numbers were doubling in 154 years. By 1875 the rate was 98 years, and in 1960 it had declined to 41 years. If the trend continues, by the year 2000, the people of the earth will be doubling their number in 23 years.

Obviously this is geometric expansion, an exponential curve, numbers building at compound interest. The biologist recognizes it as the kind of increase expected in any animal population that invades an unoccupied area or finds access to a new resource base. In North America we have done both. The continuing availability of usable resources is primarily a result of today's burgeoning technology. In addition, we are hard at it, draining, irrigating, filling, cutting, bulldozing — making huge investments to "develop" and populate the blank spaces on our map.

That the demographic results of this process are not fully appreciated was impressed on me vividly several years ago. A group of resource specialists were standing on Hoover Dam, looking down into the partially filled reservoir that is Lake Meade. In response to a philosophical question, a civil engineer who was our guide said this:

"With the population of this country doubling in 35 years, don't we have to keep ahead of the game and see that what those people will need is ready for them? Here in the Southwest that means making available every acre-foot of water that can be stored for use. I think we can't fall down on this one almost regardless of what it costs."

A voice in the rear took issue with him. "You're leaving out something important. Because every time you carry out one of these big developments, with each new acre you irrigate and make habitable, you are adding to the total population and to the demand it will make on all resources. You are developing a bigger problem that will take more billions in public money on the next go-around!"

Strangely enough, this relationship of the population to the resource base is sometimes denied — which seems something like a claim that two human beings can occupy the same space at the same time.

Our great cultural advances have been influential around the world. Most

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significant are those in medical science. We know that birth rates may vary regionally and periodically, but the overshadowing cause of population increase has been the decline in death rates. A single discovery — the use of DDT to control the insect vectors of typhus and malaria — brought about a spectacular population build-up in the tropics after 1945. Nearly all our help to "have-not" nations has contributed to their population problems.

DDT spraying helped the population buildup

We are keeping people alive, even if we cannot feed them or make them comfortable. Last year there were about 125 million births, and roughly 60 million deaths. This is a worldwide gain of 65 million people—or is it a gain?

The Natural Man

In natural communities of living things, there are automatic checks on the numbers of any species. These controls may operate with some lag, but they are effective. It is said of most mortality factors that they are "density dependent," a characteristic that is evident as we watch the ills develop in high populations of animals—food depletion, the spread of disease, fighting and social breakdown, pollution of the habitat. Various causes of mortality interact and may be mutually reenforced. The most basic and predisposing factor is social stress itself, which tends to increase as the square of the population.

One of the rapidly growing fields of biological endeavor is that of animal behavior. Such studies are richly rewarding in revealing the key to many ecological adjustments. Individuals in a population are organized and socialized according to patterns fixed in the germ plasm quite as realistically as are structural features. Orderly social relationships are a means of spacing individals and dividing up the habitat for efficient use. They are a mechanism for mitigating strife within a species and holding competition to useful levels. They have a highly critical survival value.

The Policy of Expansion

Possibly some will claim that man is an entirely different kind of being, largely immune to biological controls. This is implicit in our common attitude toward population and the economic system. Particularly here in North America, we appear to be embarked on a policy of more and more of everything from now on. Every small town wants to be a big city, and every chamber of commerce is dedicated to bringing in more customers, attracting more industry, getting more land taxed for more dollars, and developing every natural asset for more business.

This outlook, of course, originated from the unquestioned fact that these activities built the strength of our nations. Part and parcel of the expanding economy has been the expanding population, acted upon by an elaborating technology. Economists commonly take a short-term view in their recommendations to promote growth in business activity and an annual increase in Gross National Product. This, of course, is what every office holder requires during his own tour of duty.

The result is a general assumption that expansion is forever, and that science will provide the material means of outrunning the increase of human numbers. In 1965 a survey for the Population Council of New York showed that barely more than half of U.S. citizens feel any real concern about the nation's population growth. Their complacency feeds, no doubt, on daily exposure to the outlook for "progress" — food from the oceans, which could nourish billions of hot-house humans; the desalination of sea water to turn every desert into cropfields; the industrialization of all "backward" areas via unlimited nuclear energy. Orthodox specialists and purblind writers commonly issue their stirring forecasts in terms of the vast numbers of people that can be served. *This thinking could lead to the epic folly of our time.*

Nothing Expands Forever

The truth is that nothing expands forever, and that continuing strength in our industrialized society will depend on a new outlook. Attitudes that seemed to work in our earlier history no longer apply in a well-populated continent.

Ahead, we may confide, is a time when social and political progress will catch up with and direct our applications of biological and physical science. By intelligent choice we will have an optimum world population living on a pay-as-you-go regime of resource use. This somewhat visionary prospect has, in reality, no respectable alternative. Professional endeavors in every applicable discipline need to get oriented toward such a goal. The time is now because exponential curves wait for no man, and, degradation of habitat is in many cases irreversible.

In the seethe of overgrown cities we see abundant evidence of biological disruption. The signs are social, psychological, physiological, pathological. Increasing crime rates, the befuddlement of youth, soaring costs of government, the growth of every kind of insurance and welfare plan—a basic ecological response is suggested in all these trends. They bespeak a social adaptation syndrome quickened by population stress.

Overcrowded man must be specialized, organized, controlled, and protected from his fellow men. He gets little gentling in a worn and soiled environment. He seems more content and thrifty when having access to variety and distance, even silence and solitude. The mass production of anything—even human beings—means standardization. There was respect for his own kind in Robert Frost's statement,

"I'm against a homogenized society because I want the cream to rise."

Curbing Population

It is unthinkable that we should fail to cope with the population problem in decades ahead. Our only approach is through the birth rate—it must be effectively reduced over most of the world, as we continue to promote good health and prolong life among all peoples. There is reassuring evidence that once a high level of education and material prosperity is attained, a lowering of the birth rate will be automatic. Hence, such accomplishments will be, in a measure, self-perpetuating.

Today's challenge is to make known at home and abroad the overriding urgency of what must be done. A few far-sighted people have fought on this front for several decades. They deserve an uprising of support that can originate only in North America.

If a downward trend in population could be achieved, the imperative demands of our proliferating economy should ease. This need not be a disaster in any sense. Economists are becoming increasingly interested in the mechanisms that such a situation would involve. Economist-demographer Joseph J. Spengler of Duke University points out that favorable economic trends are not dependent on steadily increasing numbers of people. In effect, a limited population could stimulate demands for goods and services almost indefinitely through better living. Spengler ended an address to the Industrial Conference Board in New York this way:

"In the future, economic growth will depend mainly upon invention, innovation, technical progress . . . Population growth will probably play an even smaller role than I have assigned it in earlier discussion. It is high time, therefore, that businessmen cease looking upon the stork as a bird of good omen."

Quality Control of Environment

It goes almost without saying that the best anyone can possibly do in damping the population boom will not be soon enough. Meantime a line is to be held; there is a program of quality control to be applied with judgment and courage to the human environment. In North America we have great possessions that will cost us little to keep but much to lose.

The most perishable amenities of this world are its open spaces and quietudes, its greenery, pure waters, natural rivers, wetlands, wildlife, and choice scenery, its dwindling modicum of true wilderness. Substantially, these are what President Johnson has characterized as "natural beauty." Nationally they are the out-of-doors we use for recreation. Locally they may be the charm of a pleasant countryside or well-groomed city.

Since pioneer times this landscaping has graced our inherited estate as a luxury we could afford. Its dollar value is difficult to pin down. It is vulnerable to attrition by piecemeal decisions, which assume that a little more of one thing or a little less on another won't really matter.

Needed: Citizen Conservationists

This public attitude is an honest one. Our leadership in resource affairs is largely a thin line of mercenaries, where there should be backing in depth by citizen volunteers. Most of today's universities are centers of technology, rather than philosophical thought. The vast majority of young people go through school with no exposure to the biological realities of human existence or the natural world. They assume the duties of citizenship with little understanding or feel for the order among living things—a necessary basis for workable attitudes toward human and resource husbandry.

Holding or salvaging the most fragile values in our environment has become an emergency issue—first in time because the headlong impetus of our make-work enterprise has no built-in controls. Our history and success have fostered a certain arrogance toward the native wild-

Underneath technology lies land and people

Should every village want to grow?

ness of our homeland. North Americans are commonly so bemused with the charm of bringing straight lines and square corners to the chaos of nature—our bulldozerkampf — that they have no idea where it should stop. Among choices to be made, it seems essential to dissipate our wasteful momentum in doing more of everything we know how to do, useful or not. In the resolution of values, man's mastery of the earth will pay him greatest tribute when he achieves the forbearance to leave some of it alone.

Look Skeptically at Great Projects

The essence of resource planning is to identify investments of lasting worth. Important strategy probably is to look skeptically at great public projects calculated to change the face of the land, replumb river systems, and make new areas "productive." Large water projects are notoriously destructive of flora and fauna and the natural scene. They require our grandest gorges and pristine rivers, the winter range of big game, the drowning of geological and archaeological treasures, the loss of recreational open space. People in our great Northwest may well ask themselves a particular question:

"What is a salmon run worth for all time to come?"

A common motive in impounding waters is flood control. Yet the temporary nature of such benefits on silt-laden streams is seldom recognized. As reservoirs fill with sediment, their storage capacity is lost. In the floodplain below a dam, temporary protection from overflow encourages a build-up of structures and settlement. What problems are being created for solution at public expense when spring runoff can no longer be contained in the silted-up reservoir? Hopefully, the Water Resources Planning Act of 1965 can bring a more long-range appraisal to bear on projects of this kind.

One may say realistically that the essence of good research management is not so much in costly works as in avoiding mistakes. Much of today's necessary investment is for overdue clean-up of pollution and repair of damage — a situation that should change as our estate becomes more orderly.

Policy of Pinchot and Roosevelt

It might logically be assumed that the doctrine of conservation would be sufficient guide in the management of our natural wealth, and perhaps it should be. More than sixty years have gone by since Chief Forester Gifford Pinchot and his colleagues developed this idea with the encouragement of President Theodore Roosevelt. They said it was to be a new government policy providing for ". . . use of the natural resources for the greatest good of the greatest number for the longest time."

The good of the majority and the longest time — this viewpoint assigns our generation a limited equity in resource property. It says that people of the future have a right to use what we leave, and thereby our children many times removed should have a share in critical decisions. They will be at least as well qualified as we are to dam the Grand Canyon, cut old-growth redwoods, and subdivide the last seashore.

It was the short-range view that stirred Pinchot and Roosevelt. They saw the sackage of a continent taking place under an assumption that everything belongs to the first-comer. The pelf of the land was being burgled off, with profits-in-our-time the only criterion of success. We know now that some of those early gains were borrowed from capital, with the debt left to a later generation. We ourselves have made payments on this account in reclaiming damaged lands and sickened waters.

The first decade of this century is recognizable as the period of changeover to a new outlook and a new morality in the management of national assets. It was also a notable action period. In the face of bitter opposition, Roosevelt set aside many areas from the public domain for use as forests, parks, and wildlife refuges.

The conservation idea caught on as a principle and slogan. Semantics became much involved in its ideology. For half a century we have argued about the difference between exploitation and development. One is bad and the other good, by someone's definition. In our latter-day sophistication, almost any operation may be labeled righteously as conservation. The farther we get from the Pinchot-Roosevelt era, the easier it is to say that, after all, conservation means different things to different people.

History is witness that major accomplishments in the natural resources field have depended in gross disproportion on the inspiration of a few. Great works have not been the option of political parties, but of men whose common ground was a feeling for their own kinship to the earth. Through the years, there have been such people in government and in citizen organizations. We have made fitful progress toward national controls — even international efforts, as in our migratory bird regulations.

The Action of F.D.R.

The presidency of Franklin D. Roosevelt was our second period of great concern and action on behalf of responsible resource use. During the thirties, Roosevelt brought men like Ding Darling and Hugh Bennett to Washington and gave them encouragement to do their jobs. An economic crisis demanded new adventures in public works. A devastating drought brought home to all the plight of ailing soils and watersheds, impoverished wildlife, mistreated grasslands and forests.

Congress and the president acted, and the public approved. But the technology of the day was found wanting. The ecology of living resources was little understood; needed facts and techniques were not to be had. Largely on a trial and error basis, management projects muddled ahead.

What Pinchot had perceived thirty years before was now evident to many — that we have continuing incentive to study and improve the soils, forests, grasslands, waters, commercial fish, and other sources of supply for our industrial brawn. Of course, something similar can be said for making best use of nonreplaceable wealth.

The great awakening of the thirties was lost in a world of conflict, and thereafter it recovered only briefly before the budgetary competition of the cold war caught up. During the forties and fifties, despite inadequate support, resource management technology made progress in our governments, in states and provinces, and in educational institutions. Local and national conservation organizations continued to build their memberships, and public awareness of important problems showed steady gain.

In the United States, the Outdoor Recreation Resources Review Commission was created in 1958. It submitted its special report to the President and Congress in 1962. In its philosophical tenets the report suggested that,

"Leisure is the blessing and could be the curse of a progressive, successful civilization." And again that, "The fact that we live in a world that moves crisis by crisis does not make a growing interest in outdoor activities frivolous, or ample provision for them unworthy of the Nation's concern."

New Light on Population

The most significant happening of the past twenty years has been the emergence of the population issue into full high-level acknowledgment. For long the going was hard; but able technical leadership, crusading citizens, and growing editorial confidence brought it off.

The portent of a changing attitude in government came in 1961. In March, following his inauguration, President Kennedy made it clear that he understood the problem and favored its open discussion.

On January 4, 1965, in his State of the Union Message, President Johnson declared a policy of far-reaching significance: "I will seek new ways to use our knowledge to help deal with the explosion of world population and the growing scarcity of world resources." This statement was the basis of administrative communications to embassies and all missions of the Agency for International Development.

In his speech commemorating the twentieth anniversary of the United Nations, the President made a forceful appeal to the world:

"Let us in all our lands, including this land, face forthrightly the multiplying problems of our multiplying populations and seek the answers to this most profound challenge to the future of the world. Let us act on the fact that less than five dollars invested in population control is worth a hundred dollars invested in economic growth."

This statement defined the issue clearly. It committed the United States to domestic action and world co-operation. As a new departure in the quest of mankind for peace, decency, and the abundant life, there is little question that it ranks with the founding of the conservation concept itself in 1907.

Threshold of the Future

The way is opening ahead, but the vast bulk of humanity is not informed. In fact, on this continent the best educated people in the world are bumbling ahead under an expanding economy slogan that still largely ignores space values, fails to distinguish between quantity and quality, and regards overflowing masses of human beings as a consumer base essential to "prosperity." We still have the hang-on attitude toward land that the "highest use" for any acre is to make it yield dollar tribute in the form of something that can be used up and replaced.

This is our wastrel era, which people of the future are unlikely to admire. On a different plane, and under a different rationale, it is as much a me-first, dollars-for-today program as was that of the exploiters in the late 19th century. We have conned ourselves into a state of mind whereby it is popular to dignify

Do dams create more problems than they solve?

the "user" and deride the "preservationist." It seems a doubtful hazard that too much of anything is going to be preserved; many things could be over-used.

Economic projections by Joseph L. Fisher and Neal Potter of Resources for the Future are commonly accepted as essentially favorable. These indicate that the predicted doubling of population by the year 2000 will not be accompanied by major shortages of material goods in North America. As for the world, these authors ". . . venture the view that living levels in most countries can increase over the coming years, with diets improving slowly and energy and mineral use more rapidly. The process depends heavily on education, motivation, favorable government policies, and social adaptations."

The importance of the latter qualifications is evident when we consider a statement by the Food and Agriculture Organization of the United Nations in the Third World Food Survey of 1963. "By 1975 world food supplies would need to be increased by over 35% merely to sustain the world's population at its present unsatisfactory level of diet."

Raymond Ewell, Vice-President for Research at the State University of New York, says that if present trends continue, mass starvation can be expected in several far-eastern countries by the early 1970's and that it will be widespread over Asia, Africa, and Latin America by 1980.

It is evident that there are grave hazards on the one hand and possibilities for great technological progress on the other. It should be remembered that the projections previously referred to are for "resources and raw materials," and that supplying the world as they suggest would require what amounts to an international pooling of capital and natural assets. It would entail the total mobilization of science and the intensive development of all lands and waters for maximum yield of subsistence products. . . .

What such a program would do to this earth as a quality habitat can only be left to the imagination. And if we actually could work our way through to the year 2000 by such heroic measures, what then? Does onyone think the process might be repeated from the new population level?

In our forecasting and analyses we give great emphasis to material goods and dollar values — things we know how to measure. One wonders if it really is asking too much for us of the present generation to share the enlightenment of John Stuart Mill in 1848:

"A population may be too crowded, though all be amply supplied with food and raiment. It is not good for man to be kept perforce at all times in the presence of his species."

Their land was gobbled up

Man Must Copy Natural World Relationships

Inevitably we come back to the proposition that in man's future there is to be an ecosystem whose basic relationships will resemble those in the natural world. In our world too, the healthy developments will be toward stability — a state in which input equals output. It is evident that we are going to have population control. The question is how soon, and how much we will have left to work with when it becomes effective. Our science can rise to its potential as the boon and salvation of mankind only when the frantic demands of the population emergency are abated.

As a general guideline, if we are able to muster the control to preserve and improve in reasonable degree the esthetic features and recreational open space of this continent, it is likely that many other aspects of the resource management program will fall into place. As a critical reality, any major accomplishment of this kind will require support by millions of informed citizens; and on that score, the difficulties are increasing.

In reflecting on his mission, Secretary of the Interior Stewart Udall expressed the qualms of an outdoorsman:

"We have developed a whole new generation of sedentary, city-bound citizens, wheedled by spectatorship and the air-conditioned advantages of glassed-in living into acquiescing to the diminution of the spaciousness, the freshness, the green splendor of the American earth."

This is indeed a basic jeopardy in efforts to preserve and restore the quality and variety in our habitat. The prime obstacle of decades past, a stone wall of disregard, could easily become the roadblock of complete unfamiliarity.

We have a vital problem of communication. People must be kept in touch with the out-of-doors and conscious of their privileges as owners of it. Our up-to-date conservation story tells of human numbers, quality living, quantities of resources. It describes how we monitor our status and progress by careful inspection of our range. The story will have to be told by spokesmen who know whereof they speak. I have no doubt that all of us who take on this critical information job can be most effective if we hold ourselves keenly aware of a fateful mission —that the message concerns the greatest challenge with which mankind has yet had to deal.

The Dunker

by Thomas F. Monser

The Raccoon Is The Most Persistent And Curious Member Of The Night Watch. Here Are Some Tales Of His Antics

THE shadows lengthened. Where the creek's white ribbon flowed into a marsh, a raccoon shuffled flat-footed toward the water. He sat on the bank turning over stones, looking for snails. Holding each catch with both paws, he slipped the snail into his mouth. Later, when he found a large crayfish, he dunked it in the water before eating it.

Procyon lotor is a member of the night watch. In the dark he prowls along shallow brooks, ponds, rivers and swamps searching for food. And he's not the least bit bashful. The contents of a garbage pail can suit his fancy and with his adaptable hands he can push the tight cover up and knock the can over so he can sort out the goodies. This very same thing has happened to me several times and I was at odds with a neighbor of mine because I was sure his large male boxer was responsible and I didn't hesitate to tell him so. But you know, I was wrong.

I heard the clanging of the cover as it dropped off the garbage can late one night. On the way down to the kitchen from my warm bed, I grabbed a flashlight and ran outside. I flicked the light in the face of a rather surprised 'coon. His finely chizeled, fox-like face dabbed with a large black patch under each eye, made him look more like a burglar than an animal. Garbage was all over my concrete walk. I decided to leave him alone and clean up the mess in the morning.

Most of the day the raccoon curls up in a den tree or a handy road culvert and snores away. I have spotted him snoozing in an old crow's nest on a recent walk in the woods. At another time I discovered him high up in a forest maple. He looked down at me as if to say, "Don't you know it's impolite to intrude?"

A friend of mine kept several 'coons and I was able to observe them at close hand. I soon found out that he will dunk food that has little moisture content because he can't swallow it readily. He lacks saliva. When the 'coon was fed dog-biscuits he would soften them in a pan of water before attempting to chug them down. He had no problem with frogs.

This black-masked rogue is tough as well as curious. Neither man nor dog upsets him for very long. I remember one October's hunt with a friend of mine who has a musclebound black and tan 'coon hound. We walked into a frost filled October night when the smell of burning leaves from a nearby village made you feel good to be alive. Near an old cornfield the hound clamped onto a hot 'coon track. We waited until the dog's barking changed into a long, drawn out howl.

"He's treed him," my friend said.

We headed in the direction of the sound. We located the dog and when our lights found the 'coon, he was sitting up in the fork of an elm tree.

"Look at the size of that bruiser," I said. "He must weigh over 30 pounds."

And before either one of us could take a shot at him Mr. 'Coon decided to jump into the river. The dog went after him. The 'coon was a much faster swimmer and instead of crossing to the other side he swam downstream with the current. A half hour later the dog returned shivering with cold and discouragement.

Nine weeks after a mid-winter romance, three to six kits are born. When they are about one-third grown they leave the den tree to learn about the world they are going to live in. The female is a stern mother. She cuffs the little imps to teach them discipline and they follow behind her like little kittens. They learn to relish the produce of orchards, grain fields, nut groves, vegetable gardens and berry patches. It was in a blueberry patch that I discovered a family dining one morning.

I was busy picking and my mind had wandered into the dim past to another August day when I was much younger. My memories were scatered by the cluttering, gutteral sounds young 'coons make as they reluctantly follow orders

(Continued on page 35)

Amateurs Uncover Early Indian Village

Archeologists Have Sifted A New Site And Gotten More Evidence On How And When The Indian First Grew Corn

by Michael Laccetti *

WE know that for thousands of years, the primitive people of the New World hunted and collected wild food; but the origin and evolution of their cultivation of corn still have hazy beginnings at unknown points of geography, time, and cultures. Yet many insights into this prehistoric innovation are unfolding in the eastern United States.

Much is already known about the culture of the Iroquois, whose existence was supported by the planting of corn; now new findings are emerging about another New York culture, the Owasco, with its as yet undetermined farming stages. The excavations at Owasco Lake (in central New York) of a village site inhabited by a pre-Iroquoian Owasco group yielded the first proof of a culture whose remains are now both widespread and well-known throughout the State. To the archeologist, the excavation site names of Carpenter Brook, Jack's Reef, Hunter's Home, Kipp Island, and others open new views on the Owasco sequence as part of the State's Indian history.

Excavation at Round Top

Another major site of Owasco culture, located in Broome County and situated on the Susquehanna River, is the Round Top site. A provincial farming village of approximately 1000 A.D., lacking a palisade, it reflected a peaceful era. Its importance lies in its permanent fashion of living since its early practice of corn cultivation provided a more reliable staple in the Owasco diet. The cultivating-hunting-fishing-gathering pattern of its inhabitants is in contrast with other Indian groups who fished a specific locality and then moved to another to cultivate corn, or those who cultivated corn and hunted during the winter in another area.

Village in the Forest

The ecological setting in which the village was built was one of dense forests of red and white oak, maple, chestnut, and beech in a climate much like that existing today. Local subsistence resources available to the inhabitants allowed a permanence not achieved by other groups whose seasonal occupations necessitated movement from one suitable food source to another. During the spring runs, species from four fish families were taken from the Susequehanna River and its creeks: shad, alewife, suckers, fallfish or golden shiner, and wall-eye (kindly identified by Dr. John R. Greeley, formerly Chief Aquatic Biologist of the New York State Conservation Department).

Examination of other bone refuse from excavated pits reveals a spring migratory bird, the passenger pigeon, and a non-migratory bird, the wild turkey, the woodchuck hibernating from cold fall to early spring, muskrat, bear, wolf(?), fisher, beaver and box or wood turtle. (Identification of all birds, reptiles and mammals by Dr. Edgar M. Reilly, Jr., Curator of Zoology, New York State Museum, is acknowledged with gratitude.)

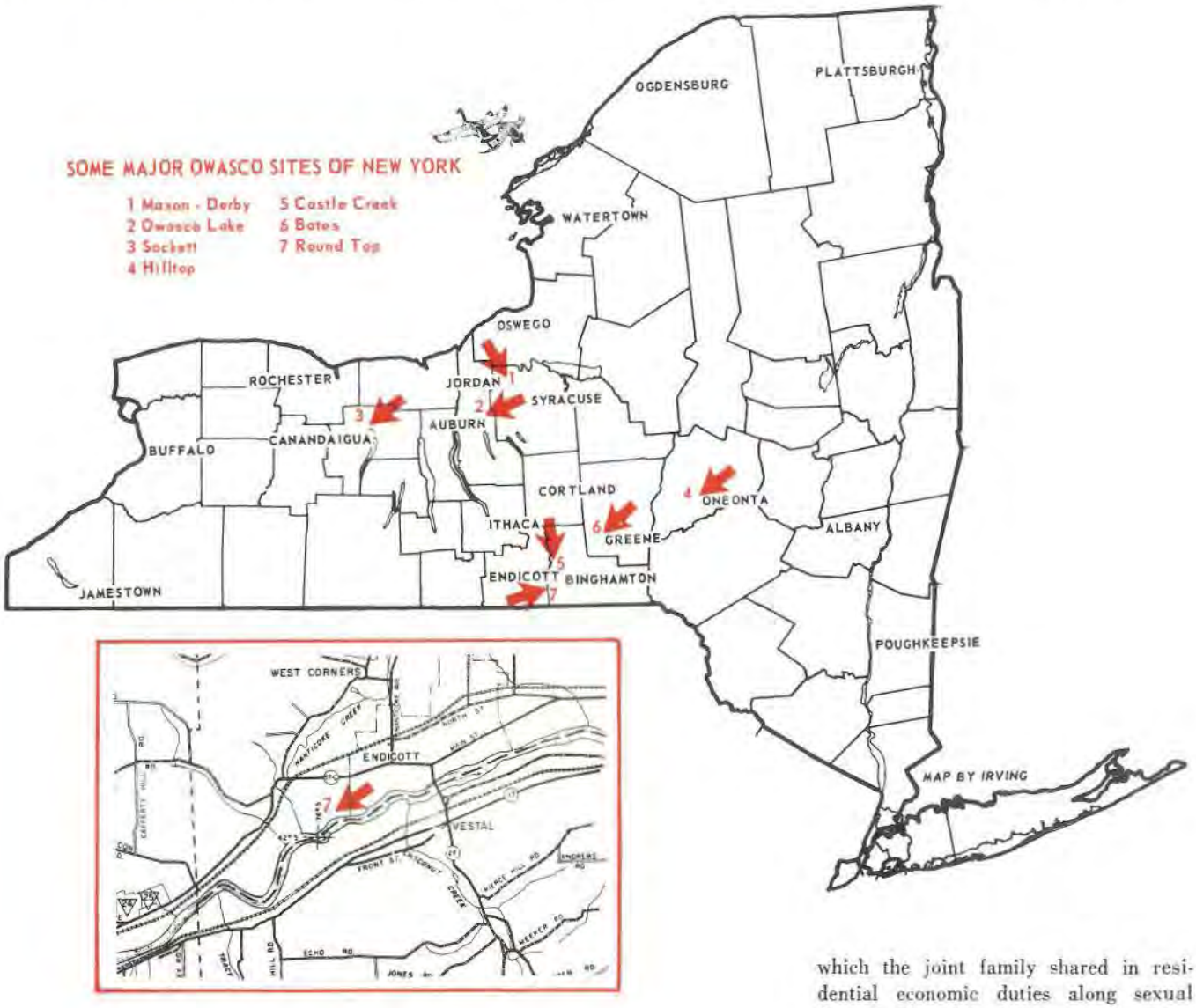
**The author gratefully acknowledges the work of Dr. William A. Ritchie, who excavated all sites mentioned and named and described the Owasco culture.*

Corn, arriving in the Northeast from the Southwest after 700 A.D. as an 8-row flint variety, was planted with beans in the early spring on the silt-loam river bottoms. Significantly, the discovery of carbonized beans at the Round Top site constitutes a very early instance of its cultivation by the Owasco people. However, the interval of tilling, planting, harvesting and finally storage of corn in the fall also suggests use of the village site a great part of the year. Subsistence foods utilized during the summer could have included small game, fish and gathered wild plant foods.

Fragments of characteristically short Owasco pipes hint of the cultivation of tobacco. Storage of nuts and acorns in pits followed their gathering in the fall with the possibility of more fish and corn in the village diet, but it is more certain the whitetail deer was utilized for food all year round as the predominant mammal. If the village were abandoned for hunting of deer, it would have taken place between the harvest time and mid-winter with temporary camps being

Remains of a fireplace

In Southern Tier, Widen Owasco Picture



established by family groups, but antler-skull fragments from the site indicate fall hunting and a return to the site. Along with other food reserves, corn, stored in pits, made winter habitation possible.

Owascos Differed from Iroquois

In some respects, our present day concepts of the Iroquois tribes do not seem to fit the Owasco people. The Owasco social organization was one, perhaps, in which the people were not organized into a more complex social unit, the clan. By interpreting pre-historic and historical events, the political organization of the Owasco would at later times be one feebly organized into clans for purposes of defense against a common enemy but one which lacked the political unity of the confederacy so highly evolved by the Iroquois.

Joint families living in the longhouses were not bound by matrilineal descent so well known of the Iroquois. The Owasco division of labor, made possible by achieving food surpluses, was one by which the joint family shared in residential economic duties along sexual lines in the utilitarian arts and crafts. The women engaged in pottery making, weaving and basketry; the men co-operated in the more difficult tasks of hunting, fishing, house building and the clearing of land cultivated by women.

While not having as involved a social structure as the Iroquois, there could have been a rudimentary corn ceremonialism which was much more elaborately expressed by the Iroquois in a thanksgiving festival to the supernatural. The Owasco people at Round Top seemed to have lacked a priestly caste because their burials were contained in untidy refuse pits with little or no offerings. This lack of concern reflected a loss in the belief of the hereafter and was unlike the more elaborate burials of their long-gone predecessors.

Tools and weapons from Round Top

Earlier Indians

Along with increases in the Indian population of New York State and changes in their food economies came corresponding changes in settlement patterns. It could be said that settlement changes throughout the millenia of Indian occupations have undergone yet untraced stages from temporary shelters to large palisaded towns.

If habitation structures made by the earliest Paleo-Indian free-wandering large game hunters of 9000 years ago do exist, they have not been found. Structures of an important but later Archaic group situated mainly in central New York, the Lamoka people of 2500 B.C., have been found to be rectangular houses with rounded corners. There was, at that time, movement to some degree in search of food. Other still later Archaic groups left little or no habitation traces. With the advent of ceramics in the Early Woodland stage (1000 B.C.-1600 A.D.), life was becoming more sedentary. There may have been small and temporary hunting and fishing camps. However, the structures have either been impossible to find or as in the case of the Point Peninsula people in whose roots the Owasco culture was founded, there could have been flimsy structures. Throughout Woodland times, circular, rectangular or ovate structures occur as house varieties. With the improved cultivation of more food came a greater degree of permanence and the need for stockades surrounding the villages during the Late Woodland stage.

Construction of Houses

Although the houses at Round Top were trapezoidal with round ends and differed in shape from Iroquoian longhouses with their flat ends or those of other Owasco groups having nearly circular or rectangular forms, the building methods were generally similar among the Owasco groups. Those at Round Top were made of saplings placed in the ground to form the floor pattern and bent into an arbor with smoke holes likely in the center of the roof. Sides and roofs were lined with sheets of bark perforated by large, bear bone awls for fastening. Doors were placed at both rounded ends and the major axes of the dwellings were aligned in an east-west direction for maximum light and protection from the weather.

It is estimated that about 50 individuals occupied a Round Top dwelling of almost 80 feet in length. Over a period of a few decades, nearly 300 individuals lived at Round Top in several houses. Such postulated figures are not near the large number of longhouses and inhabitants at larger Iroquois villages during the Late Woodland stage but almost equal the largest of Owasco settlements.

Since the material objects of a culture can be used to determine cultural and chronological relationships between Indian groups, it has been found that the Round Top chipped stone work and pottery show linkages both to their ancestral Point Peninsula culture entering New York State about 600 A.D. and to the late Owasco Indians of Castle Creek, near Binghamton, New York, radiocarbon dated at a rough average of 1200 A.D.

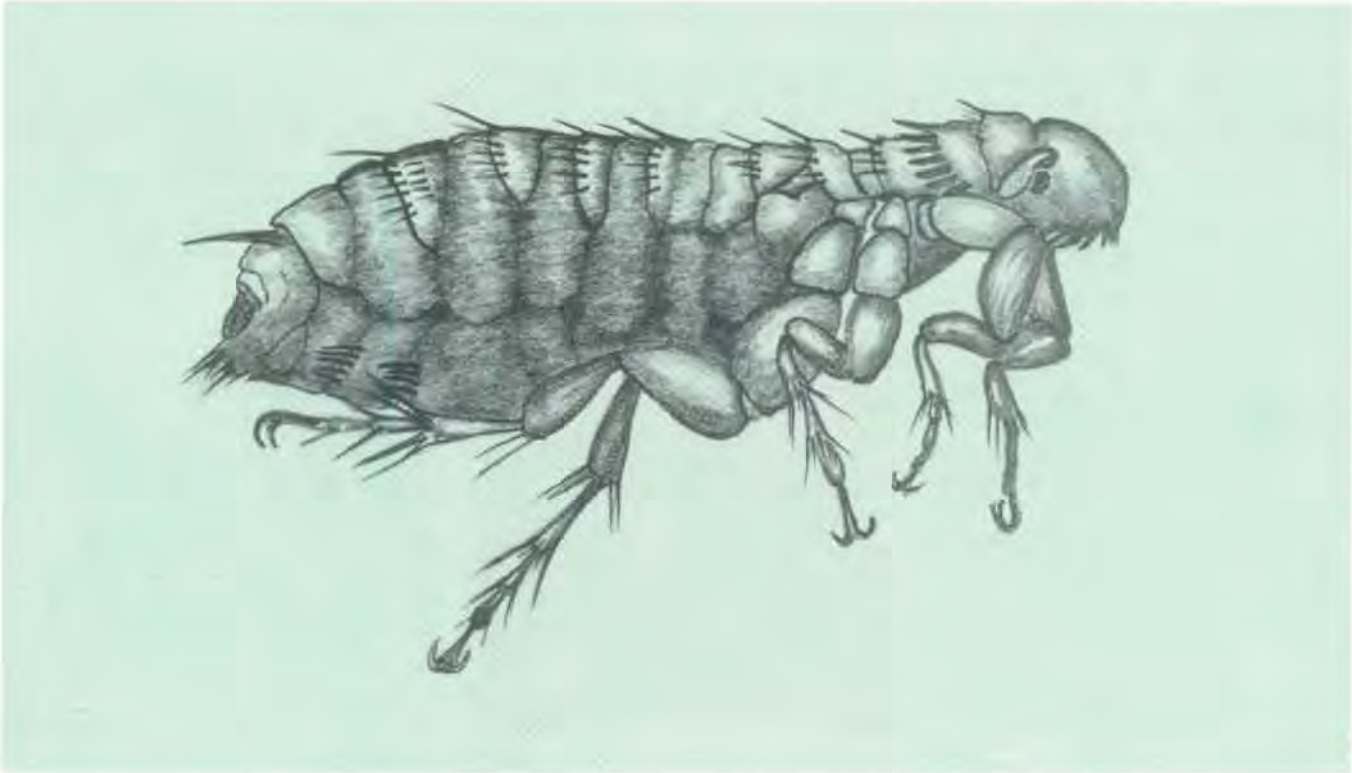
Stone Tools

Among the artifacts recovered are triangular hunting arrowpoints, scrapers, strike-lights, flake knives and perforators (Figures 1-10). Many are chipped from pebbles of Onondaga flint gathered from glacial drift common to the Southern Tier counties. Some red and yellow jasper flakes presumably from the Bucks, Berks, and Lehigh counties of Pennsylvania are present in the village debris, but constitute only a very small percentage as exotic materials entering the site. In spite of the emphasis on hunting activities at the Round Top village, it is striking to note the abundance of netsinkers, chipped from flat sandstone pebbles and used for a primary activity, fishing (Figure 11). In supporting the total economy, wild plants and corn were ground by large and heavy sandstone pestles. A few celts, or axe forms, suggest the working of wood. Only a limited number of antler or bone tools for the working of flint or for articles of clothing, are attested to by awls (Figures 12-14).

Serving as a chronological marker placing the site within the Owasco phase, the pottery, like the pipes, is filletted in the Owasco tradition of the paddle and anvil rather than the modeling method used by Iroquois. The clay vessels have slightly everted rims, conoidal bases and are marked with a corded stick or paddle edge. A variety of designs exist; one of the more outstanding is a herringbone placed on the necks of large vessels having a capacity of several gallons (Fig. 15). The permanent nature of the site is shown by the large cooking vessels which would have posed problems if transported. One incomplete vessel having round punctuations made by a dowel-like tool along the rim has been referred to as a style of decoration belonging to the little-known Clemson Island people of Dauphin County, Pa., (Fig. 16). The design suggests the interacting of both the Round Top people and those of Clemson Island as a new phase in New York State prehistory.

Although the Round Top village was initially explored by local amateur archeologists, major excavations were continued by the N.Y.S. Museum and Science Service under the supervision of Dr. William A. Ritchie, and at a later time by William Lipe of the Division of Social Sciences, University of the State of New York at Binghamton. The site now serves for further research and training of students from the nearby University.

With a continuing loss of cultural remains to our present day demands, it is important to spread the wisdom of preserving them as an intrinsic part of our natural resources.



How Doth The Flea Flee! An Object Lesson For Thee And Me?

by Prof. LeRoy C. Stegeman,
Professor of Zoology Emeritus,
State University College of Forestry,
Syracuse University, New York

HAVE you ever wondered how the flea can travel so fast through fur and feather when you are trying to catch him on your dog, cat or bird? I have.

A good close look at one will tell you. Just look at the enlarged drawing made directly from a photograph and showing the actual anatomical detail and arrangement. This figure is enlarged about 56 times. The actual over-all length of the specimen (one 56th of this) is shown on the short line below the figure. This is a side view. Seen from the top, the general outline would resemble the form shown below the figure. Look at these carefully and observe the following points:

1. It uses its head! By guiding its brains (does it have any?) in the right direction it goes wherever it points. The whole brain capsule (head) is built like the leading edge of a snow plow and if it goes between these two hairs the rest must do likewise. All of the appendages on the head are streamlined and are supplemented with a backward directed pronotal comb which makes forward progress easy and retreat difficult. The harder it presses its head the faster it progresses.

2. It keeps the rest of its anatomy slimmed down to reduce resistance and follow its head. All parts are arranged to reduce resistance to a minimum. It follows a relatively straight and narrow path. It presents a single front and its head gets there first. It can advance through a very narrow space. A very small opportunity is enough.

3. It specializes in go power. Its legs are its largest and most conspicuous feature. They too are streamlined with all projections and spines pointing backward. Note the development of super structures to prevent slipping. Such spines and hooks! The entire design is to advance and prevent retreat. The joints themselves establish leverages and give strength. All their kicks propel them forward and upward.

4. The entire design of the creature is to go forward. If you turned off all of its forces you still could not pull it backward through the fur.

Could man learn a lesson from the flea?

1. Direct your thoughts
2. Let your head determine your direction
3. Streamline your personality
4. Concentrate your energies
5. Guard against slipping back
6. Put plenty of kick in it and keep it up.

Boyhood On The Genesee, Long, Long Ago

How It Was When Life And The River Were Pure

by Edward Graves Crawford

Edward Graves Crawford, whose recollections of his boyhood experiences on the Genesee River, are set forth here, was 94 years old last August. The time he describes approximates the 1880's when his family was living in Rochester. They went "West" to Indiana when he was 15, and for the most part he has lived in that part of the country ever since. He now makes his home with a daughter, Ruth Crawford France, in Clinton, Indiana. She did the questioning that resulted in this narrative. — Editor

FIRST, you must know the Genesee wasn't like these old muddy rivers out here — the Wabash and the Mississippi. Its waters were clear. How clear I'll tell you. We'd drop a white doorknob in the river and you'd be able to see it lying there on the rock bottom. Then we'd dive for it, eight or nine feet or so. We'd bring it up. That way there'd be no doubt we had touched bottom. The water was not only clear; the banks were beautiful, another way the Genesee was different from these rivers around here. Trees grew right to the water. No mud flats. The river was beautiful spring, summer, fall and winter, and we were there all seasons, for there was always something for a boy to do at the river.

I first saw the river and the Falls when we moved to Rochester from Lyons. I was about six then. Pa must have taken me on the "dummy" — the train that ran from Rochester to the Falls, about seven miles. I don't remember much about it except that I didn't like the Falls. All that water! I was scared.

The Quarries of Rochester

I started going to the river on my own when I was seven. That would have been in 1880, for I was born in 1873. No, Ma wasn't worried. I could swim. I don't really remember when I couldn't swim. I guess I learned in the quarries near where we lived, around the old No. 19 school. They were ideal. One had water only wading deep, for the littlest ones. Another had a foot or so of water in it — that's most likely where I learned. The third was a real swimming hole. There were lots of quarries in Rochester then, where the limestone had been taken out and made into lime. They were still taking out limestone when I was a kid. I remember the kilns, where the stone was burned. What terrible smoke!

So, because I could swim Ma knew I could take care of myself. Parents, it does not seem to me, worried as much about what the kids were doing then as they do now. There were lots of kids around always (big families were common) so you were turned loose with them and learned as you went along. When you knew how to swim, you went to the river.

We were barefoot most of the time. You got out of shoes in early spring, and you didn't put them on again, except on Sundays, until fall. We swam naked, of course, and we were good swimmers. At nine I could swim across the river at the sandbar. We called it that, but it wasn't sand. It was a rock formation, a ledge, that extended far out into the river, so that the water was relatively shallow there, eight feet or so. There was nothing unusual about being able to swim across the river, or about diving for door knobs, but both were tests the fellows set up. [*The area he describes is now part of the Genesee Valley Park.—Editor.*]

Fishing and Spearing

No, we didn't do much fishing, not in the river, for for some reason fishing wasn't very good; that is, not in the stretch above the Falls. Fishing was very good below the Falls, but I never went there. One time of the year, though, in early spring when the water was high, bullheads abounded. I never heard why that should have been so, just that one time of the year, but it was. We could fish from the banks and in no time have a mess of them. Oh, we fished the river, of course, but just for something to do. Once I remember we saw two enormous pike in a crevasse just below the rapids. We were spear-fishing that day. One of the boys got his spear into one of the fish. What a battle! That pike churned up the whole river, but he couldn't get loose.

Now here's how we made our spears. We took an old broom handle and drove three pieces of telephone wire into it to form prongs. We'd walk along in water waist-deep and watch for fish on the bottom, sleeping-like. Pike always face upstream. Sometimes we went at night, three of us. Here's what we did. We rigged up a lantern using a bird-cage. We stole waste from the car boxes — you know, under the railroad cars. Waste. You know, cotton stuff soaked in oil. We hadn't ought to have done it, for we could have caused a bad accident, but we did. We put the waste in the bottom of the bird cage. When we got to the river we lit the waste with sulphur matches — cracking matches — the kind we have now, were still novelties. A kid would do anything to get some cracking matches, to trade. One way to get them was to shinny up the pole and light the lamp for the lamplighter. He'd give you five or six matches for doing that. Oil lamps, of course. Electric lights hadn't come in, but oh, do I remember when they did! We all went to see the lights turned on.

Night Spearing

But to get back to fishing. The three of us would walk the river together up to our waists in water. The kid in the middle would carry the cage, walking a little ahead. When he'd see a fish he'd swing the light to where one or the other of us could see it. We'd spear it, if we were lucky.

Fishing, though, was very good in the creeks that emptied into the river. One good spot was Red Creek, Now where

Red Creek empties into the Genesee is the very spot Eastman shows on its camera cases, or used to, for I remember seeing the drawing there and I recognized the place. Many's the time I've fished there with the same bait on the hook that I started with, but mostly the fishing was good. Once I caught a six-pound pike there.

Fishing was good, too, in Black Creek, way up the river by the Gorge. I was only nine years old when I was going there. I remember, for the only way we had to get there was to hop a freight. They usually stopped near there. This time, though, the conductor — I have often thought about what a mean man he was — put us off at a quarry, miles from nowhere. The only thing we could do was to hop another freight, no matter where it was going. That way we got to Olean. There we were lucky for an engineer recognized the other two boys. He was a friend of their father. He let us ride his freight back to Rochester. That was a terrible experience.

The Gorge in the Genesee

Now that gorge in the Genesee is one of the most awesome sights possible. The river had cut through the rock, 200 feet or so. They used to say that if you knew enough you could read the whole story of Creation in those rocks, layer after layer, since the beginning of time.

But what's that got to do with fishing? In Black Creek we fished with a net, one we made ourselves. We took a good-sized piece of mosquito-netting and ran a rope around it. We put weights on the rope. When we got near a deep hole in the creek, we let the net down. Then we would walk toward each other to close the net. What hauls we made! Once the net was very heavy. We had a great big snapping turtle in it. We took the turtle to a saloon and got 50 cents for it. The saloon-keepers would always buy a turtle, for turtle soup was sort of a specialty to go with the beer.

Now I'll tell you where fishing was really good — in the Erie Canal and the feeder streams, especially the Clyde River, around Clyde. Clyde's a town 45 miles from Rochester. I always spent part of the summer there, at Grandpa Graves'. That's where I not only learned how to fish, but also how to take care of horses, and lots of other things, when I was five or six years old. I had my first cigar then. A man gave it to me for chasing his cows back to the pasture.

Bringing in the apples

I smoked that cigar a little bit every day for a week — hid it other times — and, of course, it got stronger every day. But I managed.

Home-made Fish Hooks

Back to the fishing. The water in the canal was so clear you could see the fish swimming around in it. You could fish from the tow-path; no trouble at all. A line and a pole. You made your own hook out of a needle. You'd hold it over a lighted match to temper it, and then you'd bend it into a hook. You'd make a loop of strong linen thread, something you could get through the needle's eye, and tie the line to it. Fish hooks were expensive, a nickel apiece, and you didn't get many nickels. You'd make up a half a dozen needles at a time.

Frogging

Now the Genesee, as I have said, wasn't anything for fish, but it sure had plenty of frogs and turtles. I didn't bother much with the turtles — didn't like them — but I made good money hunting frogs. That was a business for us kids, for the restaurants would take all we'd bring them, anytime. Cleaned and dressed, two dozen for a quarter. A kid then would do anything to make a quarter.

Here's how we got the frogs. First, you can't possibly know how many frogs are along a river's bank, or swimming in it, until you go after them, especially at night. Hundreds of them. Great big fellows: green. Legs had almost as much meat on them as a young chicken's.

I had a rifle. I was lucky that way. It cost $4, so it was something special, for most kids didn't have them. When your old man's bringing home a dollar a day — the going wage at that time — $4 is a lot of money. My father was a glass-blower — an "aristocrat" — and he made $5 a day when he worked. Anyway I had a rifle and one of the fellows I chummed with had a boat. I never in my life had a boat. We'd go out at night. We'd have one of those bird-cage contraptions rigged up, and riding on the end of a pole to light up the banks as we pushed along. When that light lit on a frog, he just froze. You could reach out and grab him. That's usually how we got frogs at night. In the daytime I shot them with my rifle, or another way — you'd put a piece of red flannel over a hook and dangle it along. Oh, how the frogs would fall for that! They'd snap at the flannel, and bingo, there they were. Hooked. We'd keep at it until we had two or three dozen. We'd clean them and take them to town: we walked there. Two dozen for a quarter, as I told you. We walked right in the front doors of the restaurants. They'd be glad to see us with our frogs.

Another way we had of making money was to row upstream, August or thereabouts, two of us in a double-oared boat, pulling a smaller boat on a tow-line. A fellow who had a cider press by the river provided the boats. We'd tie up by an apple orchard — that's great fruit country around Rochester — and gather apples, those on the ground and others, and load both boats. Then we'd drift downstream to the press. You'd get a quarter for the load.

The farmers, I guess, didn't mind. Kids like us came in handy for many chores, round and about. For instance, the slaughter-house man in Rochester, the

Red flannel got frogs

one who butchered for our neighborhood, used to load us in his wagon, a stake-wagon, and take us out into the country to where he'd bought up sheep or cattle. Our job would be to drive them to town — five or six miles — for a quarter!

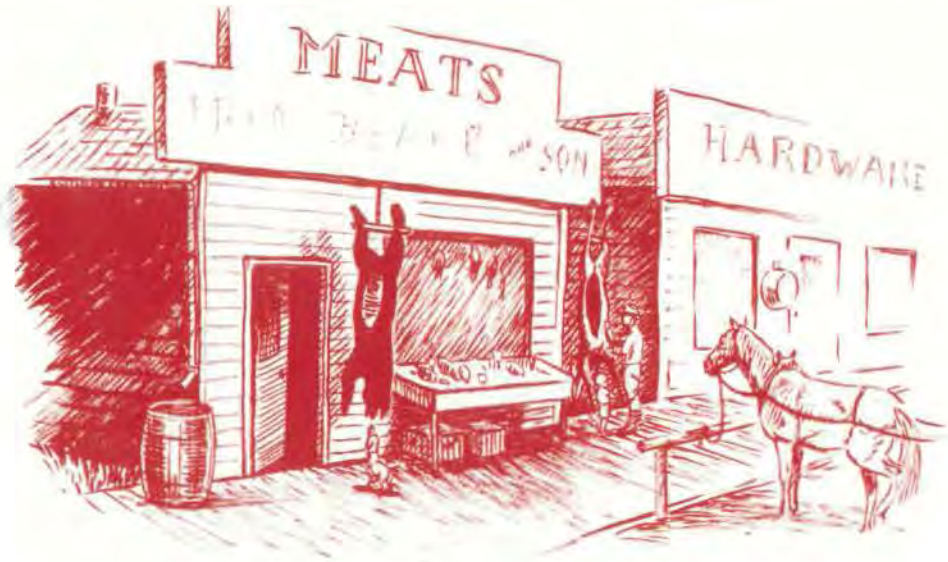
We really didn't go out in the country much, though, because for one thing it was quite a business getting there, walking or hitching rides. For another, so much was going on in town we were kept busy there. And always, the river.

The Seasons

Starting in spring, say, we'd go over just to see it, and a little later, the flowers. Rochester then was called the City of Flowers. Maybe it still is. Just full of nurseries. Anyway, not far from the river was the Frost Nursery; it advertised all over that part of the country. If you ever wanted to see something beautiful you had your chance when the "pineys" — that's spelled p-e-o-n-i-e-s — were in bloom. Row after row. What a sight!

Then would come summer and the fishing and frog hunting, and snipe shooting — the last was just to have something to shoot at besides the transformers on the telephone wires.

One of the big events of the summer, when the river was low, was to see it fill up with peppermint. What a nice smell! There was a peppermint press, or distillery, by the river, a place no bigger than a good-sized garage today. Farmers would drive up with a load of peppermint, like a regular hayload. They'd wait until the oil was pressed out of it, for they were paid for the oil, not the load. The leavings would be dumped into the river, building up like haystacks. At the busy time of the season, August — when the river was lowest — the hay would choke up the place. I have often wondered why they didn't burn it instead of dumping it that way. I guess it would have been more trouble to burn. And the river was there!



Sometimes a bear hung at the market

Naphtha set the river on fire

The River on Fire

You should have seen the river when it was on fire. Yes, on fire! Then the only use known for gasoline (naphtha we called it) was for cleaning things; gasoline stoves were just coming in but they were dangerous, and no one knew yet about automobiles. Now to get rid of the waste from these cleaning establishments must have been a problem. So it was piped into the river just above the surface. Then it was lighted and left to burn itself out. What a sight that was — a river on fire.

Yes, a lot of stuff got dumped into the Genesee. There were factories and mills all along it — water power. It's a wonder it was as clear as it was. One of the awful things was the "boneyard," a place where dead and dying horses were taken. The fellow who ran the boneyard got rich. He must have, for almost every part of the carcass could be sold for some purpose. Horse tails brought $5. Farmers used to buy them, and then have a kid stand by to swish the tail to keep the flies off the cows when they were being milked. The horses' hooves, boiled up, made glue. The hide was used for all sorts of things: sole leather, buggy whips, and so on. What was left of the horse was made into fertilizer. So there really wasn't too much left to throw into the river, thanks be. What a stench that boneyard made!

A Country Hunted Out

No, we didn't go hunting, not as you might think. That part of the country was hunted out. Once in a while, in the real cold weather, you might see a deer — sometimes a bear — hung up on a pole outside a butcher's shop, and the butcher sold the meat, I guess; we never had any. We never saw any animals. There weren't any pheasants either, at least I never saw one. There were just the usual birds around, but nothing special, except once. One day a kid at school said the bay was full of birds. How he knew, I have no idea. Anyway we skipped school and headed for the bay, hopping rides to get there. It was worth doing, for I never hope to see such a sight again. A wind had blown the wild fowl off the lake into the bay, Irondequoit, and the water was covered. Ducks, swans, geese! Every kind of bird. I never knew there were so many in the world.

Winter!

Winter settles in early around Rochester, so pretty soon we were skating. Sometimes we went to the river, but usually we went to the quarries. There were also the big ponds, I guess you'd call them, that were made when the water was let out of the canal before the freeze-up. The water ran over the fields. Some enterprisers, I guess you'd call them that, charged 10 cents to skate there, so we didn't skate there very often. The quarries were good enough.

The first time I was ever out late at night was to skate. I was seven, and went with half a dozen boys and girls from school to one of the quarries. It was a bright moonlight night; the moon was high at about 9:30. I didn't get home until 11. Now all these years later — I'll soon be 95 — I can still remember how beautiful it was that night, the moonlight, the snow, the kids skating. Funny it should still be so clear in my mind, but then, so many things are.

I had a pair of cast-iron skates, clampons, and I kept the blades sharpened for years, with a file. I also had a shovel of my own and that I never broke. It was the kids' job then to keep the sidewalks clear. I'd work shoveling snow from after school until dark, in front of our house and the neighbors'. One winter, I remember, the snow was so high you couldn't see the fences from November until March.

Spearing fish by birdcage light

At 10 he went to work for his father in the "glasshouse" — the Reed glass factory. Child labor laws were non-existent then. He had completed the eighth grade; "then you went as fast as you could, and I had started when I was four, as soon as Ma had learned me how to read and write and figure some." It was expected then, that as soon as a boy was able, he would go to work, to help out the family. He had already had many jobs — office boy for the newspaper — "hopping rides to get proof okayed," hawking newspapers on the train from Rochester to Canandaigua, carrying packages for the women shoppers at the Arcade, and the like. "There were lots of ways a kid could make money," he says, "and to make money was the be-all and end-all of our lives." Every one, as he remembers, thought it was fine when he got the glass factory job, at 50¢ a day. The next year he made $1.00 a day as a gathering boy, a skill his father had taught him on their lunch hours. But work in the glass-house was seasonal, and when the "fire was out" he hustled for other jobs. One was cutting ice, as described below.

We never minded the winter much, for we were dressed for it. That long woolen underwear, though, I sure minded it. Wool then wasn't cleaned as it is today. Even when it was made up into cloth there'd still be burs and other stuff in it, and how it would itch, especially when the room was warm. After the underwear was washed a few times it was some better, but never very good. We had heavy woolen suits, usually made out of our fathers' old ones, and overcoats, come by the same way. Our caps had ear muffs. We had knitted mittens and scarves. Those scarves were something. Grandma Graves knitted ours. Great long things. You wrapped it around your neck, up to your ears, then criss-crossed it over your stomach, took it around back and then forward again where you tied it. You could hardly get cold, you were so wrapped up.

Oh, yes, we had woolen socks, and sometimes we wore two or three pairs. And we had thick-soled shoes. Say, do you know there wasn't a good pair of shoes made until the 1890's when Goodyear welt soles were introduced? Those peg-soled shoes we wore were torture, especially when the soles were wearing out and the pegs were coming through on the inside. Torture! You could hardly hobble along, it hurt so. Going barefoot hurt, too; don't let anyone ever tell you it was a pleasure. In the spring the ground was cold and the ridges so sharp they cut. In the summer you burned the soles of your feet. For real torture just try getting across a stubble field with your bare feet — like we'd have to do when we were after those apples. You have to walk on the sides of your feet to manage it.

It's a wonder any of us lived, things being the way they were then, all the hardships, I mean, but we did, and looking back it seems to me I had a very good time, as a kid, though it must have been hell for our parents.

The winter I was 13, that would be 1886, I worked cutting ice on the Genesee. When I was a kid I used sometimes to go over to the river to watch the men do it, but it didn't pay to get too close. The glass factory shut down that year just before Christmas, and somebody had to have a job. Pa couldn't get one. I was a big, strong boy by that time, and I could handle horses. I always liked to be around horses. So I walked over to the river and asked for a job leading the horses and I got taken on. It was unusual, I guess, for anyone as young as I was to be hired, but there was no law against it, and a young fellow like me could be used for lots of jobs. What I mostly did was lead a horse to mark the ice for cutting.

Cutting ice was cold, dangerous work, but it paid well — $1.50 a day for most jobs, $2 a day for my job, and $7 a day, maybe, for the really skilled job, chopping ice at the chute. Maybe as many as 50 would be hired, one gang to work on the river, another in the ice houses. Many's a poor family that got through the winter because somebody was lucky enough to get a job cutting ice.

We'd start at seven. It would still be dark. Headlights were used to light up the river. Headlights like those that were on the old locomotives — a big oil lamp. I walked, or hopped a wagon to get to the river, two miles, and I got home the same way at night, after 7 o'clock. I'd have supper and go to bed. Ma would fix breakfast for me and pack me a lunch, a couple of sandwiches of corned beef. We lived on corned beef at three cents a pound.

Now alongside the river, up the bank a way, were the ice houses, three of them at this place I'm telling about. Each must have been about 150 feet square, and 30, 40, or 50 feet high. A conveyor belt led from the river to the ice house.

Paralleling the river, a channel had been opened up, about 10 or 15 feet wide. The job was to get the ice cut

and directed into that channel, and prodded along by men with pikes, to the conveyor belt. A man stood there, on a low platform over the river. Everything depended upon him. He had something like a big chisel on a handle, and his job was to hit the ice just right — just where it had been cross-marked — so that it would break into regular-sized pieces that the conveyor could take.

Marking the Ice

On the river itself our job was to mark the ice and then cut it off so that it could be floated down the channel in pieces 24 inches wide or so, and as thick, of course, as the ice was, usually 18 inches, but sometimes more. The marking was done by using a horse to draw a plow that was the width of the desired piece. The plow had a blade or marker on each side. The horse was led back and forth across the river and then up and down, so that the surface to be cut was marked off in squares. The problem was to keep the horse following a straight line. A good horse could do it without much leading, but anyway I was there, walking along by his side, holding on to the bit, up and down, up and down, over the ice. Sometimes I'd have to change horses if one got tired out. No, I didn't get time off except at noon, to go up to the shed and get warm. I ate my sandwiches. It's funny, come to think of it, that a 13-year-old boy could stand more than a horse.

You'd think there'd be lots of accidents, but there weren't. None of the men fell in, or otherwise got hurt, at least none that winter I worked. Every once in a while, though, a horse would go through, and once I saw a team in the water.

When a horse went through, all work stopped, and men, boys and other horses went to the rescue. The first step was to cut the harness and get a wide plank under him. Then a rope was put around his neck and drawn tight to choke him, almost, but by keeping the air in him he was better able to float. Then the men with the help of horses pulled him out. Once out he was taken to the bank. A blanket was put over him, and a kid was put on his back to run him until he got warm. Once I was given the job of riding such a horse. It was no trick to get him to run, though, for that is exactly what he wanted to do.

This cutting and packing took a month or so. It went on until the ice houses were filled, or until the river stopped freezing over. There the ice stayed until summer. Then it was delivered; another tough job. Ever see an iceman hoist a chunk of ice onto his shoulders? How they did it, I don't know.

No, we didn't take ice, except for special occasions when, for instance, we wanted to make ice cream: cornstarch ice cream. We kept our food in the cellar, the best we could do. It was what most people did. Ice was a luxury, something you could do without.

That was the first and last time I ever worked on the river cutting ice, but it was lucky I was able to do it. That $2 a day was what we lived on. There were six in the family by that time, three children younger than me. No, I don't think anyone felt sorry for me, or anything like that. Why should they have? I guess they just thought it was fine that I could do the work, and get that fine pay.

Marking the ice for harvest

[*A fateful decision was made in 1888 when he was "going on fifteen." The family decided to move to Muncie, Indiana, which was then a "boom town" because of the discovery of natural gas there. Ball Bros. was just one of the factories getting started. They needed blowers. They also needed "gathering boys." The deal made was that the elder Crawford could have a job blowing if he'd bring his boy along with him, and, after a year, the boy could start his apprenticeship. Had they stayed in Rochester, he would have had to wait his turn to become an apprentice, for there were several ahead of him in eligibility. Apprenticeships were jealously guarded by the union in order to hold down the number of blowers. Theirs was a highly skilled trade, and they were "something like princes" because they could command so much better wages than most workmen.*

[*So with the prospect of an apprenticeship before him, the youth and his father went by train to Muncie to get settled so the family could follow.*]

What a disappointing trip that was! I'd expected to see Indians and cowboys — my head was filled with such stuff — but all I saw from Cleveland to Muncie were corn fields. Corn fields! Corn fields! Corn fields!

[*The next summer he took advantage of an excursion offer, by train to St. Louis, for $2.50 a round trip. The intent was to see the Mississippi, something he had determined to do when he was a boy reading about the great river in his geography.*]

So there I was, on the train, on the way to St. Louis and the Mississippi. All my life I had heard about the Mississippi, the Father of the Waters. We crossed Indiana and Illinois and there wasn't much to see. I figured we must be getting near St. Louis and would soon have to cross the river. We were already on a bridge, or trestle and there was water below. Not wanting to miss the Mississippi I asked the man sitting by me — I had the seat by the window — if he'd please tell me when we got to the Mississippi.

"That's the Mississippi you're looking at now," he said, scarcely bothering to answer.

That? That was the Mississippi! That dirty old little river down there. That was the Mississippi?

I told you in the beginning the rivers out in this part of the country can't hold a candle to the Genesee. Not that a river could hold a candle, but you know what I mean.

Index Plants And The

by Herbert E. Doig,
Co-ordinator, Fish and Wildlife Mgt. Act,
N.Y.S. Conservation Dept.

Overbrowsed red cedar

THE white-tailed deer is probably New York's most important wild animal. It inhabits lands from the easternmost tip of Long Island to the heavily-farmed Erie and Ontario Lake plains.

Occasionally, deer are seen in the hearts of the larger cities and they are one of the first occupants of municipal and private zoos. They are hunted by over half a million New York State sportsmen and are enjoyed as a summer attraction in the Adirondack State Park.

There is no other game animal in the State that has caused so much conflict or has rallied so much support as the New York whitetail. It is logical then, that considerable effort and money is spent annually to study the biology of deer and to manage deer herds for optimum public benefit.

Management

Management of deer has included the use of many techniques. Protection was the first step in management of most wild animals and deer were no exception. Until the early 1930's, deer were not commonly seen in most areas of the State. Concentrated farming and indiscriminate harvest kept herds confined to mountainous sections where wooded hills offered security and year around food supplies.

With initial total protection, followed by a buck-only hunting season, deer numbers increased rapidly. They soon reached levels where a relaxing of regulation was desirable and, in fact, necessary to insure the welfare of the herd.

Food supplies became an important limiting factor for deer, creating a situation that led to a change in management emphasis. Professional biologists studied the food habits of deer and found that all plants eaten were not of equal nutritional value. Further study revealed that deer had rather well-defined food preference patterns and that the preferred foods were those with highest nutritional value. Research also proved that deer could not maintain body weight on diets that included substantial portions of less desirable foods and that loss of weight, through reduction of body fat, led to malnutrition and starvation.

These findings were preliminary, however. It was important to the management of deer that this knowledge of food habits be used to develop a program which would insure a continuous harvest of animals and at the same time retain the most desirable population levels. Development of such a program was not an easy task. Deer had adapted themselves well to the New York environment and had increased their numbers to critical levels in most areas of the State. These critical levels in terms of deer numbers were extremely variable since the quality of the habitat across the State was far from uniform.

Recognizing the damage to human interests as well as the dangers to deer if population levels were not controlled, attempts were made to stop the rapid herd growth through antlerless deer harvests. Doe hunting came too late for many areas, however, and large numbers of deer were lost to starvation before population expansion could be checked. The initial attempts at setting appropriate seasons also resulted in over-harvest in some areas as lack of control over hunting pressure did not enable regulated harvest.

The Party Permit System

In 1960, a system, called the party permit system, was developed which enabled a regulated harvest of deer in New York. The party permit system is now applied in areas where deer numbers remain at or near the capacity of the environment to support them and where a sustained harvest of deer will enable a maximum of sporting enjoyment and herd control.

With the development of a workable system for reducing deer numbers, refinement of deer management programs was possible. Since the factors that influence herd welfare are primarily found in the environment, biologists have turned their attention in that direction.

Of A Deer Herd Condition Of The Range

You Can Tell Whether There Are Too Many Deer And How Hungry They Are, By The Plants They Are Eating

Habitat

Deer are found in a variety of habitats. In the Adirondack and Catskill mountains, whitetails may spend their entire life in the forest and, in fact, may spend their entire life span within a few square miles. On the other hand, some deer have been known to travel as much as 35 miles in a single year. Much the same range characteristics have been observed in deer that roam the open farmland and scattered wood lots of central and western New York. These deer generally travel to well-established wintering areas several miles distant but frequently individuals remain in a somewhat limited home range the year around.

Food habits of deer in winter consist primarily of browse on woody plants but large numbers of whitetails can be observed grazing on dead grasses on exposed south-facing slopes during late winter and early spring. Grazing normally occurs after the more desirable woody plants have been heavily browsed and food supplies are short. During the progress of winter, deer diets gradually change as preferred foods are used up.

The high value plants are gradually replaced by secondary foods and if conditions are severe enough, and if deer numbers are large enough, the secondary foods are used up and replaced by stuffing foods with little or no nutritional value to deer. With the arrival of spring, deer graze extensively on new growth of grasses and browse the twigs on trees which were not available during the winter months.

Deer Mortality

Deer have very few material enemies in New York. Man and man's activities are the greatest cause of animal mortality. In most areas of the State, whitetails are capable of reproducing faster than they are removed from the environment. If they aren't adequately controlled by hunting, populations soon exceed the capability of the range to support them. Food availability then becomes the most important factor in maintaining a healthy herd. Insufficient food supplies, over a short period of years, will affect the size and growth rate of deer.

Reproductive potentials are quickly reduced on over-browsed range and antler growth is visibly affected by inadequate food supplies. Loss of weight during winter months can lead to death if preferred and secondary foods are removed early in winter and the animal must depend upon stuffing foods for survival. Food shortages are most critical for fawns in their first winter as they are smaller than the adults in the herd and are less able to compete with them. Pregnant does are also vulnerable to the effects of severe food shortages and fewer successful births result from poor food supplies. Older adults in the population are more apt to lose the battle of survival to younger ones as they are less capable of successfully weathering the cold temperatures and deep snows which drain their stamina and energy.

Winter Habitat Varies Widely

Winter habitat varies considerably across the State. The nature of this habitat influences to a great extent the carrying capacity of the total range. In the Adirondacks, severe cold and deep snows accompanied by frigid winds drive deer into areas of evergreen cover along water courses in the lowlands. The most preferred areas include a southerly exposure. Often deer pass by areas that appear suitable as winter cover in favor of an established wintering area. The reasons for this preference are not thoroughly understood. Some wintering areas are used for only short periods of time and are then abandoned for areas of apparent better quality.

Once in a wintering area, deer seldom leave until the spring thaw. The degree of activity in and around the area depends upon snow depths and crust formation. During open winters, deer will range widely returning to the coniferous cover only during periods of severe weather. At these times, well-established trails may be developed within the protective cover of spruce and fir. These trails tend to further confine the activities of deer and limit the available food supplies. Many fawns may die as a result of malnutrition even though sustaining food supplies are only a hundred yards away.

Wintering Areas

Catskill wintering areas are similar in nature to those in the Adirondacks. They usually exist in valleys where the terrain and coniferous cover offer protection from chilling winds. The cover available is often hemlock, a preferred food for deer, which is a contrast to the typical spruce-fir wintering areas in the north where the evergreen cover is only of stuffing food value. The period of extended snow cover is usually not as long in the Catskills as in the Adirondacks and deer confinement in foodless ghettos is of shorter duration.

Central and western New York wintering areas differ somewhat from those in the more northerly and mountainous regions in that exposure to the warming rays of the sun and availability of specific desired foods is the most important characteristic which attracts deer. Deer move many miles to wintering areas on the southerly-facing slopes between the Chenango Valley and Lake Erie. Coniferous cover is used when available but deer seem to seek the warmer, exposed slopes which offer wind protection and supplemental food sources which are not available in their summer range during the winter months.

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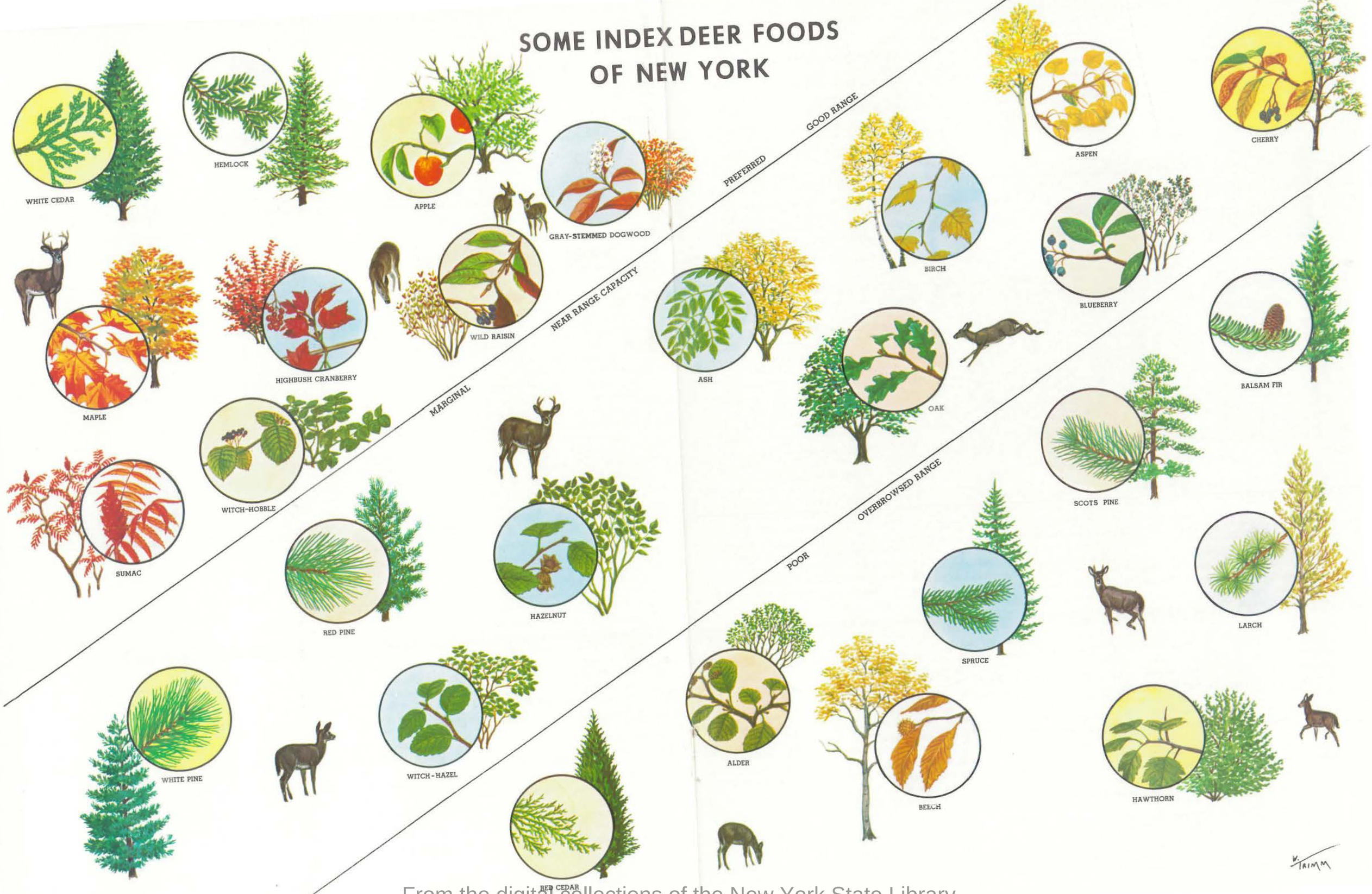
SOME INDEX DEER FOODS OF NEW YORK



(Continued from page 23)

In western New York, and in the Hudson Valley, apple orchards attract large numbers of deer after snows. While apple is a preferred food of high quality for deer, man's interest in the orchards has necessitated liberal harvests of the whitetails using these areas in order to keep animal numbers well below the capacity of these areas to winter deer.

Browse gone and a dead deer, Lordsville

Effects of Deer on the Environment

While deer are influenced to a great extent by their environment, they also have a substantial effect upon it. Through their wintering habits and food preference characteristics, whitetails are able to control forest reproduction and influence tree quality. They are also able to affect man's plans for land use. Deer usually feed while roaming at random about the countryside. They require from four to eight pounds of good quality browse daily to maintain their body weight. Over much of their range, this random selection of foods leaves little evidence of browsing. To a watchful eye, however, the telltale evidence of chewed twigs, especially on preferred foods, will indicate deer activity. Cottontail rabbit and varying hare browse will also be evident but clean cut stems will differentiate feeding by these species from the often-shredded twigs left by deer.

Deer use well-established trails both in summer and winter and evidence of browsing will be pronounced at all times of year along them. Activity of these trails is often interrupted during the hunting season as movement patterns change but the signs of deer use are on the plants and are obvious to the watchful eye.

Scars on Trees

Heavily-browsed wintering areas are easily recognized even after several years of inactivity. Stems of small trees become scarred and deformed and numerous dead twigs on living trees remain. Some of the shrubs and trees will have been killed by constant browsing, their scarred stems giving evidence of previous hard winters. In some wintering areas where foods have become especially scarce, deer have stripped the bark on balsam and some soft maple usually killing or severly injuring the tree. This is not a common occurrence and has usually been accompanied by severe starvation.

The effects of deer browsing becomes quite evident at times. As a result of severe browsing, undergrowth of forest stands becomes virtually eliminated to the height deer can reach. A well-defined line known as a browse line is established approximately five feet above the ground. Browse lines in heavily-browsed forest stands indicate poor range condition and reduced deer-carrying capacity. Deer are able to suppress tree and shrub reproduction to the point where only poor deer foods which produce low-value forest stands are able to survive. This condition, continued over a period of years, can have severe economic consequences especially in northern areas where the forest industry still remains as the backbone of the local economy.

Some preferred browse plants have, through continuous over-browsing, been completely eliminated from the forest community. White cedar and yew in the Adirondacks have suffered this fate, and where this has happened they have been replaced by less desirable browse plants and a reduced food supply results.

Browsing Not All Bad

Continuous browsing is not always bad for the deer, however. Some species of plants such as the maples, dogwoods and viburnums actually produce more deer food the following year as a result of vigorous growth of unbrowsed buds. Often, when the terminal or end bud is browsed, the lateral or side buds will seemingly compete with each other in order to become dominant. This growth reaction produces more twigs suitable for browse than did the untouched plant.

If browsing is too heavy, however, the lateral buds will also be consumed and a dead stub is all that remains. Heavy browsing frequently retards growth of preferred and secondary food plants by pruning back new growth each year. In this way, deer are able to sustain existing food supplies longer than would normally be expected. If these plants were not pruned back, natural growth would soon put new shoots out of reach of deer and the plant would be of little value.

The Empty Corral

The natural growth of plants works against whitetails in an over-browsed environment. As trees become mature, they gradually close their canopy and light, which is needed by most plants for regeneration, is reduced significantly. When this occurs, growth of seedlings and saplings decreases and, in the case of light-demanding trees and shrubs, they gradually disappear. Unless man, or some natural catastrophy such as wind, fire or insects, destroys the trees forming the canopy, the once-productive growing forest becomes an empty corral which results in deer starvation and greatly reduced range-carrying capacity.

Natural changes in the environment of the central and western regions of the State have resulted in an improvement

of deer habitat. Abandoned farms are gradually overgrown with shrubs and trees, most of which are preferred or secondary deer foods. Reproduction and natural growth have been able to keep pace with managed deer herds in most areas and a gradual increase in range-carrying capacity is still being noted. This situation will not last forever and a slight decline and then a leveling off of harvest success will, eventually, occur. At this point, a combination of well-managed deer herds and well-managed forest stands will perpetuate good deer hunting.

Effect of the Environment on Deer

The natural environment has its effects on deer populations as well. As if to get even with the whitetails for their feeding habits, the environment often lures deer into areas where natural and man-made hazards take a significant toll. Large concentrations of deer in wintering areas increase the chance of auto collision. Some highways border, or actually cross, winter habitat, thus further contributing to the danger.

Dogs find deer in wintering areas very convenient animals to chase and in their weakened condition and with deep snow on the ground, whitetails are no match for a pack of man's pets. Illegal harvest is also increased by the greater vulnerability of deer feeding in the fall. Second-growth grasses and legumes are very attractive to groups of hungry deer which make easy targets for poachers with high-powered rifles and spotlights.

The environment also acts as a foodless trap for deer seeking shelter from winter's severe weather. In the Adirondack and Catskill regions, food supplies are soon exhausted in long-established over-browsed wintering areas and deer either cannot, or will not, leave the area for better food supplies short distances away.

Environment as an Indicator

With a basic understanding of the food habits and range characteristics of deer, an observant person can go afield and witness the warning signals issued by a heavily-browsed range. The professional wildlife biologist depends upon the environment to tell him part of the story of herd condition and range-carrying capacities. He soon learns that numbers of animals are not singularly important in deer management, that the balance of animals with food supplies is of critical concern. Management has not yet been refined enough to enable complete census of animals and food supplies. Through age determination on harvested animals, minimum populations can be determined. Through analysis of range condition and search for and autopsy of dead deer, populations exceeding range capacity can be recognized. Those critical levels where animal numbers equal range capacity are still beyond reach, however. Deer management then consists of the ability to recognize trends in population levels through analysis of browsed plants and harvested animals.

Deer Provide Information

Collection and interpretation of information gained from harvested deer gives a clear indication of range condition the previous winter and trends in improvement or deterioration of winter food supplies. Antler growth, body weights and fawn survival all contribute to this determination. The analysis of browsed plants, on the other hand, enables an evaluation of range and herd condition prior to hunting seasons and permits the establishment of seasons that will best serve the interests of the herd and the environment.

Range-carrying capacity is variable. Winter habitat in one area may be sufficient to sustain ten deer, while food supplies and available cover in a nearby area may support ten times that many.

Plants are important as indicators of range condition. The preferred foods such as white cedar, apple, sumac, the maples, dogwoods and viburnums, hemlock, witchhobble and hazelnut are browsed first. Deer are able to identify these plants and feed on them. Deer are seldom in severe trouble as long as the preferred foods remain available to them.

Along with the preferred foods, whitetails will browse secondary foods. As preferred foods become less available, the use of secondary foods increases. These secondary foods, such as cherry, aspen, blueberry, the birches, oaks, ashes and witchhazel are of some nutritional value but increased quantities of them are needed to sustain body weight.

When the secondary foods become heavily browsed and the preferred foods are gone, deer have reached or exceeded the capacity of the range to support them. They then turn to the stuffing foods which have little or no nutritional value but do fill the paunch and reduce hunger. The stuffing foods usually include the plant species that are providing cover in the wintering area. Balsam fir, Scots pine, larch, the spruces, beech, alder and hawthorne are all classed as stuffing foods.

When deer populations reach the point where they are feeding heavily upon stuffing foods, severe mortality due to starvation can be expected. Usually at this point, the range is so severely browsed that its capacity to feed deer in the following years is greatly reduced and a substantial reduction in hunter success can be anticipated. Much of the deer range in New York has not yet reached this critical level of range destruction. In the Central Adirondacks and Catskills and on Tug Hill, however, herd controls have not effectively kept deer populations in balance with the range and hunter success has dropped following a few years with severe winters.

It is very difficult for people to fully understand the complex relationships that exist in the natural environment. An understanding of the food habits of deer and an ability to identify individual plants and classify them as preferred, secondary or stuffing foods is, however, possible for an interested person. The sportsman afield in the fall and winter should learn to identify the browse line and the typical clubbed appearance of heavily-browsed plants. He should be able to recognize the basic food plants and learn that, as the availability of preferred foods gives way to secondary and stuffing foods, deer are approaching range capacity and more adequate harvests are necessary.

The untrained observer must be able to recognize wintering areas and realize that deer are not able to roam freely over their entire range during the critical winter months. He must realize that food supplies may be adequate in areas that are not suitable for wintering deer and, therefore, will not be browsed even though they are within a few hundred yards of a large wintering area.

Finally, he must recognize that it is the deer itself that sets the outer limits of its winter range, and men must manage within the capability of this range to support deer if a sustained yield of whitetails is to be enjoyed by future generations.

Helicopter survey after spraying

Getting Rid Of Trash Fish

by Nick Drahos

THE place was Lake Colby, 330 acres of it, just outside Saranac, N. Y. The time was September 8, 1967, and the Conservation Department sprayed the lake with rotenone to kill all the fish. The purpose? This used to be predominantly a trout lake. Then some misguided person introduced perch. These multiplied rapidly until they dominated the population and gobbled up the food supply. Then, it became a trash fish lake, full of stunted perch, sunnies, bass, bullheads and some trout.

As part of the Conservation Department's Pond Restoration Program, Colby was next on the list to become a trout lake again. It will be restocked this spring with trout; and, within a year or two, trout up to two pounds should be taken by fishermen instead of 3-5 ounce perch and sunnies. After three years, who knows how big the lunkers will get?

It was a well-publicized affair with many spectators and fishermen vying for prizes. There were free fish for anyone that wanted any, since the rotenone, while it killed the fish by suffocation, did not affect the edibility. Prizes were given to the people bringing in the most fish by volume weight. This was an attempt by the local fish and game club to encourage the residents to help clean up the dead fish, for obvious reasons. The result? Some 8,250 pounds of trash fish were weighed, brought in by the residents and the Department and the merchants took their hats off in appreciation. An estimated 30,000 pounds of fish were killed at Colby, the heaviest of which were an 8¾ lb. rainbow, a 6½ lb. splake and a three lb. smallmouth bass. It took the Department's helicopter crew about four hours to spray the lake, using 1,740 gallons of 5% rotenone.

The Conservation Department has been restoring wilderness ponds for trout since 1950. Lake Colby was the 115th. Nick's Lake and the Kunjamuk stream system with its small lakes were sprayed, too, bringing the total to 120. Lake Gilbert (38 acres) and the big one, Salmon Reservoir at Redfield, about 1,000 acres, completed the planned rotenone treatments for this fall, making a grand total of 6,200 acres of wilderness waters restored to trout fishing to date. It's been a lot of hard work but well worth the effort. We hope the fishermen (in appreciation and by law) remember not to bring live bait (minnows, etc.) to fish these waters. It would be a shame to destroy a trout lake again, just for selfishness sake.

Spectators wait for fish

Some of the haul

Spraying rotenone

The Students' Page

Shooting expressions

"Lock, stock and barrel."
"Flash in the pan."
"Our plans 'misfired'."
"Set your sights high."
"He scored a bull's-eye."
To "draw a bead on" something.
"Keep your powder dry."
"Don't fall short of the mark."
"Straight as a ramrod."
"He overshot the mark."
He is "loaded for bear."
"Sharpshooter."
"Crackshot."
"A shot in the dark."
"He goes off half-cocked."
"He is all primed for the occasion."
"Hair-trigger nerves."
"Hold your fire."
"Always be a straight-shooter."
To "hit dead center."
He has "lined his sights on."

Cycle signs

The Bureau of Outdoor Recreation of the Department of the Interior, the Bureau of Public Roads of the Department of Commerce and bicycle interests cooperated in developing the signs which are consistent with national standards as presented in "The Manual of Uniform Traffic Control Devices for Streets and Highways."

The signs would serve both to guide the cyclists on a predetermined bicycle route consisting of a combination of trails, secondary roads and other suitable surfaces and as a warning to motorists that bicycle riders might be encountered along a particular stretch of road. The signs fill a long-felt need for uniform markers which can readily be recognized by cyclists and by the operators of motor vehicles.

State and local jurisdictions are encouraged to make appropriate use of the signs. Uniform signing on bicycle routes stems from growing Federal, state and local interest in bicycling in both metropolitan and rural areas. There are an estimated 60,000,000 cyclists in the United States today.

Natural beauty

Does your community and your neighborhood offer pleasant surroundings for everyday living? Citizens aware of the problems and alert to the opportunities near at hand can shape the quality of their lives and build a better future for their children.

Are lands and waters now preserved for outdoor recreation and open space to meet your community's needs? What future needs must be met?

Does your community control air and water pollution, treat its sewage and dispose of solid wastes effectively and safely?

Are streets attractive with trees and other plantings? Are the entrances to your community inviting?

Are blighted areas being rehabilitated?

Is everyone aware of litter and trash?

Are streets and yards clean and neat?

Are your local utilities placing wires underground and assisting in the beautification program?

Does your community or your county have a plan to preserve, protect and restore the quality of your natural environment?

Have local service clubs, youth groups, churches and other civic organizations sponsored practical projects to improve your community and your neighborhood?

Many citizens have joined together to build better communities for themselves and their neighbors. Assistance of many kinds is available to public agencies, volunteer groups and even individuals.

For helpful information write to the Executive Director, the Citizen's Advisory Committee on Recreation and Natural Beauty, 1700 Pennsylvania Avenue, N.W., Washington, D.C. 20006, or the President's Council on Recreation and Natural Beauty, c/o Bureau of Outdoor Recreation, Department of the Interior, Washington, D.C. 20240.

A bobber

A small item of tackle that gives a certain something to fishing, and often a backward thought to boyhood, is the bobber. It can be a partially crumbled bottle cork, a short piece of two-by-four lumber or a hollow plastic ball. The telltale rings around this little bobber that signal a fish stealing the bait, have been responsible for many a skipped heartbeat. Any growing boy knows that a bobber puts more fun into fishing than all the other modern fishing inventions combined.

Most fishermen have long since bypassed bobber fishing as kid stuff, concentrating attention on more sophisticated methods of angling. Fishermen are no longer content to spend a lazy afternoon along a stream, awaiting the bobber to puppet the actions of a nibbling fish. The carp, a worthy adversary on light tackle, is not easy prey with just any type tackle. He is super-sensitive to any drag placed on the line when dining on a tasty tidbit. A large quill from the South American porcupine is recommended for a float. A regular New York porky quill will do when trout fishing with tiny caddis and stone fly larvae baits. The long slender quill will stand erect and submerge without any noticeable drag.

A thin, pencil float is for pickerel and bass fishing with minnows. These fish also resent drag when dashing from the dining table. The pencil offers little resistance.

Clear plastic models are designed for fly-fishing with spin equipment and with the bubble partially filled with water, the weightless dry fly can be cast to feeding trout.

The plastic, push-button floats, sized from a tiny blueberry to an oversize orange, are used when angling for panfish and "catties" during the day. They have devices which permit snapping on or off the line quickly. There are bobbers equipped with battery and bulb that blink whenever a fish pulls the string. One model blasts an eerie whistle when fish toy with the bait.

Several floats are of the self-adjusting type, and the bobber slips freely down to the hook to permit casting. Then, when the bait and bobber drop into the water, the line runs through the hollow bobber and stops when it touches a pre-tied knot, thus permitting the bait to be at a predetermined depth.

Discover a real hot spot for bass or accidentally drop the outboard over the boatside and a bobbered line will mark the location so that it is possible to find that exact spot again. A photo flash bulb, an inflated toy balloon, or a rolled piece of cork lining from the tray in the tackle box can substitute in a pinch.

Get re-acquainted with bobber fishing and return once again to that boyhood delight of watching a little bobber dance across a mirrored pond surface.

Your fabulous friend

The Southern Pulpwood Conservation Association has recently published a small but well-illustrated booklet entitled "Your Fabulous Friend." It is about trees, and starts out by saying: "You can climb it, get cool under it, build a tree house in it; but did you know that you can drive on it, take pictures with it, blow your nose with it, drink from it and go into orbit because of it? It has better plumbing than a house, it starts smaller than a button, gets bigger than a building. It runs like a machine on sun fuel! It cooks its own food free! It's tougher than a rock! It's tall, terrific and beautiful! It comes in a thousand models."

A succession of pictures tells the story of how a seedling planted today can furnish enough wood fiber in 20 years for 400 first grade books. They illustrate how trees are put in with a mechanical planter, how idle land can be planted to grow a crop and how mature timber is selectively harvested. It also depicts the deadly plague of forest fires, the paper mill which converts raw wood to merchandise and summer forest camps and recreational uses. This imaginative presentation will capture the attention of young and old and so far as school children are concerned, this type of pictorial booklet takes them into the realm of nature's secrets, the realities of survival and economics and the value of aesthetics. These few but well thought-out pages of illustrations and explanations could well give a city-bound youngster a whole new perception of how one renewable resource — the tree — affects his daily living.

Scout outdoor code

As an American, I will do my best to—

BE CLEAN IN MY OUTDOOR MANNERS. I will treat the outdoors as a heritage to be improved for our greater enjoyment. I will keep my trash and garbage out of America's waters, fields, woods and roadways.

BE CAREFUL WITH FIRE. I will prevent wildfire. I will build my fire in a safe place and be sure it is out before I leave.

BE CONSIDERATE IN THE OUTDOORS. I will treat public and private property with respect. I will remember that use of the outdoors is a privilege I can lose by abuse.

BE CONSERVATION-MINDED. I will learn how to practice good conservation of soil, waters, forests, minerals, grasslands, and wildlife; and I will urge others to do the same. I will use sportsmanlike methods in all my outdoor activities.
— Boy Scouts of America

Bre'r 'Possum

Br'er 'Possum has been a figure in southern folk literature for years. It is only in the years since World War II that he has invaded upstate New York in sufficient numbers to become a reality for New Yorkers.

The opossum is an interesting, if not always welcome, addition to our fauna. It is North America's only representative of the marsupials and has changed little down through the ages. Its early contemporaries are all gone, but the 'possum goes on forever. The marsupials are the pouched animals which give birth to their young before they are fully developed. The young complete development in the pouch.

At birth, after a gestation period of only thirteen days, the young opossums are only the size of a honeybee. Their forelegs are well developed, but the rest of their bodies is in the undeveloped stage you might expect. Using their well-developed legs and claws, they pull themselves to the pouch and attach to one of the thirteen teats where they remain. More than thirteen may be born, so late comers to the pouch are out of luck.

It is about three months before these little "bumblebees" are big enough to climb out on their mother's back; still several more before they are on their own. Normally, opossum will raise two litters each year.

During the daylight hours the opossum spends its time curled up in an abandoned woodchuck den, under the barn floor, in a brushpile or in some other similar secluded spot. Its nest will be lined with dried leaves and grass which it has carried in curled up in its tail.

Its nightly rambles don't take it very far from its home base as it searches for food. To listen to the talk around a gun club you would think that it ate nothing but young rabbits and pheasant eggs, but actually it has an extremely broad choice. What it eats depends mainly on what is most common and what it happens to stumble on. Opossums are noted as carrion eaters, as evidenced by the number killed on the highways.

Insects and mammals, primarily mice, seem to be two of their most staple items, each occurring in over 40 per cent of the stomachs examined. The insects were particularly prominent during summer and fall when grasshoppers and crickets were abundant. Like the raccoon, they are very fond of fruit and in season it plays an important part in their diet.

'Possums eat what they can get and there is no indication that they are a serious predator on any species of game. On the other hand, there is no disagreement with those who claim they raid pheasant or rabbit nests, for if they find one in their rambling they certainly will utilize it. By the same token, they will destroy chipmuks and young snapping turtles, which are also destroyers of nests and young ducklings.

Just where does that leave the 'possum? It leaves it in a pretty neutral position, for although it does little serious damage, neither does it make any contribution beyond being a garbage collector. There was a day when the prime pelt was worth a little. Nowadays with good long-haired fur nearly valueless, the 'possum can't even be marketed in quantities to justify skinning those a trapper accidentally catches.—Paul M. Kelsey, *Senior Wildlife Biologist*

The Back of the Book

Game Law enforcement

A letter to the editor of the *Schenectady Gazette* reads: "This letter is in regards to an article in your paper Feb. 22. The writer said: 'There is no such thing as law enforcement in the big game department.' Farther on he states: 'No attempt is made to put fear of the law into these gamesters.'

"I have personally been fined a total of $205 in less than a year's time. This concerns two instances in 1966.

"Upon reading this article I was, and am, a resident of the Saratoga County jail. At this time there is a total of 12 prisoners. Not being able to interview all of them, I can't speak for all. But at least two other prisoners besides myself have been cited and fined in 1966. Their fines total another $205.

"I must state that this is not an isolated instance." (Name withheld)

There is, obviously, some law enforcement.

Black flies and decay

Two scientific teams from the New York State Museum and Science Service in Albany, will study black fly parasites and wood decay fungi, occupying quarters and laboratory space at the Adirondack Museum at Blue Mountain Lake.

One team will study the parasites which prey on blackfiies. Such parasites may possibly be useful in reducing the blackfly population. The team will also investigate the preferences of blood-sucking flies, most of which never feed on humans, and the importance of these flies in the transmission of certain diseases of wild animals.

Another team will collect airborne spores of wood decay fungi at a special installation near Raquette Lake. These spores will be identified and counted and the totals related to weather changes.

Ivory-billed woodpeckers found

Ivory-billed woodpeckers, considered extinct by most ornithologists, have been discovered in the Big Thicket Country of eastern Texas. Reports of ivory-bill survival are being investigated in South Carolina along the Congaree River, in Florida along the Apalachicola River, in Alabama and Mississippi along the Tombigbee River and in Georgia along the Altamaha River.

The ivory-bill is America's largest woodpecker, an imposing bird, larger than a crow, with shiny, black and white plumage, scarlet crest and long ivory bill.

Protected by Federal law under the Migratory Bird Treaty Act among this country, Mexico, and Canada, the ivory-bill has been a victim of environmental changes. It has been confused with the pileated woodpecker so often that bird-watchers began to despair, but the present sightings have been well confirmed.

Three million "lost" hunters found

Three million statistically "lost" hunters have wandered out of the computer complex of the Bureau of Sport Fisheries and Wildlife after having been reported missing since last fall.

The 1965 reports showed that there were 11,374,000 licensed hunters in America and more recently license sales as reported by the 50 states for 1966 did not include the column "Paid Hunting License Holders." A revised report for 1966, including the missing group, showed there were 14,351,768 paid license holders in 1966.

No one knows for sure how many non-licensed hunters there are but the Bureau's 1965 survey reported over 2 million and some estimates are higher. The Shooting Sports Foundation uses as its figure on the number of hunters in America "about 17 million counting both licensed and non-licensed hunters." In 1966, the Bureau of Outdoor Recreation estimated 18 million.

Registration of firearms

The Chicago Police Department issued a grand total of 11 gun permits in the past year under terms of a Chicago ordinance.

In New York City an applicant for a handgun permit must pay $20. This started out as a 50-cent fee. If the application is turned down, the $20 fee is not returned!

Confused on grouse season?

Will the REAL closing date for the ruffed grouse hunting season please stand out? If you haven't noticed the conflicting closing date appearing in the *Hunting–Trapping–Fishing Guide for 1967-68* and the August-September CONSERVATIONIST and Department news releases, you are probably about average. Many sharp-eyed grouse hunters, however, have noticed that two different closing dates appear in these publications. Our only defense is to refer to the old adage that "if you never make a mistake, it could be because you're not doing anything."

So, to clear up the confusion, the upstate ruffed grouse season will end on *December 31, 1967* even though the *Guide* states otherwise. The whole month of January will be closed to grouse hunting, thus cutting the grouse hunters' season to a mere three months which is still the longest in the Northeast. The shorter season was fixed because of reduced grouse abundance in some areas, and also due to fears expressed by some veteran hunters that grouse are too vulnerable in January. An error did occur on page 12 where the closing of the Suffolk hen pheasant season appeared as January 31, when it is actually December 31.

Great Lakes alewife control

A three-stage program to alleviate problems caused by massive deaths of alewives on Lake Michigan has been recommended by the Department of the Interior.

Researchers would seek to alleviate the immediate problem and ultimately restore the lake to full usefulness. The information and methods developed by this research should help the states, cities and industries to achieve a permanent solution.

The program would begin on Lake Michigan and expand to benefit all of the lakes. The first stage calls for measuring the abundance of alewives, predicting the size and location of die-offs and determining the causes of massive mortalities.

As a second step, the task force urges that methods be found for efficient mass removal of dead alewives from lakes and shores. These methods would be used by affected communities until control of alewife populations had been achieved. Present methods would be tested and new techniques developed.

The alewife, a marine species of the herring family, has become landlocked in the Great Lakes and other lakes in eastern North America. It is subject to annual die-offs in many fresh-water environments. During the past spring and summer it caused severe hardships, especially along the shores of Lake Michigan, where millions of dead fish were washed up on beaches.

The expense of cleaning up and hauling away dead fish imposed severe financial losses this summer on cities and towns bordering Lake Michigan. The West Michigan Tourist Association estimated that resort owners lost more than $50 million, and some private-property owners were forced to abandon their vacation sites.

New Saranac Chain charts

Six charts of the Saranac Chain of Lakes in Franklin and Essex counties were published in past years by the State Conservation Department. The Saranac Chain chartbook is the first in a series to be produced by the Department in the next few years. About 20 interior lakes or groups of lakes will be charted.

The charting program, which includes as well the installation of aids to navigation, is being carried out by the Department's Division of Motor Boats. Included in the new chartbook is a chart index, six 3-color charts of the area and information on navigation aid rules and general navigation. There is also a special capsule history of the Saranacs.

Copies of the new Saranac chartbook are available at $1 each from the Division of Motor Boats, State Conservation Department, State Campus, Albany, N. Y. 12226.

Joseph Kearns McManus

Joseph Kearns McManus, Superintendent of the New York section of the Palisades Interstate Park since 1955, died recently at Cornwall Hospital.

Mr. McManus joined the Palisades Interstate Park Commission in 1946 as a Park Recreational Supervisor. In 1948 he was named Superintendent of Camps and Recreation and in 1955 Superintendent of the New York section of the Park. He was responsible for maintenance and operation of the recreation facilities and supervision of resident group and family camps.

Snowmobiles

It's the modern equivalent of the one-horse open sleigh.

It looks like a cross between a bobsled and a miniature half-track. It's called a snowmobile, and it should be treated with respect.

To help new operators enjoy this new form of winter recreation, here are a few basic tips:

Avoid cross-country trips. Become familiar with your snowmobile in familiar territory.

Dress warmly, preferably in water-repellent clothing. The vehicle may move, but you won't, also you could get mighty cold after an hour or two of driving. And you'll appreciate the water-repellent quality of your clothing if you happen to tip over. Goggles will protect your eyes and reduce glare.

A snowmobile may be a sports vehicle, but it isn't a sports car. On slopes or rugged terrain, maintain a steady speed and use common sense to avoid tipping over.

Pretend that you're going hunting and might have to work your way back through unfamiliar territory. Even though storage space is limited in many models, take along food, first aid kit, matches in a waterproof container, a rope and a flashlight. Check your fuel before you start and take along an extra supply.

When you're starting a long trip in an area with more than one foot of snow, take along a map, snowshoes and an axe. Remember: It's always easier to drive into an area than it is to walk out.

Check the entire machine before you start and take an extra drive belt along, plus tools for installing it and for making minor repair. Make sure your lights work, too, before you need them.

While you're on the trail, use common sense about speed and handling. Snow-covered logs and other obstacles can upset a speeding machine.

Within the State Forest Preserve, use of snowmobiles for cross-country travel or on a limited number of roads or trails marked closed is prohibited. However, they may be used on snow or ice-covered roads or trails not marked closed and on frozen lakes and streams that can be reached from these open roads and trails.

Crossing a frozen lake or pond or using a frozen stream as a trail may be tempting, but you should check conditions carefully before you start out over water. Slush will stop a snowmobile

faster than deep snow, so check for slush as well as thickness of ice before you move out on an icy surface over water. This precaution is especially important on normally fast-moving streams.

Take along a companion, even on short trips. On extended trips, tell your family where you're going, which trails you're taking and when you expect to return. In other words, file a flight plan!

Sugar maple decline

Repeated trials with potted greenhouse sugar maples have shown that the progressive marginal scorch of leaves, defoliation and dieback of sugar maple can be induced at will by prolonged withholding of water. Timely applications of water can uniformly arrest the decline. Extensive field observations in New England indicate that decline is habitually associated with drought years.

Examination of the root systems of declining sugar maples in the field has disclosed extensive injury and degeneration. In pastured swales extensive root damage is done by the feet of cattle sinking into the soft soil in wet periods. Trenching beside roads destroys large segments of the root systems in roadside trees. Few or no roots have been found in the soil beneath the pavement of roadside trees. Degeneration of roots in soils compacted by constant pedestrian or vehicular traffic in towns is also demonstrated.

Progress in oyster research

Scientists at the Bureau of Commercial Fisheries Laboratory in Oxford, Md., have made significant new findings in their study of the destructive oyster parasite MSX. Findings consist of identifying several additional life history stages which may help scientists develop control methods.

During the past decade the MSX blight has virtually wiped out the once-flourishing oyster industry in Delaware Bay, N. J., and has caused severe economic hardship in lower Chesapeake Bay.

Although usually fatal to oysters, the parasite has no effect on humans. It does not appear to cause oyster mortalities — or even survive — in water with a salt content less than half that of normal sea water. Its spread northward in Chesapeake Bay the past three years, apparently is due to increased salinity caused primarily by prolonged drought in the Northeast.

The Sears awards

The New York State Conservation Council meeting at Lake George in September was again the occasion for awarding the Sears Roebuck Foundation awards for outstanding work in the field of natural resource conservation.

The Governor's Award for New York State Conservationist of the Year went to Herman Forster of New York City, long-time officer of the Council, "For his personal interest in the preservation of our natural resources and the beauties of our State — and his deep feeling that these values are important and should be preserved for them and their posterity — made him devote much of his time to their defense and perpetuation . . . to the point that he denied himself much of the pleasures they afforded him so that he might insure them for others still to come . . ."

Wildlife Conservationist — William J. Glass of Troy, "Has distinguished himself as a 'doer of the word' in the wildlife field, in order to promote the preservation, propagation and management of wild rabbits and hares."

Soil Conservationist — Wallace J. Anderson of Camillus, "He has exercised dynamic leadership in planning for: Development of watersheds, river basins, and assisting communities to plan well for future expansion; in conservation and development of the State's soil, water and other natural resources."

Water Conservationist — Wayne M. Harris of Rochester, "For outstanding water conservation efforts during the year . . . made the most significant contribution to water conservation (wise use) and impact on others."

Forest Conservationist — Floyd E. Carlson of Jamesville, "For performing outstanding service in the field of conservation, to the forest land owners as well as wood-using industries of New York State."

Conservation Educator — Elizabeth H. Sykes of Webster, "For her intense interest, understanding and actual participation in the conservation of our

Tree monkey changes lumbering

A new machine, hailed as a breakthrough in the forest industry, takes the work out of trimming trees to produce quality lumber. The tree monkey is attached to a tree, climbs in a spiral fashion sawing off all limbs to a preset height and returns to the ground — all in two minutes. The tree monkey can replace hand labor in removing branches from trees to produce knot-free lumber on the one million eligible acres in the State. The time this monkey takes to prune to 17-feet is three to five times faster than hand labor.

State's natural resources . . . particularly in the field of education."

Youth Conservationist — Troop 383 Boy Scouts of America of Queens Council, West District, Glendale, "For exceptional contributions to the conservation of our natural resources in helping to improve and use wisely our heritage of soil, water, forests, grasslands and wildlife."

Legislative Conservationist — John F. Daly of Herkimer, "For most outstanding conservation effort by a member of a committee staff in the promotion of beneficial natural resource legislation and outstanding staff work on legislative problems."

Conservation Communications — Barnett Fowler of Albany, "For the tremendous impact he has wielded in influencing the general public in the promotion of conservation of our natural resources through his timely, well-informed and inspirational writings."

Conservation Organization — Lake Champlain Committee of Albany, "For the outstanding effort exerted in arousing the people of both New York State and Vermont in opposition to the proposed Champlain Waterway and for their continuing program aimed toward the abolition of pollution in the waters of Lake Champlain."

Arthur A. Allen award

Roger Tory Peterson, artist, author and world famous ornithologist, has been honored at Cornell University as the first recipient of the Arthur A. Allen Award for Distinguished Service to Ornithology.

Mr. Peterson has served as Art Director of the National Wildlife Federation since 1950 and each year selects subjects and commissions artists to paint the birds and other wildlife used in its series of conservation stamps. He also designs the annual stamp albums and writes the educational and descriptive text. He has observed and photographed birds on every continent, including Antarctica, and in all 50 states and most provinces of Canada and Mexico. His book on birds has sold more than four million copies and his *Field Guide to the Birds* is used by serious "birders" across the country in their identification and study of America's bird life. He has served the National Audubon Society in various posts since 1934 and is currently on its board of directors. Born in Jamestown, Mr. Peterson studied in New York City.

Ranger John Longware

John Longware of Elizabethtown lived his entire life (1895-1967) in that community. He served as Forest Ranger from 1920 until his retirement in 1950. He served in the military forces during the first World War and was a member of the American Legion, Bouquet Valley Post #551, for 47 years.

As a Forest Ranger for the Conservation Department, he served during the era when steel firetowers were being constructed on strategic mountain tops in the Adirondacks for forest fire detection along with the establishment of many miles of telephone lines through the forests, necessary in times of emergency. He also contributed immensely to the building of hiking trails through the High Peak Area so thoroughly enjoyed by the wilderness camper.

A change

In the August-September issue we reported a decrease of fishing license sales (nationally) as reported by the U.S. Bureau of Sports Fisheries and Wildlife. It seems that part of the information we received was not complete. A recap of the information indicates, instead, that sales of the various fishing permits substantially increased, by 1,325,492 (about 5.3 per cent). The 26,301,806 total sold in fiscal 1966 provided the means whereby some 21,329,167 license-buying anglers (also increased about 4.6 per cent) invested a record $67,164,575 in state fish conservation programs. This was an impressive increase of $4,645,534 (about 7.4 per cent) over the $62,419,041 they invested in fiscal 1965.

The Dunker

(Continued from page 11)

from their mother. I spotted the female raccoon holding down a branch loaded with berries. This made it easy for her to keep a sharp lookout for danger while two of her kits sat next to her eating berries. A third member of the group had climbed to the center of another bush and was involved with a male towhee who was doing his best to dislodge the intruder from his berry bush. The bird flew at the young 'coon trying to chase him out but he wasn't about to budge. The towhee finally gave up the fight.

Intelligent and adaptable, the 'coon also outwits himself now and then. The side hill where I live is a favorite haunt for raccoons. They usually cross the roadway in front of my home as they head for the river. One night my beagle hound kept me awake half the night whining and rustling his chain. I went out to investigate but for the life of me I couldn't see anything that could be alarming the dog. By morning I had been disturbed so many times I felt as though I had been on a ten-mile speed hike.

Finishing breakfast I went out to see if I could find what the dog was so shook up about. He was sitting next to a maple tree, looking up and whining. I started to reprimand him and stopped dead in the act. Just above my head on a tree limb a raccoon sat looking sad and completely worn out. If he had dared to crawl down the tree on the opposite side the dog wouldn't have had a chance to grab him and he wouldn't have had to stay there all night. I brought the dog up on the porch. A few minutes later the 'coon departed.

Cool camping water

Water, water, cool, clear water seems to be a necessary ingredient for almost any successful campground. In New Hampshire, where 100 owners of recreation enterprises were interviewed recently, and data supplied by approximately 1,000 visitors to that state's 108 commercial campgrounds it was found that shorter and less frequent visits occurred at campgrounds that were small, new, had low investments and had no water for swimming.

Bandy-leg ducks

In waterfowl banding, it is the long-run amassed statistics that influence management decisions and practices, but it is often the individual odd case among thousands that keep the interest of the banders running high. Consider the following examples:

In 1955, "Rodge" Case banded 790 ducks at Canandaigua Lake. In 1967, 25,334 ducks later, he recaptured a redhead he banded in 1955. This duck has been captured at Canandaigua five other winters out of the intervening eleven and has worn out two bands. No redheads spend the summer at Canandaigua; most spend it in Manitoba, which means this bird has probably traveled 27,000 miles in migration.

In August, 1958, someone banded a canvasback in Alaska. In July, 1960, he banded another at the same location. Both birds turned up in a Finger Lakes' duck trap one day apart in February, 1962. Other long distance travelers caught in New York include mallards banded in Washington, Idaho and Montana.

There is also a thrill in occasionally catching a rare or hard-to-trap bird. In July, we banded a blue goose at Wilson Hill Game Management Area. In October, a Richardson's goose was banded at Howland Island Game Management Area. In the last 5 years, 27 kinds of ducks and geese have been banded in New York. In addition, an occasional coot, gallinule or grebe is found in the trap just to liven things up a bit.

When the banding is done then the wait for recoveries starts — but that's another story.—STEPHEN BROWNE, *Conservation Biologist*

ADK's "Adirondack Landscape"

A trip through the Adirondacks — whether on foot or on horseback — becomes more of an adventure as the result of a new publication by the Adirondack Mountain Club. It is 'titled, "The Adirondack Landscape—A Hiker's Guide."

This 72-page pocket-sized booklet gives a layman's explanation of the geology of the Adirondack Mountains and how they were formed. Numerous photographs show typical formations.

Jerome Wyckoff is the author of the booklet which was prepared with the assistance of the Natural History Committee of the Club. It is available at $1.50 a copy from the Club at Gabriels, New York.

Ruffed grouse survey

Many game men in the New York State Conservation Department started their professional careers working on the ruffed grouse survey at what is now the Connecticut Hill Game Management Area in Tompkins and Schuyler counties.

The ruffed grouse survey was begun in the early 1930's to determine why the grouse population rose and fell in cycles, and, to see if game management techniques could be initiated to keep these outstanding game birds at a more stable level. The outcome was one of the most complete studies of a single game bird.

Most of the individuals who worked on the grouse survey were students at Cornell in one of the first wildlife management courses offered at any university. Many of the students went on to become professional wildlife researchers, managers and administrators.

In September the "clan" gathered with a host of new students at Connecticut Hill to view what the past thirty years had wrought in the ecology of this important recreational grounds.

At a point pictures were taken; above are the early "Grouse Surveyors," left to right: (standing) Paul Kelsey, Ralph Colson, Ralph Smith, Don Schierbaum, John Schempp, Ben Bradley, Frank Edminster; (kneeling) Earl Westervelt, Arthur Cook, John Morse, Robert Cameron, Joseph Dell, Dirck Benson, Walter Crissey, Greenleaf Chase and Asa Smith. Another picture was of the "Dynamic Duo," Robert Demeree, Forester, and Brad Griffin, Conservation Biologist, teamed up to show how the forester and the game manager can work together to accomplish wildlife management under New York woodland conditions.

River aeration experiment

A demonstration project on the Passaic River near New York City for the Federal Water Pollution Control Administration, involves a piece of machinery which floats. Spade-like blades driven by an electric motor churn up water to return oxygen to the deadened water. The three-year experiment, if successful, may some day help to purify dirty rivers all over the United States.

Watercraft pollution

Watercraft pollution problems have been documented in a report to Congress, prepared by the Federal Water Pollution Control Administration in consultation with the Departments of Defense, Transportation, Commerce and Health, Education and Welfare. Single copies of "Wastes from Watercraft," may be obtained from the F.W.P.C.A., Room 818, 633 Indiana Ave., N.W., Washington, D.C.

Dr. Joseph S. Illick

Dr. Joseph S. Illick, Dean Emeritus of the State University College of Forestry at Syracuse University, died at the age of 82 on August 31.

Dean Illick was considered one of the country's outstanding foresters, served as Dean of the College of Forestry for seven years from 1945 to 1952. He was known for his bold and progressive approach to education and public forest administration. He was awarded the high honor of Fellow of the Society of American Foresters in 1946.

Beginning his life work in 1907, at Pennsylvania State Forestry School, he taught biology there for three years. During the year 1911-1912 he carried on graduate work in forest pathology at the University of Munich, Germany. He returned to Mount Alto as Professor of Forestry, becoming Acting Dean of the school in 1917.

In 1920, he entered state service as Chief of Silviculture and Research for the Pennsylvania State Department of Forests and Waters and in 1927 became State Forester. At the end of this significant period of public forestry administration in 1931, he joined the faculty of the College of Forestry in Syracuse.

He was active in the Society of American Foresters and served as Chairman of the Division of Education. During this period he organized the executive heads of all the country's forestry colleges so that mutual problems and solutions might be discussed.

A prolific writer, Dean Illick authored 12 books, 10 major bulletins, and more than 150 articles on the subject of forestry. He retired in September, 1952.

Overfed and overgrown — Oneida Lake

Another step in developing a management scheme for Oneida Lake is under way. The U.S. Geological Survey of the Department of Interior, has joined with the Division of Water Resources of the New York Conservation Department and the Pure Waters Division of the State Health Department in a co-operative study of the lake. This study of Oneida Lake and its drainage basin will emphasize the interactions between the biology and chemistry of the lake water and those aspects of basin hydrology and chemistry that are of importance to the lake system.

The major problem to be faced in the future use and development of the lake is the blooms of algae growths that occur at certain times during the year. Pollution is sometimes defined as "too much of anything." In Oneida Lake the main pollution problem is too much algae. The growth of the algae in the lake is dependent on the nutrient minerals added to the lake by inflowing water. Oneida Lake is overfed with such nutrients as phosphorus and nitrogen and this can lead to overproduction of the algae.

A basic part of the study will be a determination of the water, mineral and organic nutrient balances of the lake system, including the contribution from such sources as the natural streamflow, direct rainfall and runoff and the changes in these by the works of man, water and mineral contributions by ground-water inflow and seepage and chemical interactions and biological effects with the lake itself.

"Bespectacled" brown trout

While doing a routine survey on the Battenkill River, the Region 6 fisheries crew came across an unusual fish. This brown trout was not unusual in respect to its size, which was 8.7", or its coloring, but in what it was wearing.

When scapnetted, this trout was wearing what was discovered to be the frame of a pair of child's eyeglasses. This circular ring had become lodged in front of the dorsal fin. It had apparently been on there for a considerable length of time because of the deep depressions in the trout's back and stomach.

How the trout acquired such an ornament we shall leave to your imagination. Perhaps his eyes were bigger than his stomach!

Pictured is the fish before the frame was removed and the trout returned to the river.—Burton Morehouse

Pest control — biological

Biological controls are being increased to augment aerial spray programs for controlling the spread of gypsy moth in eastern New York.

In late July or early August, approximately one million parasites (*Oencyrtus Kuwanae*) were released. This parasite, a tiny fly slightly larger than the head of a pin, develops in the gypsy moth egg masses and attacks the first and second layer of the eggs, preventing their development the following spring. The parasite is most effective in areas where gypsy moth infestation is below epidemic proportions. Biological controls are not as effective as pesticides in dealing with large populations of gypsy moths but they can be used effectively to complement aerial spray control programs.

The primary defense against the gypsy moth continues to be strictly controlled application of insecticides. Starting around the middle of May, the Conservation Department provides aerial application of carbaryl (Sevin) to heavily-infested forested areas in southeastern New York.

Sevin is used at the rate of one pound in one gallon of water per acre of woodland. Open lands and water will not be treated and where private woodlands are involved, the property will be treated only after agreements have been received from landowners. A total of 25,000 acres is scheduled for chemical treatment during 1967 as compared to the 180,000 acres treated in 1966.

Spraying is done only in areas where Department forest pest personnel have reported a minimum of 500 gypsy moth egg masses per acre. If egg masses are allowed to go unchecked, they develop into larvae or caterpillars, which are responsible for the defoliation of fruit, shade and forest trees.

TV—"The American Sportsman"

"The American Sportsman," ABC's hunting and fishing series, was the No. 1 weekly sports series for the first quarter of 1967, according to national ratings of the Nielsen Television Index. The program has an average (AA) rating of 11.5, a delivery of 6,310,000 homes per minute and a 34 per cent share of all TV sets in use at the time of the telecast, surpassing ratings for weekly series on golf, basketball, bowling and sports around the world.

Allegheny, Lake Erie drainage

Residents of the Allegheny River basin and the western Lake Erie drainage basin will soon see hydrologists of the U.S. Geological Survey, Department of the Interior, begin a detailed study of the water resources of the two basins.

This study is being conducted in cooperation with the Division of Water Resources, New York State Conservation Department, and is designed to provide information on the quantity and quality of water in the basin for long-range planning and development.

A water resources inventory is an essential part of the water resources planning and development activities in this two-basin area and it will provide basic information for the proposed Allegheny basin water resources planning and development board to carry out a comprehensive planning program.

Hydrologists expect to locate and describe the amount and quality of the ground-water resources and to measure the potential yield of each major water-bearing rock unit. During the late summer and early fall, the emphasis will be on the study of the low-flow characteristics of the many area streams.

Preliminary observations indicate that sizeable groundwater supplies probably lie in the valleys of Great Valley Creek, Ischua Creek and the Allegheny River. Beneath Great Valley Creek, for example, well over 5 million gallons a day apparently seep into the permeable gravel deposits.

New water directory

A new "Directory of Water Information Sources" in the United States has been published by the National Referral Center for Science and Technology at the Library of Congress. The new publication was prompted by the growing concern over the conservation use and quality of the Nation's water resources.

Focusing on fresh water, the directory lists hundreds of organizations doing research or collecting data on water.

The directory includes Federal, state, and municipal government offices, academic research groups, professional societies, various water commissions and committees, national associations, and other organizations.

The 248-page, paper-bound book may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, for $1.50.

"The Third Wave"

A new and candid report to the nation, "The Third Wave," describes the gradual but radical change in public attitudes about preserving the quality of our environment. America now is in a third great phase — an "ecological" one — in treating its natural surroundings. This new conservation effort is geared "to repel the rising tide of environmental trouble," Secretary Udall writes in introducing the publication.

This new 128-page, full-color publication presents the role of the Department of the Interior, as it works to carry out the public mandate involving almost every segment of the over-all environment. Full-color picture essays in the book include a look at the ways, good and bad, in which man shapes and impinges on his environment. A special 16-page section, "A Parade of Parks," pays tribute to the 50th anniversary of the establishment of the National Park System. A two-page pictorial guide, "Which America Do You Choose?" provides an attention-holding educational tool for teaching resource management and its attendant pollution problems.

The book defines conservation with an ecological emphasis as "a way of happily relating man to his natural resources." It emphasizes that conservation which began with wildlife protection and grew to habitat preservation must now extend its concern to the man-made environment. It must recognize that in an ecologic age our technologies — whether TV, typewriters or electronic computers — are just as much natural resources as fossil fuels, forest products, or wildlife.

"The Third Wave" is illustrated with 117 full-color photographs and 57 black and white or tone pictures, a full-color resource management chart and other color charts and graphs. It is available at $2 a copy from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402.

Wood industries and recreation

The completion of a new overnight lean-to shelter along Vermont's famous Long Trail brings an exchange of congratulations between officials of the Green Mountain Club and the International Paper Company of Glens Falls.

The Green Mountain Club is a nonprofit organization which maintains the Long Trail and most of the overnight shelters along its length. The shelter was built by International Paper at Stratton Pond, located in the heart of the company's 26,000-acre Stratton Mountain Tree Farm, and will be maintained by the Club with the company's assistance.

Importation danger

On December 12, 1966, the New Mexico Department of Public Health was informed of a die-off of jack rabbits, cottontail rabbits, and pack rats in DeBaca County. A plague surveillance team was sent to the area to collect specimens and to investigate the extent of the die-off.

Pasteurella pestis (sylvatic plague) was isolated from tissue of a cottontail rabbit that had recently died and identification was made by laboratory microbiologic reactions.

In DeBaca County, rabbits are trapped and netted for live shipment to other states by railway express or truck for use as fox food and the training of race dogs. On the day that plague was confirmed in the current outbreak, a shipment of rabbits awaiting transport to Florida was stopped. A shipment which had been made to Missouri three days previously had to be traced. Unofficial information indicated that at times during the past few years shipments have also been made to New Jersey, Massachusetts, Indiana and Wyoming.

Following confirmation of infection, the New Mexico Department of Game and Fish issued an order on December 23, 1966, prohibiting the hunting and trapping of rabbits in DeBaca County.

Rural recreation for profit

"Rural Recreation for Profit," a 303-page volume provides information for rural landowners, conservation and recreation agency personnel, vocational agriculture students and teachers, farm investment counselors, county agriculture agents and many others about the potentials, problems and practices of marketing outdoor recreation on a private business basis.

Individuals interested in entering the outdoor recreation business, analyzing the potential for their property for campgrounds and sports areas, fishing waters, shooting and hunting preserves, nature and scenic areas or cabin sites will find this book of interest and assistance.

Further information can be secured from Interstate Printers and Publishers, Dansville, Illinois 61832.

Spawning salmon

Before salmon leave salt-water, they store up oils and fats for the journey to the spawning grounds, during which they do not eat.

George Molnar honored

Nearly 100 private landowners of St. Lawrence County attended the 20th anniversary dinner and Forest Practice Act program at which George F. Molnar of Norwood was honored with a Certificate of Merit for his many years of dedicated work in the field of conservation.

As early as 1926, Mr. Molnar and his three sons began reforesting a portion of the farm that, because of the lightness of the soil, had begun turning into "blow sand." In those early days, brush was carried by hand to make windrows to protect the small seedlings from blowing sand. There followed two thinning projects during the 1950's and early '60's, and a pruning project later in the '60's. This work the family undertook in order to maintain and properly develop the growth for future value of the trees.

Five hundred seventy-two landowners have enrolled their forest land in this co-operative program covering more than 92,861 acres.

Wind and wave

Wind can be a friend or a foe of the boater. Light winds are those from one to seven miles an hour, which cause smoke to drift and weathervanes to swing. A "gentle" wind blows from 8 to 12 m.p.h. and can create breaking waves of two feet or more. Between 13 and 18 m.p.h., winds are "moderate" but they can build waves to a height of five feet. "Fresh" winds are 19 to 24 m.p.h. in velocity and can produce crested waves even on sheltered waters. When winds become "strong" at from 25 to 40 m.p.h., small-craft warnings are hoisted, waves pile up and the knowledgeable boatman is snugly anchored in a sheltered cove or tied up at his home dock.

Wetlands report

A study by the National Wildlife Federation conducted on the prairie pothole areas of southwest Manitoba and southern Saskatchewan and Alberta, showed that the same wetlands which offer the greatest potential for waterfowl production also are those most desirable for agricultural crop production. Despite this major obstacle to wetlands preservation, however, the study shows that 75 per cent of the landowners interviewed in Manitoba and Saskatchewan indicated they would sign a contract with no-drainage and no-filling clauses for $7 per wetland acre for a 20-year period.

Copies of the Federation's "Wetlands Survey Report" can be obtained from the Executive Director, National Wildlife Federation, 1412 16th St., N.W., Washington, D.C. 20036.

Water holes, wildlife and campers

Water holes, wildlife and livestock mix fairly well in the western desert country. Trouble begins though when campers enter the scene. Trailers, tents and other camping gear grouped around the only source of water in a large area keep most animals away, no matter how thirsty they may get. The result is that big game moves out, cattle lose weight, and at least one sport, hunting, gets poorer.

A solution probably will be to restrict camping within a stated distance of a water hole. Only two of the eleven western states now have such a law, but several others are considering such measures.

Purification by filtration

Cleaner water may result from research done by Dr. Albert Pincine of Cal. Tech. His study involved the purification of water by percolation through the soil. Dr. Pincine believes that oxygen penetration of the soil in percolating basins will go a long way in meeting the demand for fresh water.

New utility poles

Beginning in 1968, New York State residents will see new designs in wood utility poles.

The new designs include a round wood pole with pole-top equipment displayed to resemble the rays of the sun; a pole with no crossarms and equipment attached directly to the wood pole top; also, there is a pole of slim, glue-laminated wood columns that you can actually see through.

Master eye

"Two eyes are better than one" is an obvious truth. Shooting with both eyes open is one of the most important principles that novice shooters should follow from the beginning.

The two eyes act as windows for the brain and since these eyes are located some distance apart, each one sees objects from a slightly different angle. Nature takes care of this situation by giving one eye mastery over the other. This controlling eye pulls its partner into focus transmitting a single image to the brain when both eyes are open. In most cases, the master eye follows the master hand and a right-handed person has a right master eye. There are, however, exceptions and thus it is of prime importance to the beginner in shooting to find out which eye is his master one.

To find this out, the shooter, if he is right-handed, should close the left eye, raise a gun to the right shoulder and take aim at some object fifteen or twenty feet away, sighting along the top of the barrel with the right eye. When the aim is established, the left eye should also be opened. If the aim remains clear and the appearance of the mark unchanged, then the right eye is the master. The shooter should now shoot from the right shoulder with both eyes open.

If, on the other hand, when the gun is at the right shoulder and sighted with the right eye, the appearance of the picture changes with the opening of the left eye in such a way that the left side of the gun is seen and the mark appears to be to the left of the muzzle, then the left eye is the master. This simple little test can be made even more easily by pointing the index finger of the right hand at an object some distance away and sighting along the finger with the left eye closed. If the right eye is the master, the sight picture will remain unchanged when the left eye is opened.

When the left eye is the master, the situation needs immediate and careful attention. Otherwise the shooter will most likely crossfire if he continues to shoot from the right shoulder, with both eyes open. A right-handed person whose left eye proves to be the master, but who has good sight out of his right eye, should practice shooting with the left eye closed. This is to see if the right eye cannot be developed into the master, a possibility in many cases. If it cannot, the person, even though he has advanced to some extent in wing-shooting training, should start all over again from the left shoulder and using the left master eye. This change is not as radical as it sounds for anyone can learn to shoot from the opposite shoulder if he will consistently practice for a short time.

Nature conservancy

The credo of the Nature Conservancy organization is "Every untouched, natural or wild area that can be saved from exploitation gives tomorrow's generations a living museum as a link to America's past."

The Nature Conservancy advocates education in the values of natural areas and investigation of problems relating to them as well as preservation of "our heritage of wild nature." These field laboratories are living storehouses of scientific treasure providing the new materials for zoological and botanical studies. They are often the last sanctuaries for many plants and animals facing extinction.

In preservation, the Nature Conservancy raises money toward the acquisition of natural areas, accepts gifts and bequests of lands from donors desiring preservation of particular natural areas, assists communities in preserving living museums, and provides expert advice on matters relating to the preservation of natural areas.

In education, they develop public awareness of natural areas problems, foster regional and community planning for the preservation of parks and open spaces and stimulate natural history study in the schools.

And in investigation, they evaluate habitats in need of preservation, maintain a register of established nature reserves and initiate surveys of rare and endangered plants and animals.

In developing the general public's conservation "conscience," Nature Conservancy urges early action in preserving not only the large wilderness areas but also the "less spectacular woods, grasslands, swamps and deserts of our great interior and the shorelines of our rivers, lakes, and oceans."

The Nature Conservancy emphasizes that what has been saved and what will be saved in the next few years "will be all the true wild natural areas remaining to be passed on to future generations. There will never be another chance!"

Pollution research: pulp bleaching

New research projects dealing with the critical problem of water supply and water quality will be conducted at the State University College of Forestry at Syracuse University. One will investigate the preparation and characterization of membranes for reverse osmosis. In this process thin plastic films are used to purify water — molecules of pure water are forced through the membrane while salt and other materials are rejected. The process is somewhat similar to the action of an artificial kidney and some researchers have called their devices "industrial kidneys."

Another project is to investigate the composition of residues from pulp bleaching treatments so that more effective water pollution abatement measures may be undertaken. Bleaching effluents constitute one of the major sources of pulp and paper wastes which pollute water. Chemical investigations may suggest additional possibilities for effective water pollution abatement treatments.

The manufacture of pulp and paper does not "consume" much water, but it "uses" it in great quantities. Water has been re-used to some extent for many years and the practice holds promise of solving some of the water supply and water pollution problems facing industries and cities today. An average size pulp mill, producing from 150 to 500 tons of cellulose pulp daily, will use from 5 million to 50 million gallons of water a day. Once scientists know how to remove and treat all of the wastes from this water, it can be re-used by the pulp and paper industries and others.

Water use in the U.S. is estimated to be increasing 25,000 gallons each minute and the use of water has trebled over the last 30 years, while the total water resources have not significantly increased, and, water quality has deteriorated due to pollution.

Oysters and Cattle

A new market for a marine product seems to be opening: Roughage for cattle fodder from oyster shells. A major processor of oyster shell for industrial purposes, is producing special oyster grit to be fed to cattle along with ground ear corn and other roughage. It is a logical extension of a longtime practice of the poultry industry in providing fine oyster grit for chickens.

Kilowatts and oysters

Generating kilowatts and nursing oysters may seem to have little connection, but at a Long Island power station the two jobs are scheduled to be done side by side.

The unusual partnership was formed when the power company granted a leading Long Island oyster grower permission to set up an experimental oyster nursery at the power plant site. The trial operation may play a significant role in the rejuvenation of the oyster industry on Long Island.

The oyster firm will operate the shellfish nursery in the power plant's discharge basin where moderate temperature of the basin's sea water is expected to provide an ideal growth environment for tiny seed oysters until they are ready to be planted in Long Island waters. These exceptional early growth conditions, the oystermen feel, will substantially increase the likelihood of the baby oysters surviving to mature size after reaching a natural body of water.

Discharge basin water is salt-water taken from Long Island Sound which has been used in the power plant to condense steam. Other than being slightly warmed, it is the same as Long Island Sound water, and it is believed that it will provide an excellent intermediate step between laboratory and natural conditions for the oyster seed.

Oyster farming, once a major Long Island industry, has been depressed in recent years. The combined effects of the area's population growth and an increased number of predators have reduced the oysters' normal ability to reproduce successfully. Through the use of artificial hatcheries and nurseries, oystermen may expect to overcome this situation and return Long Island to its traditional prominence as an oyster farming center.

Reservoirs for recreation

Municipal reservoirs for recreation purposes is a subject being debated seriously in many sections of the State as pressure mounts for outdoor recreation sites.

Reservoirs are normally located near centers of population and they contain water of high quality, are publicly-owned and have great recreational attraction. The public has been sold on the idea of multiple-use of natural resources and municipal water-supply reservoirs offer excellent possibilities.

A Cornell survey was made in 1963 of 95 New York State municipalities having complete control of 178 reservoirs, including 18 natural lakes and ponds.

The survey showed that all municipalities prohibit swimming and bathing and use of canoes, sailboats and power boats. Seventy prohibit all use. All of the upstate impoundments of the City of New York and nine of its 12 ponds on Long Island are open to some recreational use.

Fishing is permitted by 25 cities on a total of 63 reservoirs. Of these, 50 reservoirs, including nine New York City ponds on Long Island, are open only for shoreline fishing. Thirty-one allow fishing from both shore and rowboats. One municipality allows fishing from boats only on two reservoirs. Six permit hunting on the watershed lands and three allow picnicking.

Towns and cities in New York State, as in most of the East, have been slower to permit recreational use of reservoirs than have other areas of the country. More bodies of water exist in the East, so the pressure for multiple-use has not been as great. However, this is changing as leisure time increases with its demand for water-based types of recreation.

Many community water supplies come under specific watershed rules and regulations adopted under authority of the State Department of Health. Of the 95 municipalities in the New York study, 68 have adopted rules, under Health Department authority, and fishing and boating are prohibited in 47 cases but amendments to these regulations may be made by any community wishing to change its policy, subject to approval by the State Commissioner of Health.

With proper supervision of people using the reservoirs for recreation, the benefits of an open reservoir policy outweigh possible health hazards. Numbers using facilities might have to be restricted and certainly other controls including good sanitary facilities, litter and garbage disposal and complete water treatment would have to be a part of any successful program.

With these safeguards, fishing, non-power boating, picnicking, hunting, hiking, camping and even riding on horse trails, could be considered. These, of course, will result in increased costs and the recreationists rather than the water consumers will have to meet these.

The dobson

The larvae of the dobson fly, is commonly known to anglers as crawlers, bass bait or hellgrammites. To entomologists it is *Corydalus cornutus*. It is to both one of the most effective baits for bass.

They can be readily collected by two people, one of whom holds a small mesh screen in the swiftest part of the riffles, while the other turns over stones immediately upstream from the net.

The name, hellgrammite, is unusually appropriate as they are one of the most fiercely predacious insects and their jaws are strong. They are always ill-natured and will seize anything nearby upon the slightest provocation. If it happens to be a finger, they would probably draw blood. When fully grown they are dark brown and about three inches long. Their hooks anchor them to the bottom in the swiftest current. Tufts of white, hairlike substance surround their gills on the bottom of their flattened bodies. The larvae live and grow under water for about three years, then crawl out and hide under a log or stone to pupate, emerging in about ten days as a winged fly.

As a bait, they are quite satisfactory as they will live for several weeks if kept in a shaded, cool, well-vented container full of moist grass. While they are usually hooked under the collar between the head and body, if bait is scarce it is an excellent idea to tie on a fishline collar just back of the head which in turn may be tied to the hook. Used like this, one hellgrammite can generally be used to catch several bass and, until dead, they will always come up with the mandibles sunk in the fish's mouth or tongue.

Fishermen should take only as many hellgrammites (and this applies to all live baits) as they need to conserve the vital aquatic life in the streams. It must be remembered, too, they *cannot* be taken legally from trout streams.

Deserved credit

All interests owe a great debt to the sportsmen of America who provided the principal thrust for the entire conservation movement and who put over water pollution control, modern land management and largely removed patronage politics from conservation administration.

Underwater sing

Frogs are able to sing under water because they normally sing with their mouths and nostrils closed.

LETTERS to the editor

Opposes Federal Park

Dear Sir: The proposal to give National Park status to a section of the Adirondack Forest Preserve is an insult to all New York State residents. Most New Yorkers can be proud of the part he or she has played in keeping these magnificent recreational areas "forever wild" for a period exceeding 70 years.

Our Forest Preserve lands are priceless assets, and New York is envied by all other states in the nation who wish their leaders of bygone eras had only done what was done here. Our people have proven their stewardship of these lands without question, a record far better than the Federal government's own. By what right, then, is the Federal government coming to New York to bless us with their paternalism and munificence by granting us "National Park status?" Who needs their lower standards? Certainly not New York!

After 70 years of proven ability to keep what we have, and even to expand it within recent years, to suggest National Park status now is tantamount to confiscation. Are they drunk with power in Washington?

Please, Federal government, go get lost!

Donald G. Ross, High Falls

Keep it open

Dear Sir: Last year I had the privilege to hunt the Thirteenth Lake region of the Adirondack Park. Several in our party took nice bucks. We camped about three miles in from the main highway.

From your article on page 18 of the August-September, 1967 issue of THE CONSERVATIONIST, I find that this area and many other good hunting areas are proposed for a National Park. The Code of Federal Regulations, Title 36—Parks, Forests and Memorials (36 CFR 1.1 Sec. 2-5H) specifically states that "Except in those park areas where hunting is permitted, the use of a camp in a park area as a base for hunting outside the park is prohibited." In other words, no hunting in National Parks unless exempt from this title.

On page 30 you state the "Deer populations in most of the central Adirondack counties are still too high for the amount of food available on their winter ranges. The next moderate or severe winter will quickly remove these extra animals unless hunters harvest the surplus first." I certainly hope that the Conservation Department will do all in its power to keep this fine country open to hunters.

Frank A. Winters, Wyckoff, N. J.

Don't get feverish

Dear Sir: I've gone rabbit hunting a long time and I just read an article in a magazine about rabbit fever. What kind of spotted livers do they mean and what kind of precaution do I use to protect myself and sons from this? Is this a serious disease? Because when hunting, as you know, you always scratch yourself on thorn bushes, and I always gut the rabbit in the field. Could you send me some literature on this.

Edward Wagner, Maspeth

• *The chance of contracting tularemia from our native cottontails is very slight. We are sending you a reprint on "Diseases and Parasites of the Cottontail Rabbit."—Editor*

Buttons and tags

Gentlemen: At your convenience will you please advise the writer when your Commission [Department] started to issue the celluloid-covered hunting buttons, how long they were issued and when you ceased.

Also indicate for how long a period of time the buttons were issued to cover only hunting and trapping and then how long they were issued to cover hunting, trapping and fishing. Moreover, would you please indicate for how long a period of time the buttons were issued to cover special deer licenses separately. It is quite important to me that you furnish the information as requested as I am endeavoring to put together a collection of these buttons for future reference. It might also be well if you advised when you started issuing back licenses on cardboard for deer hunting, etc.

Ralph C. Jackman, North Cohocton

• *The first license issued in 1908 covered only hunting. In 1912, a combination hunting and trapping license was issued; in 1915, a button was required. Ten years later, in 1925, a combination hunting, fishing and trapping license was issued. The year 1940 brought about separate licenses for each activity.*

An act of the Legislature in 1954 brought about back tags.—Roland B. Miller

Black snake tales

Dear Sir: The excellent review of the "Poisonous Snakes" booklet by E. M. Reilly, Jr. in a recent issue of THE CONSERVATIONIST mentions non-poisonous snake bites. I am curious how they occur and by what kind of snake.

For the past 43 years, I have had many and varied experiences with the black snake of eastern New York and have accepted this creature as a necessary link in nature's balance. It was a startling but educational experience to see one splash from a 4-foot embankment into the tail race of the Ephratah Power house (west of Johnstown, N. Y.) and catch a 10-inch brook trout and swim smoothly and effortlessly away with it. On another occasion, mystified by distress crles of a wood thrush, we found a large one picking young birds out of a nest in a hazel bush thicket 5 feet high, gulping them down. The nest, situated on a slender shoot too frail to support the reptile, presented no problem. He merely formed one loose coil around the shoot and with tail firmly implanted on the ground and muscles stiffened calmly enjoyed his meal. At our noisy approach he glanced at us, grabbed the last remaining bird, slumped to the ground, and took off. Two hundred feet away at the edge of a marsh, he raised his head above the 18-inch sweet fern bushes to see how our pursuit was doing.

Working with a crew of men near Carp Pond, Saratoga County, we surprised a number of black snakes sunning themselves on a stone pile where they had apparently been denned up during the winter. All took to the stone pile but one which took to the treetops and he provided the men a merry chase, who found themselves unable to match his speed through the tree tops though they were on smooth, firm ground. On July 21, 1953, in the Town of Fort Ann, about one-half mile east of Great Meadows Prison at Comstock, we found one over 6 feet long had climbed a 60-foot power line fixture contacting the conductor and had caused a half-minute power blackout to a section of the North Country the evening before. He was badly scorched but still alive and dangling from a guy wire below the power conductor fully eight hours later, and we snapped pictures of him as evidence of his dexterity, versatility and as it proved, stupidity. Many experiences such as above but too numerous to mention passed off smoothly with no show of hostility on the part of the snakes toward me.

However, in early October, 1965 while trouble shooting on a power line north of Hadley, Warren County on the southwest side of Potash Mountain, I was startled to hear a commotion in the drought-dried crispy leaves to my right and I stepped up on a flat ledge to ascertain the cause. There less than 25 feet away a huge black snake, head raised about 16 inches, cobra like, with a grey squirrel dangling from each side of his mouth, glared at me fiercely with his hypnotic beady eyes.

Stunned and startled but still curious, I slowly raised my field glasses for a close up study of victor and victim. This seemed to infuriate him and he charged towards me. Sidestepping quickly, I turned to see where he went only to see him charging back. Leaping from the ledge, I grabbed an unwieldy but potent stick for the next encounter but he did not come back nor was I able to find him or his prey again. Why do you suppose he charged me? In charging, once started he did not change his course nor lower his head which made sidestepping very effective. Do you know of a similar encounter experienced by others?

John B. Zepko, Ballston Spa

• *Both black snakes which occur in New York State are known to rob birds' nests quite frequently. They are still valuable parts of our fauna since they also destroy species of animals considered harmful to man and also because, under normal circumstances, their depredations on birds are a population control factor which prevents us from having too many robins. If all the birds laid as eggs each year reached maturity in four or five years we wouldn't be able to see anything but birds. For example, each pair of robins would raise six other pairs of robins each year and this couldn't continue indefinitely.*

Almost all animals will resort to "bluff" in defense of their lives or food. The black snake will quiver its tail when in danger and if it should be among a heavy fall of autumn leaves, would sound very much like a rattlesnake. As to the black snake which charged you, I can only point out that his maneuver was very successful. He may have learned this in previous encounters with humans or other animals and adopted it as a good thing. Occasionally deer have been known to charge their enemies in often successful attempts to escape. Animals living in the wild often find out that attack may be the best defense.

I have had garter snakes and hog-nosed snakes make threatening gestures and even move towards me in what could be considered a charge. Had you stood still, I'm quite sure you would have found the snake approaching you closely, but then suddenly veering off and fleeing; at least, this has been my experience in such cases.

Because the snake has no eyelid and must apparently stare fixedly at things, he has the reputation of being a hypnotist. Such is far from the case and the often mentioned stories of the snakes hypnotizing birds or mammals are strictly not true. What happens in these cases is that the animal being attacked, such as a parent bird at its nest, is obeying one instinct in the presence of a predator to remain perfectly motionless, relying on protective coloration. More often than not, the snake, which is exceptionally keen-eyed, will not notice the bird at all unless it had previously picked up the bird's scent. At the nest or in defense of the young, the threatened species often try to protect or hide the young until it is too late for them to escape. The rule of nature in all these events is that such actions are successful a large percentage of the times to make them useful defensive measures allowing the species to survive.—E. M. Reilly, Jr., Curator, Zoology, State Museum and Science Service

On planting oaks

Gentlemen: I have a summer place in eastern Rensselaer County near Berlin, which has a fine stand of oak trees on one end but nowhere else on the property. I would like to plant another stand on another part of the property for my children to enjoy. I have had no luck in planting either acorns or oak saplings, which seem to be hard to find.

This seems to be a common problem as oaks seem to be suffering from numerous diseases and become more scarce with each year.

Roger Cline, Bronx

• *About your recent letter to* THE CONSERVATIONIST.

Yes, eastern Rensselaer County does produce some very fine red oak, and you are fortunate to have a good stand at one end of your property. But you do not tell me enough to even guess why there is no oak at the other end.

The first thing that a sprouting acorn does is to put down a strong taproot, so that, by the end of the first season, the root may be a foot long while the top will be only 3 to 4 inches tall, with 2 to 4 leaves. This makes even young seedlings very difficult to transplant, and bigger wild trees are even more difficult.

If you try planting acorns, you had better plan to cover each spot with a 6" square of ½" hardware cloth to keep small rodents from digging them up; creatures like squirrels, chipmunks and mice.

If your planting area is old grassland, it may be that the soil is too poor to grow the more demanding hardwoods. In that case, you had better plant the area to conifers, let them kill the grass and improve the soil. When that has happened, the squirrels and the bluejays will bring in acorns that can get started under the protection of the evergreens.

To the best of our knowledge, there have been no serious insect, disease or weather problems with red oak in your area; we haven't even had a serious outbreak of that notable defoliator, the gypsy moth. Several years ago, we had a late frost that killed the new leaves in the tops of the big trees, but it did no permanent damage.—David Cook, Senior Forester

What's a diamondback?

Dear Editor: I have a few questions to which you might be able to furnish answers.

I hunt rattlesnakes for a hobby around Yost (N.Y.). In the last 21 years, I've killed more than 300 timber rattlers and three with diamonds on their backs. I've been told that there have never been any diamondback rattlers in New York State. Is that correct?

If a rattler bites itself, would the venom kill the snake?

How many snakes are born in a litter, and how many litters from one snake a year?

Also, when do woodchucks mate? Which month?

Thomas Skandera, Canajoharie

• *One of the difficulties with snakes, especially rattlers, is that they can be snakes of a different color and yet be the same species. The timber rattler may have distinct diamonds on his back and this alone does not make him a diamondback rattler. The diamondback has never actually been taken in New York State. Of course, someone may bring one in and let it escape, in which case, not finding a suitable mate, it would soon die off. Based on this I am reasonably certain that you have only seen the timber rattler in New York State. The only other rattlesnake found inside the State is known as the Massasauga, which is a small rattlesnake confined to swamps, one near Rochester and the other near Syracuse as far as we know now.*

Some snakes may actually be killed by their own venom. There is, of course, somewhat of a natural immunity to their own poison but this might not overcome an extra large dose of their own poison. A snake actually biting itself may have enough of a reflex action so that it does not pump a full dose of poison into the entry wound of the fangs. The poison is most dangerous when there is a large amount of poison injected, when the animal bitten is relatively small or, if large, unhealthy and, of course, there is some variance in the potency of the venom according to the health or physiological makeup of the snake. Snakes have been injected with their own poison and have died from these injections. Other factors are rather difficult to measure or even judge.

A female rattlesnake may give birth to twenty young at one time. Unless there is something highly unusual, there can only be one litter in any one year from any one female snake. An occasional snake may drop as many as thirty and, of course, as few as four or five. On the average only about 2 per cent of the snakes born each year survive to adulthood, which just about replaces those dying in the present generation.

In New York State the woodchuck breeds from late February to May. The young appear about a month after the breeding which means somewhere from March to June. — E. M. Reilly, Jr., Curator, Zoology, N.Y.S. Museum and Science Service

A musical bee

Dear Sir: I am mailing you a box today containing something rather peculiar, and I hope you will be able to tell me what kind of a bee built it.

We have some Chinese cymbals made of bamboo rods about 6 to 8 inches long hanging from our porch roof and a bee about the color of a wasp, only smaller, began carrying pieces of leaf up into one of the hollow rods. It would fly away and soon return with another piece of leaf. My husband, rather annoyed, sprayed the rods with insect spray and the bee flew away and never came back. Several days later I found what I thought at first was a long green worm on one of my porch chairs; it was sealed at both ends and made up of the pieces of leaf.

I kept it for several days until my son-in-law returned from Canada. He was curious to know just what it was and how it was made, so we took it apart, and it was made up of sections, each sealed at the ends. In each one was a tiny egg surrounded by a yellow substance; this first piece was about 6 inches long.

One day this week another piece, shorter than the first, dropped out of the same rod and this one I am sending to you.

No one around here has ever seen anything like it, and I am hoping you can enlighten us as to what kind of a bee it was — I am sorry not to be able to send the bee along, but he took off as soon as the insect spray came on.

Mrs. Ray Turk, Binghamton

• *The long, green "wormlike" tube was a good example of the work of a leaf-cutting bee. The activities which you observed and described so well are typical of this interesting insect.*

The yellow substance which you saw in each section of the tube was probably a mixture of nectar and pollen, which the bees collect to provision the cell for the larva which hatches from the egg.

Mr. John Wilcox, Curator of Insects at the Museum, has featured the leaf cutter bee in an article in THE CONSERVATIONIST *(April-May, 1962) entitled "Some Architects of the Insect World."*

As stated in the article, these bees form their nest cells in some natural cavity in wood, under loose bark, or in the ground. The example cited by you is a fine instance of the opportunism that characterizes many insects in the choice of living quarters or hibernation sites.—Donald L. Collins, State Entomologist, N.Y.S. Museum and Science Service

No reimbursement

Dear Sirs: My husband and I feed the wild birds throughout the year and during the cold weather months purchase large quantities of bird food and suet to keep the feeding stations well-stocked.

Noting our purchase, the salesman in the store advised us to mail the seal of the bag wrapper to your office as reimbursement would be provided. We would like to have this fact confirmed as we do spend considerable funds on this project. Also several elderly, retired neighbors living on marginal incomes love birds and give them food scraps, not being able to afford bird seed. They, too, would welcome this information which, if true, would enable them to provide feeding stations for birds. As a member of a State University faculty, I have to be away during the week but our neighbor keeps the feeding stations filled during our absence.

Mrs. Robert F. Herlihy, Newcomb

• *The Conservation Department does not furnish any food for wild birds. The extent to which the people of New York State feed wild birds prohibits us from being the supplier. If we provided free food, we would have to expand our entire budget in the Bureau of Game for this purpose alone.*

Many local sportsmen's clubs, however, do furnish food for birds usually in the form of cracked corn, or something similar, for pheasants primarily.

You might inquire of your local sportsmen's club to find out whether or not they carry on this practice. — Walton B. Sabin, Conservation Biologist

Bothered by auto kill

Dear Editor: I have become disturbed over the unusually high number of animals I have seen dead on the highways this year. In the past week, I have seen on a ten-mile stretch of highway which I travel over every day about 20 dead animals. The list includes skunks, birds, cats, dogs, chipmunks, mice, rabbits, a fox and many woodchucks.

I would like to know if this problem has been studied by the State Conservation Department, and if it has, could you tell me what has been done or what can be done.

Peter Howard, Wingdale

• *It is indeed regrettable that so many birds and animals are killed by automobiles; it is equally bad that so many human beings are also killed by automobiles. But I am afraid that the only basic answer is for motorists to use more care. Our Department is studying the use of reflectors to help prevent deer from coming out into the highway in front of automobiles at night, but we have not reached any final conclusions on whether this would be worthwhile. We appreciate your interest in the problem, and I assure you that if any feasible means of reducing the slaughter can be found, that we will use it.—Editor*

Light on rabies

Dear Sir: Going through my recent issues of a German nature magazine I came across some interesting information. Rabies, as you may know, is extremely serious in Europe and has all but eliminated the foxes there in certain areas. Rabies is carried over into foxes through mice and is caused by a Lyssa virus that is found in the soil. Everybody knows foxes feed mainly on mice. Dead and sick foxes are much more noticeable than mice. Observations in Europe show that foxes are well and healthy in areas where no mice are found, such as swamps where it is simply too wet for mice to live.

Dr. Milan Nikolitsch from the Pasteur Institute in Novi Sad, Yugoslavia, is cited as the research scientist responsible for finding this important fact.

I just reread the article in the April-May, 1967 issue on rabies control and research in New York. If it is true (and I have no doubt in my mind that it is) that a virus in the soil is responsible and that mice rabies is extremely high, I think we need to change our thinking somewhat, particularly our thinking on research.

With this information we can now explain why bounties and trapping have not seriously reduced fox rabies. It is not just the "fox to fox contact" but also the fox to mouse contact that spreads the sickness. This also explains why skunk rabies has increased and raccoon rabies, even with a high population, has remained low. Take a look at their food habits. Skunks will much more readily take mice than raccoons. Nearly half of a skunk's diet during the summer will consist of insects, many of which live in the soil or at least come in contact with it. Raccoons eat fewer insects and more fruits, nuts, corn, etc., than a skunk.

Bats sometimes feed on the nocturnal carrion beetles when they come out from beneath the carrion and the soil. These beetles, in Europe at any rate, have been proven to be carriers of the rabies virus and are responsible for spread of the disease there.

While a reduction of animal populations may help reduce rabies, it will not control it so long as mice have this terrible disease and there are insects that carry this virus. I have a feeling that, percentage-wise, rabies sometimes occurs in smaller animal populations as much as they do in bigger populations. There are just fewer animals that could possibly obtain rabies.

Franz L. Pogge,
Forestry Sciences Lab.,
Morgantown, W. Va.

Wire fish net

Dear Sir: I am writing to you in the hope that you may be able to help me. I have been looking for a book or someone who can teach me how to weave a wire fish net.

This net is made of flexible wire and regulation size. I believe it is 10 inches round and 10 inches deep, which is used only to catch fish bait. I would like to learn how to do this.

Can you please tell me who can teach this to me or where I can buy a book that will show me how to do this.

E. M. Stramacchia, Lock Haven, Pa.

• *You've come up with something I've not yet seen in any publication; we haven't run anything on it in our own,* THE CONSERVATIONIST. *Seems to me that some technical magazine would be more interested in such a chore.*

Frankly, I wouldn't think it worth the time and trouble; you could purchase a legal bait trap much cheaper. Most any sportsgoods store would carry them.—Roland B. Miller

Use no darts

Dear Sirs: I have been reading some past articles in THE CONSERVATIONIST and in the December-January, 1960-61 issue, I found an article on "Seneca Blowguns."

If you would, send me any information on this weapon, its construction, and the kind of materials that could be used to make one.

Steven Babcock, Olean

• *The best modern way to get a blowgun is to buy a 6-foot length of hard drawn aluminum tubing, 3/8" inside diameter. This is a better deal than any material previously available. You can have fun shooting home made clay balls through it.*

I would advise against making or using darts, the way the Indians did. They are difficult to make, as the "feather" (a gas-check) has to be just right to fit the bore of the blowgun. They have a surprisingly long range and are dangerous to shoot and not very accurate. I'd stick to clay balls and keep out of trouble. — David B. Cook, Senior Forester

Club name

Editor: I 'phoned the Law Department [Bureau of Law Enforcement] and was told to contact you in regard to whether or not we can use the name . . .

I would appreciate your sending me the necessary forms to complete so that we may use this name for our hunting and fishing club. Is it possible for you to check into whether or not this name is used by any other organization in New York State? If not, we would like to make application to your Department for the exclusive use of this name for our organization.

Robert M. McMains, Syracuse

• *We would have no jurisdiction over the use of a club name. It seems to me that you need legal advice on registering names. Business names are filed for small fees; so are corporate names. And the latter's a good idea for a club — incorporation. Then there's some assurance you have the sole use of the name. There are, however, many similar club names in different parts of the country — even in states — and there doesn't seem to be any particular conflict. After all, such a club name would more or less designate your club as of Syracuse.*

You must have some legal light in your organization who can come up with the technicalities.

Enclosed is a model set of by-laws and constitution for a club. — Roland B. Miller

Too big a bite

Dear Sir: As an avid reader of your letters column, I thought the enclosed picture might be of interest to you and other readers. My son is holding an 8-pound walleye pike, which we found floating on Bob's Lake in Ontario, Canada. The cause of death can be seen protruding from the pike's mouth — a large sunfish which could neither be swallowed nor disgorged. In fact, we could not pull it out ourselves.

I wonder how many large fish die in this manner? Who would ever think of fishing for walleye with a large sunfish?

John L. Schrader, Fair Lawn, N.J.

Deodorizer needed

Dear Sir: Recently I was babysitting with my friend's five children, when one of them ran in to tell me a skunk was by their clotheslines. (Only a few feet from the house!) My friend's sister and I managed to get the neighbor children sent home and my friend's children and excited dog in the house without upsetting the skunk. Closer to the house than the lines are some wooden boxes and large toys in a pile and this is where the skunk was last seen. My friend said if anyone got sprayed to bury his clothes and bathe them in vinegar and water. I said, if a skunk "sprayed" that close to the house I'd get in my car and GO!! I'm interested to know just what is the best "deodorizer?"

Mrs. Fred Fisk, Pennellville

• *We have some literature (enclosed) on the skunk but there's nothing in it about deodorants; rather it mentions the opposite, of the animal using its mechanism for defensive purposes.*

However, some relief can be obtained by using regular detergents, and tomato juice. Briefly, a warm shower or tub with a detergent and followed by application of tomato juice gives relief. Pets have been known to be deodorized by liberal use of tomato juice and several washings in strong soaps (but not too strong that it harms a pet's sensitive skin).

That's about the best we can offer. The best advice, of course, is to let the critter have its own way. Usually it won't offend unless irritated.—Roland B. Miller

Photographic assist

Dear Sirs: Would you be kind enough to advise me whether or not it is possible to approach the base of Haines Falls either by car or on foot. Haines Falls, I believe, is on Route 23A near Tannersville. I understand it is one of the most scenic and beautiful falls in the Catskills and one which I would like very much to photograph.

My problem is, if it cannot be approached reasonably close by car, how difficult would it be to reach the base on foot, carrying upwards of sixty pounds of photographic equipment?

Of course, if there are restrictions to the area, I would appreciate hearing this also. Any information you can give me concerning my problem, and any information concerning the history of the Falls and the surrounding area would be most appreciated.

As a subscriber of many years to your very fine and educational publication, let me take this opportunity to commend you on the very fine job of furthering the cause of conservation in your State. I only wish that all states were as progressive in this area as New York.

J. W. Farr, Waterbury, Conn.

• *This waterfall is located on privately-owned land but I know of no restriction that would prevent anyone from climbing down to the bottom for photographic purposes. It is located a few hundred feet from Route 23A, but a side road from 23A to Twilight Park goes right to the top. There is an old trail by which one can reach the bottom.*

At this point I might direct your attention to another waterfall which probably has been the motif number one from the time of the Hudson River School of Painters. I refer to the Kaaterskill Falls which is one of the highest waterfalls in the East. This waterfall is located on the road leading from Haines Falls to the North Lake Public Campsite or the site of the old Catskill Mountain House. This waterfall is entirely on State land. A car can be driven practically to the top and, here also, trails lead to the bottom and other vantage points from which photographs can be made.

The Conservation Department always welcomes favorable comments on our work and the kind thoughts expressed in your letter are very much appreciated.—Edward G. West, (retired) Superintendent of Land Acquisition

Smoking Fish & Game

(Cont. from page 48)

night. Some people like to add approximately one part brown sugar to three parts salt and a liberal sprinkling of pepper; however, this is merely a matter of preference. After the meat has drained overnight, it is either hung or laid on a rack in the smoke house in such a manner that the pieces do not touch. The actual smoking will take 5 to 8 hours depending on the temperature inside the smoke house. Until some experience has been developed, it will be necessary to cut into a piece of meat to see if it is done. The meat should be smoked until it is medium well done but not completely dried out. It should be remembered that it will dry out some after the fire has been removed.

Smoked Fish

Almost any type of fish can be used for smoking but those that contain some fat or oil in the tissues are the best. Smoked brook trout is excellent but even the lowly sucker is fine eating when smoked.

A salt brine is normally used to prepare the fish for smoking. Table salt is added to a pan of water until the solution will float raw egg in the shell. Some recipes call for the addition of one part brown sugar per three parts salt, along with a couple of bay leaves and a liberal sprinkling of pepper. After the fish have soaked in the brine for approximately 12 hours, they are hung in the smoke house using a piece of wire which is passed through the mouth and then pierces the skin. With large species, such as lake trout or carp, it is usually better to fillet the fish and place the fillet on a rack. As with meat, the actual time for smoking will depend on the temperature in the smoke house. Normally a 10-inch brook trout will take approximately four hours. Fish can be tested by breaking off a piece to see if it is done. Once the flesh is cooked the fish should be removed from the smoke house, or the fire put out, as they are much tastier if they are not dried out.

Woods

Numerous woods can be used for smoking, but hickory and apple are favorites in areas where they are common. In northern New York, where these species are not abundant, soft and hard maple can be used with good success. There are numerous others which also can be used and some fans of smoked products swear by alders and others like to use corn cobs. In general, resinous type woods should not be used and the wood for smoking should be cut from live trees and used fresh. The procedure is to start a fire with dry wood and let it burn until a bed of coals is produced. The product to be smoked is then put in the smoke house and the green wood (usually pieces approximately an inch in diameter, or sawdust for the refrigerator or Swedish smoker type) is added and the door to the smoke house closed. The fire should be checked periodically to make sure that it has not gone out and to add more fuel when necessary. At no time should the fire be allowed to flare up as this will cause the product being smoked to burn. If the fire tends to burn strongly, too much air is getting into the smoke house.

Utilization

Smoked fish and game are normally served as hors d'oeuvres. In the case of fish it is skinned and broken into small pieces, then eaten with the fingers or on a cracker, either by itself or with the addition of a small amount of chopped onion and a pinch of lemon juice. Smoked meat is sliced very thin and eaten alone, or on a cracker, perhaps adding mustard or a bit of sharp cheese.

Smoked fish or game can also be used as a main dish. Smoked fish can be used in an omelet or creamed and eaten on toast or a baked potato. Smoked meat can be prepared in a similar manner as chipped beef.

Regardless of how the game or fish are used it is well worth the effort. A bit of smoked fish or venison served with a drink, when you have friends in, will list you as a true gourmet.

Albino muskrat

Gentlemen: Enclosed is a photo of an albino muskrat that I trapped and have had mounted this past season.

The 'rat is average size and had pink eyes and was totally white in every respect.

Possibly some of your readers would like to see a white muskrat. It was trapped in the Utica area.

George E. Kener, Whitesboro

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Smoking Fish and Game

by William A. Flick,
Research Associate, Fishery Biology, Cornell University

THE origin of smoking food as a method of preservation and to enhance the flavor is uncertain, but it probably developed soon after the discovery of fire for cooking meat.

The very first smoked food could have been produced in the following fashion: An Indian squaw was cooking a chunk of venison or a mess of brook trout over a open fire when suddenly one of the kids stepped on an old arrowhead and had to be rushed off to the local medicine man. When she returned, supper was ruined, having been smoked for several hours, and it was tossed into the bushes. Then a week or so later, the old man had a bit of bad duck hunting or fishing (the wind probably was in the wrong direction or the barometer was dropping) and there was nothing to eat. About this time, one of the kids came up with the ruined dinner from several days past, and low and behold, it had not spoiled. Under the circumstances (near starvation) it tasted pretty good.

It was then and there decided that smoking and drying was a good way to preserve the day's catch. The product was not what we consider as a delicacy or anything we might want with our evening martini, but it could be tossed in the back of the wigwam and held until winter or stuck in one's loin cloth to take on a hunting trip.

With the advent of refrigeration, as an aid in preserving food, the smoking of fish and game greatly decreased. In recent years, however, with our higher standard of living and a longer cocktail hour, smoked products have again come into their own. The present-day products are usually not completely dried out and are perishable, but are considerably more palatable than those which our forefathers sampled. In fact, smoked fish and game, when properly prepared, is a fine addition to any table or hors d'oeuvres tray. Many species of fish, which are considered trash species, are excellent when smoked and the smoking of fish and game is a very worthwhile venture for anyone who enjoys fine food.

Types of Smoke Houses

There is no reason why anyone who possesses a few simple tools and has a few square feet of space in his back yard cannot have his own smoke house. There are a large variety of smoke houses which have been developed over the years, but the basic principle is the same; that is, a place to hang your fish or meat, a heavy concentration of smoke and some heat. Several of the more common types:

Smoke Shack. This can be constructed from rough lumber, or if one has access to an old "outhouse" this can be cut in half and the upper portion used. A smoke shack approximately 3 feet in depth, 4 feet wide and 5 feet high with a door on the front works very well for anything other than a commercial operation. The floor is covered with several inches of sand and a fire is built in the center of the floor on the sand, or in a metal container which will hold the fire. Nails are driven into the rafters to hold the product to be smoked, or if fish fillets are to be smoked, a rack of hardware cloth or similar material should be added to the upper portion of the smoke house. The smoke house should be relatively air tight so that the fire will not receive sufficient oxygen to blaze strongly.

Refrigerator Type. This type of smoke house is constructed from an old refrigerator with the addition of a hot plate. Refrigerators are generally completely air tight and it is necessary to drill a few holes near the top to allow the heat and smoke to escape, otherwise an explosion can occur. The hot plate is placed at the bottom of the refrigerator and fresh sawdust or green pieces of wood are laid on the hot plate. The meat can either be hung near the top or placed on the old refrigerator racks for smoking.

Barrel Type. A couple of barrels and a piece of stovepipe are all that is needed for this type of smoke house. A metal barrel is used as the fire box and the upper half of one end is cut out to allow the wood for the fire to be added. At the other end, a hole is cut to allow a 3- to 4-foot length of stovepipe to be added. This pipe goes to an upright barrel and enters at the bottom. The upright barrel should have a removable top so that the product to be smoked can be put in place or removed. As with the smoke shack type, pegs for hanging meat and fish or a rack should be installed near the top of the barrel. If possible, a wooden barrel should be used for the part of the structure holding the product to be smoked as this will hold heat better than a metal barrel.

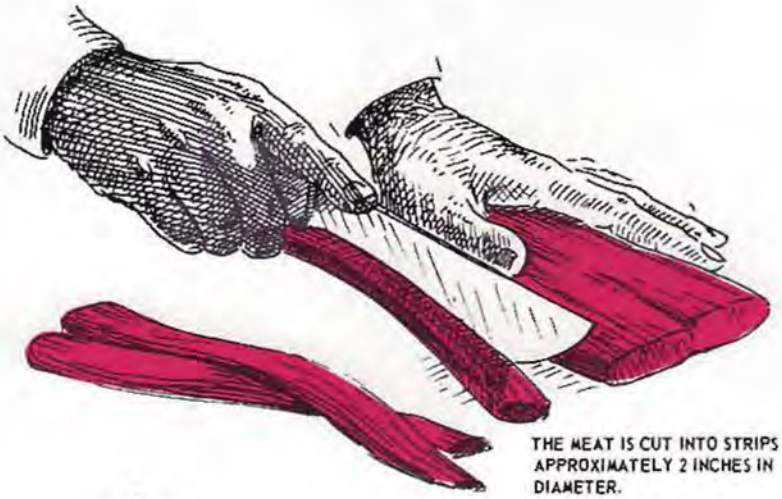
Swedish Smoker. For those who do not want to take the trouble to build a smoke house, it is possible to obtain a small commercial unit which will smoke 2 to 3 10-inch brook trout or one or two small pieces of meat. The unit is similar to a frying pan with a lid and rack on which to lay the product for smoking. Sawdust is added to the pan and it is heated on the kitchen stove or with an alcohol lamp. Some do not consider the product has quite as delicate a smoke flavor as when smoked in a conventional manner, but it is simple to use and the fish or game can be smoked in generally less than 30 minutes. The Swedish Smoker can be obtained from several sports goods dealers.

Smoked Meat

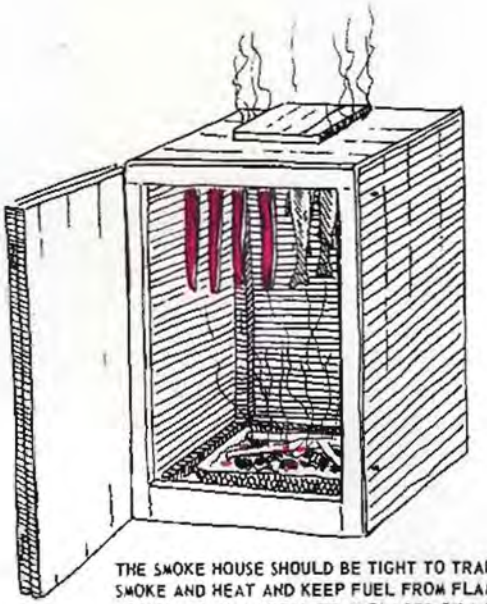
For the lucky hunter, who has killed a deer or bear, smoking is an excellent way to utilize venison or bear meat. Other game species are also said to be fine when smoked, but I have yet to kill enough grouse or ducks in a season to spare any for the smoke house. If other species are smoked, it should be remembered that meat that does not have much fat in the tissues is apt to dry out and should be smoked at a low temperature and not over-done.

The procedure for handling venison or bear is to separate the individual muscles from the legs and loin and then cut these in strips approximately two inches in diameter. The meat should then be rolled in salt and left to drain over-

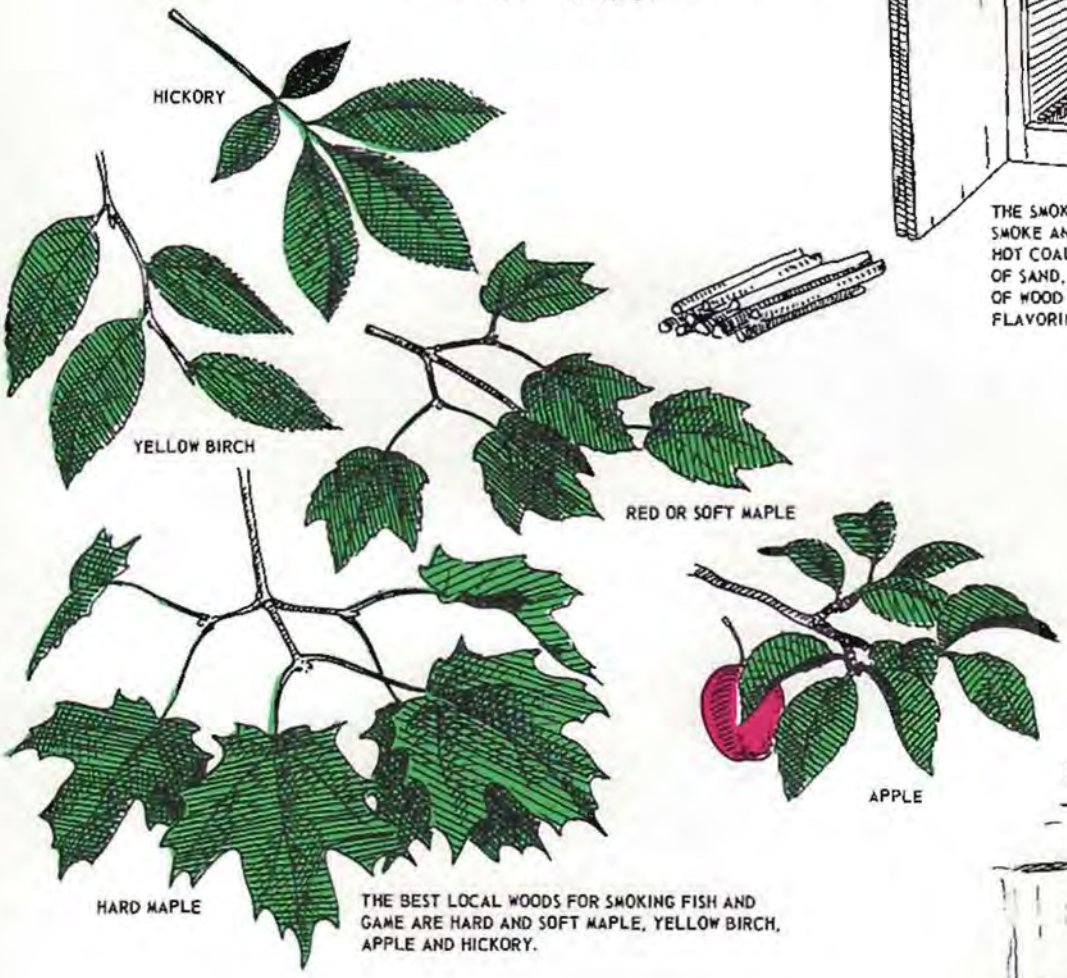
(Turn back to page 47)



THE MEAT IS CUT INTO STRIPS APPROXIMATELY 2 INCHES IN DIAMETER.



THE SMOKE HOUSE SHOULD BE TIGHT TO TRAP SMOKE AND HEAT AND KEEP FUEL FROM FLAMING. HOT COALS, IN A METAL TRAY PLACED ON A LAYER OF SAND, ARE COVERED WITH GREEN TWIGS OR PIECES OF WOOD 1-2 INCHES IN DIAMETER TO PRODUCE THE FLAVORING SMOKE.



THE BEST LOCAL WOODS FOR SMOKING FISH AND GAME ARE HARD AND SOFT MAPLE, YELLOW BIRCH, APPLE AND HICKORY.

FISH AND STRIPS OF MEAT TO BE SMOKED ARE HUNG ON NAILS ON RAFTERS AT TOP OF SMOKE HOUSE.

FISH ARE HUNG WITH A WIRE THROUGH THE MOUTH AND THEN PIERCING RIBS AND SKIN.

Instructor and Students, Belleayre

Photo by Drahos