The New York State
Conservationist
State of New York Conservation Department
February-March 1957

Beaver Pond — Early Spring

The Emmeline-M

December 21, 1956 is a date to remember. As sometimes happens, there was that day a momentary pause in the stream of time; an opportunity to celebrate an event of the moment; to review accomplishments of the past, and to look ahead to opportunities of the future.

The event of the moment (See pictures, page 39)—the christening of the Department's new research boat, the "Emmeline-M", a 40-foot trawler specifically designed, built and equipped to carry out research on the sport fishery in New York's extensive and fabulously rich marine waters.

Gathered for the occasion at Freeport, Long Island was Governor Harriman, Conservation Commissioner Mauhs, D. R. Gascoyne, Regional Director, U. S. Fish and Wildlife Service whose approval of Department plans made possible the purchase of the boat under the Federal Aid program, a group of Department people, a large turnout of outdoors writers from the metropolitan papers *and* the guest of honor in whose name the boat was christened—Dr. Emmeline Moore.

No happier choice than Dr. Moore could have been made to lend name and inspiration to this new day in fisheries research. Retired from the Department in 1944 following 24 years of State service, she is best known for her pioneering work in originating and carrying through to completion the first biological survey of the State's watersheds. As Chief Aquatic Biologist she occupied the highest position of responsibility in a Government Conservation agency ever to be held by a woman; established an international reputation in her field; inspired and endeared herself to all her associates.

And, it is "right" too, and a good omen that the Governor of the State is taking a personal interest in the conservation and development of our marine fisheries resources. With 600 miles of shore line stretching out from the doorstep of our greatest metropolis, our marine district presently supports a commercial fishery that annually produces some 130 million pounds of food fish and, at the same time, affords sport fishing opportunity amounting to nearly two-million angler-days each year.

With such wealth at stake it's vitally important that adequate funds, equipment and trained personnel be made available in research and management to assure the future welfare of our marine fisheries resource.

The "Emmeline-M" is a start in that direction. *But only a start.*—EDITOR

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How the hunter sees some farmers

PUBLIC

The Problem

by Gustav A. Swanson,
Head, Department of Conservation, Cornell University

FREE public hunting is an American tradition which is here to stay. Our extensive tracts of public lands will assure that. Excluding Alaska, we still have more than 300 million acres of National forests and grazing lands scattered among 40 states. True, this Federal land is mostly in the West, but even hard pressed New York State has over 3 million acres of State land, divided between the Forest Preserve, State Forest areas and game management areas—all open to hunting. To provide systematically for hunting on public lands for the growing number of hunters is not exactly easy. It requires money and a continuing long term program of acquisition and development. But it can be done and has been done in many areas.

But this public land, usually the less expensive wooded or marshland types, cannot supply much of the most popular hunting — for pheasants, rabbits, and squirrels. The farmlands, which will naturally remain in private ownership, are most productive of game and they have long furnished the larger share of the hunting. Here, of course, is where the problem lies.

Public hunting on these farmlands and other privately-owned lands clearly will not continue on the free and unregulated basis of the past. A survey among the states and Canadian provinces showed that game administrators very generally throughout both countries are seriously concerned over the "farmer-sportsman problem" and the increased amount of land which is being posted against hunting. Many of them consider it their most important problem now and in the future.

Hindsight gives us an assurance that foresight could never provide in analyzing the reasons for the development of this problem. They are, of course, many and complex. To consider the reasons thoroughly is beyond our scope, but we can list a few. Basically, of course, it all goes back to a matter of law—that making wildlife the property of the State instead of the landowner. Then, too, there's the matter of tradition under which the average sportsman is inclined (erroneously) to consider it his right to hunt on private land, as well as public land, just so he possesses a hunting license. In most European countries neither the law nor the tradition exists, so there is no problem.

In 1900, a farmer living 25 to 50 miles from Buffalo, or even New York City, might see only one or two hunters a year, and they would usually be personal friends. For him at that time there was no farmer-sportsman problem. Today, however, as both landowners and sportsmen know, hunting poses a serious problem. What are the reasons?

Mostly they are obvious. Paved, high-speed roads, the automobile and a tremendously increased population are especially important. The United States' population has more than doubled since 1900. The 50-mile hunting trip that took grandfather a day by wagon can now easily be stretched to 100 miles or more before breakfast. And the number of hunters has multiplied many times since 1900 instead of merely doubling like the population. The need for outdoor recreation is more fully recognized because today so many of us are so thoroughly confined indoors in our work, but the increase in leisure time and ease of travel contribute.

Particularly important is the change in the character of our population. In 1900 it was predominantly rural. Today it is overwhelmingly urban. In New York State alone since 1900 the number of commercial farmers has decreased by 137,000 and the amount of land they farm is less by 9,000,000 acres! The increasing army of city hunters is concentrating its attention on a much smaller area of farmland. That is where the pheasants are.

These and more are the causes of the "farmer-sportsman problem" which is so important in so much of the United States. What is being done about it? Remarkably little, when we consider the importance of the problem, and the time it has been with us. In 1929 a committee headed by Aldo Leopold recognized it and presented a masterly analysis in their proposed American Game Policy (16th Am. Game Conf. pp. 196-210), which was adopted by the American Game Conference the next year. In the discussion at that time Seth Gordon reported there was complete agreement ". . . that unless the landowner is given a square deal and, especially in thickly settled sections, is taken into a workable partnership he will become still more rebellious, allow no hunting, and take no interest whatever in the game crop." But it is one thing to recognize a problem and another to solve it.

In 1955 the New York Legislature appointed a Joint Legislative Committee on Revision of the Conservation Law headed by Assemblyman Leo Lawrence of Herkimer. The Committee placed the "farmer-sportsman problem" on its list of those calling for continuing study and later requested me to serve in a consulting capacity and review the experiences of other states to see if we might not profit by their successes or failures when considering legislation in this field. Only the closest co-operation between the Legislature and the State Conservation Department could produce a successful program for this difficult problem, and such close co-operation was assured when Assemblyman Lawrence and Commissioner Mauhs conferred soon after the Commissioner's appointment.

In our survey of what the states are doing in this field we found that with rare exceptions no one had yet taken ". . . the landowner into a workable partnership" . . . noted as essential by Seth Gordon

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HUNTING

The Program

by E. L. Cheatum,
Chief, Bureau of Game,
N. Y. S. Conservation Dept.

How the farmer sees some hunters

NEW YORK STATE can proudly claim several firsts in conception and implementation of pioneering programs concerning natural resource conservation and management. The great Forest Preserve system and the Forest Practice Act are nationally recognized examples. There is no more promising time than now for achieving another major first, namely, the enactment of legislation that will provide the framework on which the Conservation Department and the citizens of this State can build a sound and durable wildlife management program on private lands to meet the problems of today—and tomorrow—and for the benefit of all.

Modern fishing and hunting pressures have intensified many problems concerned with natural resource conservation and utilization in our State. Maintenance of the traditional privilege of free public hunting and fishing is one of the most critical of these confronting conservation agencies. It is largely the result of human population increases and competition for land space on which to perpetuate the recreational benefits afforded by our varied wildlife.

The posting of private lands by owners who resent or fear the invasion of their property by unknown people has been increasing steadily. This in turn has stimulated many sportsmen's clubs to acquire their own lands by purchase or lease, and post these to assure their membership a place to hunt without fear of disfavor or worse. These practices take even more lands away from that vast majority of unorganized nimrods who fare forth annually, trusting to luck that they find lands on which to hunt—and something to hunt for, without fear of reprisals.

The posting problem is, of course, particularly acute in the vicinity of heavily populated areas and in regions of high agricultural development. In the latter case, farm game such as pheasants and cottontail rabbits are least accessible where they are generally in greatest abundance. State lands open to hunting are fewest in frequency and extent in these farm game regions, and extension of such lands through purchase or lease would be extremely costly. Moreover, these lands accommodate only a small fraction of the demands of the public. Thus the most productive farm game habitat of the State presents an extremely popular attraction to hunters and gives rise to some of our most strained relations between sportsmen and landowners.

The vast majority of our wildlife is produced and nourished on private lands. Its continued production and utilization is dependent to a large measure on the way these lands are managed by their owners. Yet the ownership of fish and wildlife is vested in the people of the State and the Conservation Department is charged with managing these resources for the benefit of all the people. It is therefore clear that their sound management, which not only involves the preservation and improvement of their habitat but also includes the cropping of annual game surpluses, requires an active program of co-operation between private landowners and the Conservation Department—the latter representing interests of the people as a whole. This co-operation must be obtained by a system of incentives including protection of property rights, and material aid to the landowner which will make this co-operation worth his while.

We have watched the successful functioning of the Forest Practice Act which became law in 1946. This Act directed the establishment of Forest Districts, and District and State Planning Boards to devise forest practice standards, and through assistance of the District Foresters implement these standards of woodland management, timber marketing and reforestation on private lands. So successfully has this program worked that at the present time 5,534 individual landowners are conducting good forest practices on a total of 1,425,166 acres. A fine working relationship has grown up between the co-operating woodland owners and the forestry staff of the Department in the course of the FPA program. This desirable relationship should be extended into the field of wildlife management.

In many respects, and particularly from the public relations standpoint, it is even more vital than in forestry that we establish this co-operative relation with landowners in wildlife management programs. For, after all, there is seldom controversy or conflict over the question of ownership and utilization of a forest or woodlot on private lands. Neither do those trees become a nuisance to the neighbor. Quite to the contrary is the case with free ranging wildlife which, though finding its sustenance on private property, is the property of all the people—with the Conservation Department bearing the responsibility for its management. These facts are at the very root of so many difficulties arising between the ownership interests of the land and State sovereignty over protected wildlife living thereon.

The idea for a Wildlife Management Practice Act has been germinating for several years. I heard it first discussed in 1952 at a staff conference of the Bureau of Game at Raquette Lake. The District Game Managers brought the subject up in the course of our discussion of the problem of implementing a more comprehensive program of wildlife habitat improvement and development on private lands. The idea simmered and a year or so later District Game Manager Robert Perry took the Forest Practice Act as a model and prepared a preliminary draft for a Wildlife Management Act. Our Bureau worked this over and broadened its scope to include fisheries management.

(Continued on page 33)

Opening a scallop, first step. Note annual ring on shell

Scallop with top shell removed

Bay Scallops

The Blue-Eyed Beauties of Our Inshore Waters

FOR those who love sea food, and fortunately for the commercial fishery, millions of us do, nothing touches off such a delightful tinkling of "gastric bells" as the prospect of a bay scallop dinner. Fortunately, too, these bells ring more frequently lately than they have for some years. Bay scallops after many a lean year are prospering once again in the inshore bays and estuaries of eastern Long Island.

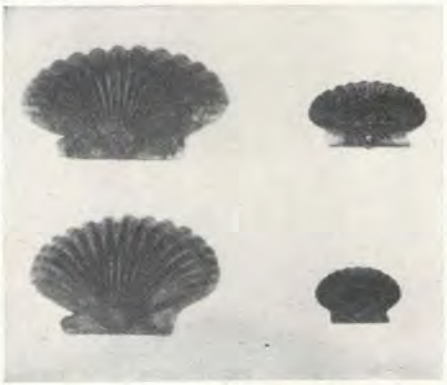
Scallops, so named because of the scalloping or convolutions of the shells, are diligently sought in our inshore waters by "mess diggers" and commercial fishermen alike. The mess digger attacks his prey with a wide array of implements from dip nets to garden rakes to visual picking by hand, with a considerable modification of these implements, depending on the individual's ingenuity.

The commercial fisherman, however, limits himself almost exclusively to using dredges which are towed from a boat under sail. (The law prohibits the use of power boats in dredging for bay scallops.) On calm days in shallow water, the more industrious fishermen will anchor a rowboat using a long anchor line, and drift back on this line, place his dredge or dredges overboard off the stern, and using the anchor line, manually pull himself, boat and dredges forward. This, however, is done only in areas known to have a heavy concentration of scallops and is not recommended for the amateur. Commercial fishermen on Long Island during the 1955-56 season (Sept. 16-March 31) marketed 33,843 bushels of scallops in the shell which amounted to 203,055 pounds of edible meat. The market value of their catch amounted to $186,926. (As compiled and published in the New York Landings, Marine District's annual report.)

Scallops are remarkable animals because they are true hermaphrodites. That is, each individual possesses both male and female sex products which are released freely into the water during the spawning season. In our area spawning occurs sometime between the middle and end of July, depending largely upon the water temperature. Fertilization occurs in the water and the resulting young or larvae remain in suspension for approximately ten to twelve days, again largely depending on the water temperatures and available food. At the end of this time they have grown and developed to the point that they now almost identically resemble the adult—but in miniature size.

At this time "setting" occurs, the animal goes out of suspension and settles to the bottom where it attaches itself by means of a fine fibrous thread secreted by a gland in the foot. This attachment has considerable elasticity and is known as the byssus thread. This thread can be cast off at will when the animal so desires and manufactured again at a more desirable location. This means of attachment is essentially a protective measure to prevent washing ashore.

The scallop has a very short life span, living only from twenty to twenty-six months with a very small per cent living to spawn more than once. In view of the fact that scallops have such a short life span it is important that the older individuals (individuals in excess of one year that have already spawned) be harvested —or they will be lost to the fishery due to natural mortality. Likewise it is im-



Lower pair—adult and "bug" scallops in September, and (above) in October. Note rapid growth of bug.

Typical scallop dredge used in fishery

NOTE: Bay scallops are not to be confused with their larger relatives, the sea scallops, found in offshore waters.

Removal of visceral mass leaves edible adductor muscle

portant that the young of the year or "bugs" in the jargon of the fishermen, be left to spawn in order to maintain the population. An adult scallop is easily distinguished from a "bug" by a distinct line of demarcation on the shell caused by a cessation of growth during the Winter months when the water temperature is low. This period is followed by accelerated growth in the Spring and Summer when the water begins to warm. The line or mark of differential growth thus formed on the shell is generally referred to as the annual growth ring and only scallops having it are permitted by law to be taken. Other rings may occur on the shell due to minor disturbances in growth but are usually insignificant in comparison to the annual ring.

Scallops have a large number of beautiful, blue, well developed eyes located on the mantle and corresponding closely with the convolutions of the shell. These can be seen by even the casual observer when the shell is slightly open. The eyes are very sensitive to changes in intensity of light and are used to detect enemies and obstructions.

These bivalves also are endowed with the ability to move vigorously about by means of jet propulsion (nothing new in the animal kingdom). This is accomplished by opening the shells or valves and closing them rapidly, thus forcibly ejecting the water in the shell cavity through holes located on the lateral margin of the hinge end of the shells. By repeating this opening and closing of the shells they are able to "swim" a considerable distance.

This brings us to the "meat" of the article—the muscle used to close the shells. This adductor muscle or "eye" is the edible portion of the scallop, and the only part of the scallop that the vast majority of people ever see.

The scallop meat is removed by inserting a blunt knife blade between the shells and pressing the blade up and along the inner surface of the top shell to sever the muscle. The top shell may be distinguished from the bottom shell as it is shallower in profile and dirtier in appearance. The top shell is then removed by breaking it free at the hinge. The visceral mass, including the gills, mantle and gonads are then removed from around the muscle with the blunt point of the knife—in one easy operation when the knack is acquired—leaving the bottom shell with the muscle or meat still attached. Now by pressing the knife down and across the inner surface of the bottom shell the muscle is cut out.

Be prepared to repeat this operation a great many times before enough of these bite-size tidbits are accumulated to constitute a meal. One bushel of scallops in the shell will yield from two and a half to three quarts of edible meats.

The edible portion constitutes approximately 18 per cent of the total weight of the animal. In general the rest of the animal is waste except for a small per cent that is used to bait eel pots or for chum for black fish (tautog).

A popular myth or piece of misinformation associated with scallops is that they are, or were at one time, man-made from the fleshy wing-like portion of the skates and rays caught by fishermen. This feat is alleged to have been accomplished by punching out plugs of flesh to resemble scallops—a tale the author has been unable to validate or accept as being economically feasible.

So there we have the bay scallop in brief life history review—a delight to the gourmet, an important resource of our marine waters and, now that it's making a recovery after many years of scarcity, a subject of great cheer to Long Islanders.

—WILLIAM S. MILLER,
Aquatic biologist (marine)

WOLVES
vs.
The State of New York

On April 7, 1815, New York State authorized a wolf bounty—paying $20 for an adult and $7.50 for a whelp. At the same time it was also stipulated that an equal bounty could be paid by a county. Accordingly, in October, 1820, Franklin County authorized a bounty of $20 for an adult wolf, $7.50 for a whelp and $25 for a panther. This, in turn, was followed by the offer of the Town of Chateaugay, Franklin County, to pay $20 for a wolf, $30 for a panther, $10 for a bear and $5 for a fox. Thus, if trappers handled the thing right, three wolves were worth a tidy $60 each.

In the year ending Nov. 30, 1821 the State had paid Franklin County $10,600 for 530 wolf bounties and by Jan. 21, 1822, 155 more claims had been presented. Total bounty payments for three years had amounted to $55,521 or nearly $12.30 per capita for sparsely settled Franklin County. Coincidentally, the Chateaugay town tax rate had increased from 1 per cent of valuation during 1817-1819 to 2 per cent in 1820 and 8½ per cent and up in 1822. Apparently something was amiss. At least so thought some absentee taxpayers who registered a complaint following which the Legislature intervened.

Investigation disclosed some interesting and profitable practices. Enterprising individuals had formed companies that not only trapped wolves but imported some from Canada, as well. In addition, dog scalps were produced as evidence and reused many times for wolf bounty payments. County certificates were passed as money, and skins were sold beforehand to Supervisors who audited their own accounts. Some Justices trying to do a good job, went into the woods to see the wolves in the traps, but one wolf looked pretty much like any other wolf and the same were, let us say inadvertently, viewed and counted more than once. Investigators also made the observation that they believed the trappers had lures which attracted wolves from great distances. We have the same lure today and it is called money.

The remedy was simple, prompt and effective. The Legislature limited bounty money for Franklin County to $1,000 per year, $500 from the State and a like amount from the county. If claims exceeded the $1,000, all claimants were to share equally. State payments to Franklin County for wolf bounties dipped from $10,600 in 1821 and $6,835 in 1822 to $25 in 1823. From Nov. 30, 1823 to Jan. 17, 1825 payments amounted to only $407.50.

The Hector

Symbolic of New York's 5 million abandoned acres

Reclamation for pasture is one solution

Reforestation of hillsides—another answer

HERE in New York State, land the area of a half dozen counties, has gone out of farming in the past 50 years. It's not the best land; it's often poor grade or remote but its destiny is a pattern for the future. Although much remains in private hands, the State has acquired considerable acreage for parks, State forests and game management areas. Counties picked up considerably more through tax delinquency.

Referred to as one-sixth of the State and our greatest conservation problem, this so-called abandoned land was discussed at some length in a series of three articles entitled "The Blackwell Place," published in THE CONSERVATIONIST several years ago. "The Blackwell Place" approached the problem from economic and social angles and made several concrete suggestions for wise land use of such areas. These included forest and wildlife management, recreational development and reforestation. In this article we would like to present another approach to the problem.

For some time now for generally satisfactory production on some of these marginal lands, the State and most counties have been reforesting, managing existing woodlands and encouraging private owners to do likewise. Nobody seriously quarrels with this. Trees are good, useful citizens.

Supposing, though, the land may be needed for quick conversion to other purposes—for emergency crops, urban development, for farming's highly scientific tomorrow. How, then, to use it and still conserve its potential? Converting timberland is no easy matter.

As one answer to this question here's what 120 co-operators in central New York have done on 13,000 acres of such lands. Officially known as the Hector Land Use Project, the development is commonly referred to as the Hector Grazing Project.

Lying across the border of Schuyler and Seneca counties and straddling the ridge between Seneca and Cayuga lakes is an area of about 13,000 acres of land once in active farms. The 'Blackwell Place' could have been one of them. In 1934 the Agricultural Administration offered to buy this area from the owners under the agricultural program. At the time, less than one-half the land was farmed and two-thirds was tax delinquent. The offer was accepted and the land changed ownership for depression prices

Land Use Project

High in the hills of the Finger Lakes country, men of the land are working together under an unique co-operative agreement to profitably manage, through a multiple use program, a 13,000-acre tract of sub-marginal farm country.

The area in point is typical of some 5 million acres (1/6 of the State) shortsightedly exploited and then abandoned within a short 100-year cycle. From one-time forest cover this vast tract of hillside country stretching clear across the State degenerated into a composite of scraggly woodlands, eroded hillsides and brushy pastures — truly, as it has been termed, "little more than a rural slum."

The manner in which this has come about, the social and economic problems that it poses, and what can be done to reclaim this millstone of degeneracy through proper land use, is the theme of a series of four articles entitled "The Blackwell Place" that appeared in THE CONSERVATIONIST *in 1947-48.* The accompanying article on the Hector Land Use Project by Dr. George C. Moore of the Soil Conservation Service has a rightful place in that series. The program he describes is working to the benefit of the forested land, the soils, the wildlife and the community—and at a profit! There's nothing like it in the Northeast, but there should be.—Editor*

of about $11 an acre, with the stipulation that it could not be resold for agricultural purposes. Passing through several Federal stewardships, administration of the area was transferred to the U. S. Soil Conservation Service in 1938 where it remained until 1953. Since that date Federal responsibility has been transferred to the U. S. Forest Service.

A soils survey of the area by the Soil Conservation Service showed that a considerable portion of this land had capabilities for pasture development as well as woodland use. With improvement of the land, grass could be grown instead of trees. Logically, 3,500 acres already in woodland on this area should be left that way and designated for forest stand improvement; about 2,500 acres of the steeper and more isolated areas should be reforested; 1,000 acres of scattered parcels—the best portions of many farms —could be rented for cropland use.

But what should be done with the remaining 6,000 acres that the survey indicated were capable of long rotations and limited plowing for reseeding — capable of growing grass. Noting that many neighborhood farms had more livestock than they could handily support, it was decided to develop a sizable portion as pasture in a pilot project to get some answers to the following questions:

1. What is the best use to which such open land could be put?

2. Would pasture be useful to nearby farms in better balancing their livestock numbers?

3. With multiple use (pasture, woodland, wildlife) could such an area be self-sufficient throughout the year?

4. Are community pastures economically feasible? Could private capital be attracted to develop and operate a similar project?

5. Would such a development apply to the general area?

In 1939, pasture development was started in earnest under Soil Conservation Service direction. Fencing, liming, fertilizing, seeding and water developments were standard jobs for every pasture—all at Federal expense. Since that time, in the next 15 years, 75 miles of fence have been constructed, 3,260 acres of pasture have been limed at least once, 1,365 acres of pasture have been seeded to birdsfoot trefoil, 26 ponds developed for stock water, 1,572 acres reforested, 4,435 trees harvested as Christmas trees and 1,044 acres rented as cropland.

In 1941, as improvement operations made grazing opportunities available, nearby farmers were notified by the grapevine and the County Agents of nearby counties were informed. The "Farm and Home Bureau News" helped spread the word and interested farmers were instructed to make application directly to the Soil Conservation Service. The idea caught on and farmers began to make use of the grazing facilities. Livestock are now trucked into the area from as far away as 80 miles and come from 10 to 12 counties.

In the beginning, the Federal government kept all revenue from pasture fees and assumed all responsibility for development, maintenance, and care of livestock while on the area. From 1942 to 1944 the Hector Grazing Association, composed of the pasture users, assumed responsibility for actual care of the livestock, retaining a portion of the fees for that purpose. The balance was turned over to the Federal government which still was charged with development and maintenance. As time went on and maintenance responsibilities mounted, pasture fees were increased and in 1946 the Association incorporated. Now known as the Hector Co-operative Grazing Association, Inc., it leases the whole area from the Federal government on a 10-year basis and is responsible for the use and maintenance of the entire 13,000 acres. It determines policies, rates, cares for the livestock and carries on all activities except initial development of areas which need improvement.

The Association is a non-profit organization which operates and charges largely on the basis of cost of rendering service and maintenance. At the present time the pasture fee is $11 per head of cattle or animal for a five-month period, considered the normal grazing season. During this season the pastures serve about 1,600 animal units.

Pastures instead of plantations are in sharp contrast in the management of abandoned marginal land. The Hector Grazing Project is the only one of its kind in the Northeast and a new concept here. In addition to trees in their proper places and pastures where practical, multiple land use is the policy. It is well used by the deer and small game hunter, there is a small area for picknicking and 50 acres provide a blueberry harvest. Although management of the area is rather costly—fences are difficult to maintain because of heavy snows and distances between pastures are abnormal—the facilities have been used to capacity every year. Income has been enough to balance expenses, and the Federal government, in lieu of taxes, turns one-quarter of its gross revenue from the project into the two county treasuries for schools and highways.

Hector is a pilot project and apparently a successful one. In similar areas, not only in New York State but elsewhere in the Northeast, many individual farms go out of business but a merger of three or four neighborhood farms modeled after Hector could put them on a productive basis and conserve their economic and social value to the community. This is not meant as the whole answer to the wisest and most practical use of abandoned and marginal agricultural lands but the Hector Grazing Project questions the wisdom of reforesting every abandoned acre.

—DR. GEORGE C. MOORE,
Management Agronomist,
Soil Conservation Service

* *Reprints available upon request.*

Carp Control—A Progress Report

It's probable that no species of fish introduced to New York waters has adapted more readily to a varied environment, multiplied more quickly and caused more headaches among sportsmen and fish and game administrators than the carp. It is cursed by hunters as a despoiler of waterfowl feeding areas, looked upon with great suspicion by fishermen as a predator upon spawn of game fish, and generally disliked by waterfront property owners who like to see and swim in clear rather than roilly water.

In response to all this clamor, the Conservation Department has, for years, attempted all manner of control measures from subsidized netting to electric shocking. Only trouble was, we were working pretty much in the dark. We didn't know, to begin with, just how valid all these charges against the carp are, and, even assuming they are all true, fisheries men seriously doubted the effectiveness of known control methods. Then, three years ago, an opportunity came to get out of this uncomfortable "eight-ball" position. Funds became available under the Federal Aid (D-J) Program to set up a comprehensive study of carp in New York waters to determine whether: (1) Carp control benefits game and pan fish populations and, if so, in what manner and in what waters? (2) If the more desirable species are significantly benefited, will control be economically feasible?

The manner in which this research project was set up and a detailed review of what was hoped to be accomplished was presented in THE CONSERVATIONIST *(August-September 1954). In the following progress report, Howard A. Loeb, Aquatic Biologist, reviews findings to date and suggests the probable course of further investigations to develop—it's hoped —practical control methods.—Editor*

IN organizing the research program on carp it was obvious that the waters selected for study should conform to certain essentials—a carp population of "problem" proportions; a game and pan fish population and, perhaps most important, physical qualifications re size and type of water to permit the testing of control measures.

One such site is East Masonville Lake in Delaware County. This lake was poisoned with rotenone, and over 8,000 pounds of fish were removed. The fish numbered approximately 36,000 of which over 30,000 were carp (1,000 carp per acre). Almost all of the fish, including carp, were badly stunted and one species, the golden shiner, actually disappeared over a 3-year period. The lake was almost completely devoid of vegetation and the water was very turbid. Several years will be required before the results of carp eradication in terms of vegetation and turbidity can be determined. This clear-cut experiment may finally absolve the carp as an important destroyer of spawn, although our results must be duplicated elsewhere for conclusiveness. The poisoning revealed the presence of several thousand young-of-the-year yellow perch and smallmouth bass. The obvious conclusion is that the 1,000 bass and 4,000 perch were able to spawn successfully despite the presence of 30,000 hungry carp.

Other methods of control were first attempted in this lake, but the nets, and electric devices used proved to be extremely inefficient. The lake could not be seined because of numerous stumps.

Our netting experiences were duplicated in other experimental lakes, and the results can probably be applied to most waters. Gill and trammel nets, for example, are used in some commercial carp fisheries in the mid-west but are useless as control devices. The family of fyke nets and other hoop net rigs are also inadequate. Over 36,000 fish of all species were captured by trap nets in our experimental lakes — Lamoka and Waneta, Schuyler County—but only 300 were carp; this despite the fact that carp were abundant. In fact, the carp population in Waneta Lake (800 acres) was estimated (by a carefully controlled study using electric devices) at approximately 15,000 fish of 15 inches or more in total length.

During 1954 and 1955, a 600-foot seine was used to remove carp from the above lakes, and the Mendon Park Ponds near Rochester. The results of this study gave additional proof that seining is also, generally, an impractical method of control. Seining in the Mendon Ponds was inhibited by snags and soft bottom and catches were low; yet carp were quite abundant. Only a few areas in Lamoka and Waneta lakes were suitable for seining. Other areas dropped too rapidly in depth, or contained great masses of vegetation, snags, rocks, and soft bottom materials. Most areas of most lakes are not seinable, yet carp are "everywhere" during much of the year. Moreover, spawning and other seasonal concentrations (when present) are usually in non-seinable areas.

Commercial fishermen (few remaining in New York State) must choose waters that contain seinable areas and large carp populations. Catch size is dependent upon population size. Even large catches usually fail to effect any significant measure of control. Too many fish remain.

Any control program should be cheap, effective, and short termed. Most of the adult fish should be removed. When the population again builds up to problem proportions, removal must be repeated. Hence the emphasis on low cost. Our seining experiences in Waneta Lake checked out at approximately $1 per fish caught. This included salary, expenses, operation and depreciation of equipment. The most effective single haul netted 75 fish. With 15,000 fish in the lake, inefficiency of the seine as a control device is obvious from both economic and biological viewpoints.

A large number of carp were removed from Waneta Lake with an electric device which proved to be most effective at night. Although the cost per fish was considerably less (slightly higher catch per unit of effort while only two men are required as compared to seining's four) the device may also be considered as inefficient.

As the result of our studies we can safely state that all known methods of carp control which apply mechanical principles are impractical in most waters. On the other hand, poisoning with rotenone has been successful in waters to which carp do not have reaccess. Waters blocked are rare, however, and usually, all species of fish in a poisoned water are killed. Nevertheless, rotenoning has proved to be of value in certain waters, especially waterfowl refuge impoundments that can be partially drained before poisoning.

One of the objectives of this study was to determine the effect of carp removal on both remaining carp and other fish. Development of an efficient method of removal will serve a two-fold purpose, by allowing us to determine from which waters removal may be necessary and actually carrying it out.

The technique of selective poisoning, fairly new to fish management, appears to offer the most promise as a control tool. Use of poisons has long been employed with success against insects and plants. In some cases it has been selective as in the eradication of lawn weeds.

In the field of fishery work, studies have been made of compounds that apparently kill sea lamprey larvae in streams without harming other fish. However, the effective compounds thus far discovered are presently much too expensive for practical application. This type of poison is known as a contact poison because it is distributed throughout the water supply. Such poisons present distributional problems since enough must be present to

eradicate the weed-fish species, but too much will kill other fish.

Hundreds of thousands of compounds are available for experimentation, and more are being manufactured each year. Some 4,500 compounds were tested at random during the sea lamprey program, and there is hope that selective contact poison for carp can be found. Any compound applied, however, must be non-toxic to mammals in amounts used—a problem which can also be solved. A safe compound might be arbitrarily described as one which will kill carp but not affect a man in any way unless he drinks 10,000 gallons of the treated water within 24 hours, or swims in it for one year without a break. A usable poison would, of course, disappear after a period of days.

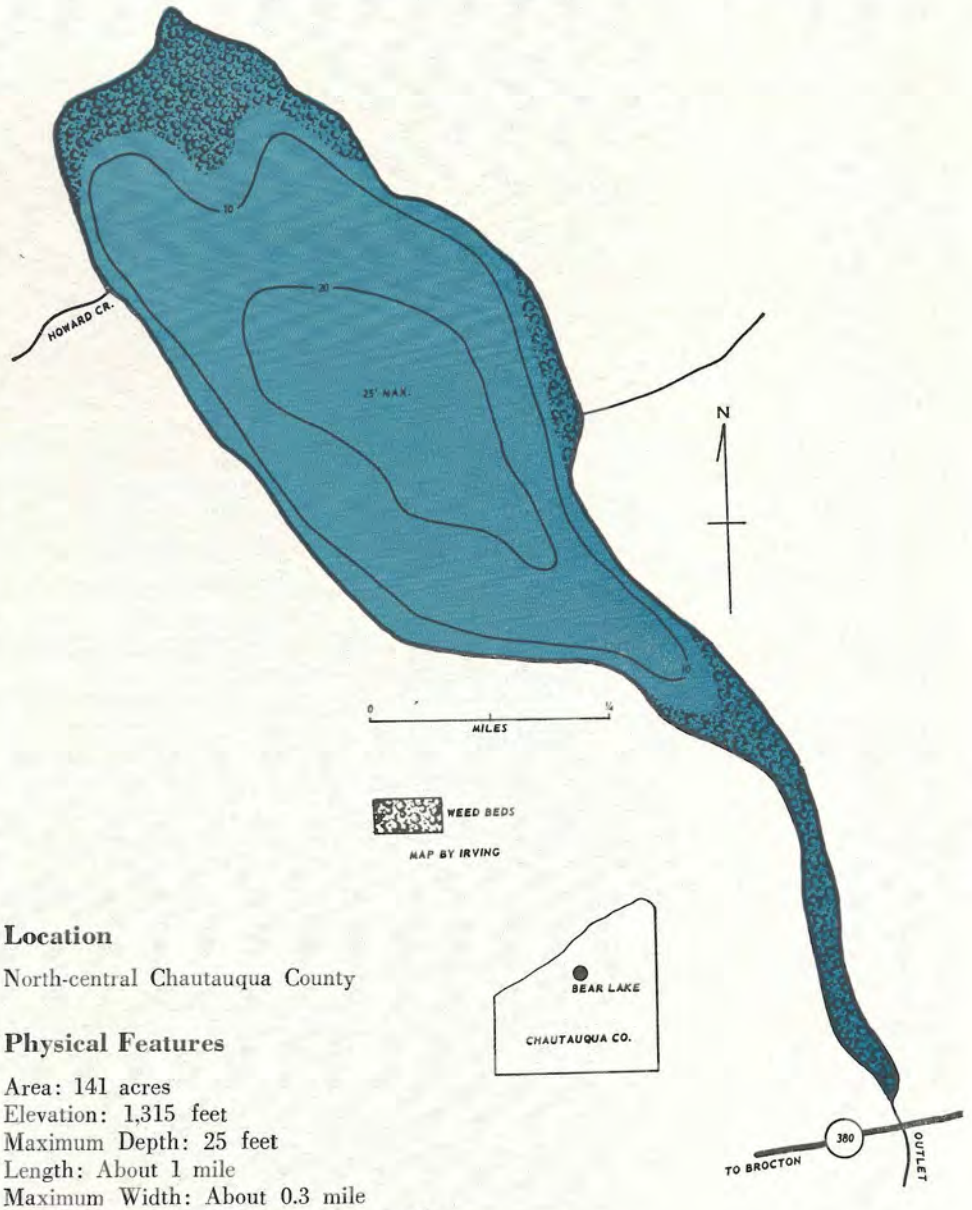
Fortunately, the food habits of the carp provide a starting point in the development of a selective method of control; that is, a poison bait. The obvious possibilities are so startling, that separate projects of poison bait development are being undertaken in California, Arizona, Colorado, Michigan and New York. The latest impetus has been given by the U. S. Fish and Wildlife Service as a result of the sea lamprey work. The entire field of selective poisoning presents tremendous possibilities for fish management and the surface has been hardly scratched.

The carp subsists largely on insects, crustaceans, and molluscs, but some vegetable matter is also taken. Artificial foods such as grains, potatoes, dough balls, and other concoctions are relished by carp during the open water season, and could be presented as a poison bait. Such a bait would have to be cheaply made and easily distributed. The poison used would be relatively insoluble in water, acceptable to the fish, relatively non-toxic to humans and other animals and capable of dissipating after 48 hours. Amounts used would be only a fraction of those necessary for contact poisoning—so little in fact that the compound would not be detected in the treated water by the most sensitive chemical tests known. Ideally, one bait would kill a carp and one or two applications would eliminate almost all of the adult fish. It is unlikely that most other fish species would touch the baits. Some suckers and bullheads might be killed but research will clarify this phase of the work.

There appears to be real hope in this poison bait approach to the problem of carp control and future plans call for the thorough testing of the many toxic compounds available for this purpose. We hope, through such laboratory and field testing, to develop a safe, inexpensive and effective bait for carp control.

—Howard A. Loeb, *Aquatic Biologist*

Bear Lake



Location

North-central Chautauqua County

Physical Features

Area: 141 acres
Elevation: 1,315 feet
Maximum Depth: 25 feet
Length: About 1 mile
Maximum Width: About 0.3 mile
Bottom: Muck, some gravel along east side

Chemical Characteristics

Poor chemistry of the water is a limiting factor for fish in this lake. Dissolved oxygen becomes limiting for fish between the five and ten foot depth contours during the Summer

Aquatic Plants

Rooted aquatic plants are confined mostly to the marginal zone where the water is 7 feet deep or less. Both submerged and emergent vegetation is present

General

Muskalonge stocked
Special muskalonge license required on this lake
Tip-ups prohibited
Boat livery available

Fish

Muskalonge, smallmouth bass, largemouth bass, yellow perch, calico bass, common sunfish, bluegill sunfish, rock bass, common bullhead, suckers, brook silverside, Johnny darter, minnows (4 species)

—U. B. Stone,
District Fisheries Manager

We Teach Teachers

BOOK learning is mighty important to a schoolma'am. She is supposed to know the answers to all the questions asked every day by thirty or more children, including your own budding genius. You know that he can ask some tough ones. And the teacher, who today is trying to drum a little arithmetic into your Johnny's head, is well prepared for the job in most respects. She has spent sixteen or seventeen years going to school herself. She has studied everything from what makes the sun rise and set, on the one hand, to Dewey's theories of learning, on the other. She has also learned to love Johnny, a feat you must admit is sometimes difficult even for you.

There is no doubt that the modern teacher is loaded with book learning. All too often, however, she is ignorant of a lot of other important things. She is likely to be a city girl with little understanding of the world beyond the classroom walls and suburban streets. To her a deer is a cute animal in a zoo, a fish is something you buy frozen in a package, and a tree is an object to be avoided when one is driving a car.

Does this sound like an exaggeration? It isn't. Until recently we had on the Buffalo State campus a lonely apple tree. We used to take our sophomore biology students—future teachers—out to study it. We were amazed and shocked to find that most of them didn't know what kind of tree it was unless it had apples on it. Some weren't too sure even then. Nor did they recognize the killdeer that nested on the campus, or hear the song sparrows that trilled away just outside the laboratory windows.

To these students conservation was a word in the dictionary, a chapter in a textbook, and a lecture by a professor. Soil erosion was something for the farmer to worry about. They were unconcerned with the deterioration of our forests, the fate of our wildlife, the pollution of our waters. They were unaware of these and similar problems except in a vague and academic way.

Fortunately, we have on our faculty a number of professors who, although they know their way around in an ivory tower, are also happy when they have a little mud on their boots. They realize that the education of a teacher is incomplete unless she—or he—knows something about the out-of-doors. Nor are we satisfied with merely turning teachers into dickey-bird chasers, to filch a phrase from Clayt Seagears. But we had a problem: How to provide the student body of an urban college with the environment needed for giving them, as prospective teachers, a real understanding of conservation and a familiarity with the out-of-doors.

Winter scene at the College conservation lodge

A few years ago a series of workshops on conservation education was held for all the State Teachers' College faculties. The series was sponsored jointly by the Conservation Department and State University. It was then and there that we developed a strong urge to take direct action. What has happened since is a long story. Here, in a coconut shell, is part of that story:

We needed a rural location that could be developed into a multi-purpose camp for our students. We had no money with which to buy land, and the State provided none for this purpose. No millionaire appeared on the scene with ready pen and checkbook in hand. So we tapped the only resource available to us, our own student body. We discussed the matter with every organization on the campus. Eventually we held an all-college convocation where we again discussed the merits of the proposal. Students and faculty worked together to put the idea across. By these means the student body was persuaded to assess itself a special camp tax of $5 per student at the next registration time, and to continue the tax at an annual rate of $3 per student thereafter. A secret ballot was taken, and the proposal was approved by a vote of 1,200 to 200.

In January, 1952, we collected from the students a total of about $9,000 and we were in business. Meanwhile we had appointed a student-faculty committee whose job it was to find a suitable site. We also appointed a College Camp Board whose responsibility was to buy, develop, manage and maintain the proposed camp for educational, social, and recreational purposes. This Board, composed of eight students and five faculty members, is the governing body of the camp.

One month later we located a beautiful, hilly, wornout farm of 433 acres in Cattaraugus County near Franklinville. Here, within eighteen months after the deal was closed we built a year-round lodge that accommodates fifty persons, and equipped it completely. The construction work was done by contractors, but student funds provided the money. Students planned, selected, and purchased the equipment. We now have a rural campus greater in area than the domain of Princess Grace of Monaco. It has cost the student body some $60,000. It has cost the New York State taxpayer nothing.

Land and lodge do not of themselves amount to much, educationally speaking. Much work has been done to make the camp a real resource for learning. For example, student and faculty worked with Conservation Department personnel and the U. S. Soil Conservation Service in planning a land utilization program. Students—mostly college girls—have in the past four years planted more than 23,000 conifers and several thousand shrubs. Students, working with their teachers, fertilized the dikes of the two ponds when they were new, and seeded them with birdsfoot trefoil. And students participate in the management of the ponds, one of which is stocked with bluegill and black bass while we experiment with trout in the other. Last Spring students experienced the thrill of catching the first trout to be taken from the pond.

The camp has been posted as a game refuge, mainly because we fear the possibility of hunting accidents. The place

Conservation

by Dr. John Urban, *State University College for Teachers at Buffalo*

Instructor heels in multiflora rose

has its share of wildlife. Students have seen, many for the first time in their natural habitats, such animals as deer, foxes, raccoons, opossums, skunks, two species of weasels, two or three species of field mice, and several others. Here they have also seen many species of birds, including the usual songbirds as well as grouse, wild ducks, and Canada geese. Last Spring a flight of loons flying high overhead provided a special thrill. One class became excited as they watched a pair of bufflehead and sixteen horned grebes placidly swimming in one of the ponds. Because the old farm provides a variety of stages in ecological succession there is a great abundance of many common and several rare species of plants.

We are not yet engaged in a total program of scientific, conservation, and outdoor education. That is coming gradually. We have used the camp for a number of conservation workshops for public school teachers. We are using it as a conservation laboratory with undergraduate students. Our camp is also used to teach the rudiments of outdoor living and camping. Students and teachers learn to cook outdoors, to find wild edible plants, to use a compass, to pitch a tent, to provide themselves with good sanitation techniques, to be cautious about drinking water. They have here a site for such scientific activities as the study of ecology, taxonomy, and limnology. They use the camp for social purposes on week end excursions. Here they gain the experience of planning menus, calculating and sharing costs, buying food, cooking and serving it, and using "caper charts" to divide up the work. They learn the pleasure of singing around a camp fire on a frosty Fall evening, watching the Big Bear wheel around in the sky. When Winter comes they can ski, toboggan, ice skate, try out a pair of snowshoes, or socialize around one of the two fireplaces in the lodge. In warmer weather they swim in the ponds, or fish in them, or just hike through the green woods and over the steep hills.

The nearest neighbor is a mile away so that students can sing and whoop and holler, and clear the sooty city air out of their lungs, without disturbing anyone. They like to hike at night along the country lane on which the camp is located. For many it is a genuine revelation to learn that they can walk where there are no sidewalks and see where there are no street lights.

One of the most significant developments has been the use of the camp by elementary schools from the Buffalo area. Several of them bring children ranging from the fourth grade to the eighth grade to the camp for periods varying from one day to a week. Parents of the children come with them to share the responsibility and the fun. "Practice teachers" from our campus sometimes accompany these groups, learning to know children as they really are.

It is our hope to develop a program for considerably greater use of the camp by prospective teachers. We are now working on a plan that will give every student in our college at least a week of out-of-doors experience. Those with especially strong interests will be given special courses in addition. Since our college now enrolls about 2,400 students and is still growing, our proposed program will require some careful planning.

Five years ago we had only an idea. Now, through the co-operation of many students and faculty members, and with the strong support of the college administration, we have laid the basis for a way of making nature more meaningful to Miss Jones. Do you know her? She teaches the third grade in your local school. Now, when your Johnny brings her an apple, she knows the kind of tree from which it comes!

Students learning by doing

The Problem With Boats

by Charles A. Cusick,
Chairman, Joint Legislative Committee on Motorboats

WE are most fortunate here in New York State to have such a wealth of natural resources not the least of which is water. To the north we share the waters of two of the Great Lakes and two magnificent rivers—the St. Lawrence and the Niagara. All across the State the countryside sparkles with fine streams—more than 70,000 miles of running water—and down Long Island way the waters of our Marine District ebb and flow along 600 miles of shoreline, while upstate again we have within our borders some 2,300 fine lakes. A few of these are sizable bodies of water but most are small, the great majority being less than two miles long and less than a mile in width.

Nevertheless, these small lakes form a tremendous hub of Summer activity for millions of New York and out of state residents. Their shores are literally lined with cottages and Summer camps. Families in ever increasing numbers go to them to enjoy a great variety of recreational activities including boating, swimming, fishing, picnicking and just plain resting. All of the users of these lakes feel they are entitled to enjoy their chosen activity in a reasonable manner and without unreasonable interference.

In the years before the war they could apparently do just that. Motorboats had not then become a problem. In those years, perhaps 25 to 50 boats powered with small motors would be found on an average size lake. They caused little, if any, conflict or confusion. But today the situation has changed completely. With the increase in the number of cottages and camps and the even greater increase in popularity and availability of boats and motors, we now find 250 boats on a lake where once there were only 50—and the numbers are increasing by leaps and bounds. Not only does every camper own and operate a boat for one purpose or another, but we also find great numbers of boats being brought to our lakes and launched from trailers by people who own or rent no property, but just come to enjoy a day or week end of sport and speed.

As a result, our lakes are literally churning with boat activity of all kinds, and the motor problem has become a very real one.

The fisherman claims his privacy is being violated and his fishing ruined; the swimmers, and especially the mothers of the little tikes who go out for a paddle, claim that any swimming is done at considerable risk of life and limb; the camper, who comes for a rest and who wants to lounge in a hammock, claims that the noise and commotion caused by the boats completely defeat his purpose, and ruin his temper and digestion; property owners complain about excessive wash and bad sanitary conditions. And finally, our police officials are at their wits' end to find a way to stop the more reckless and excessive acts of aquatic "hot rodders."

The whole thing adds up to a scene of confusion, resentment and a growing conflict of interest which must be brought to an end if the equitable enjoyment of our lakes as places for healthy recreation is to be preserved.

It was for the purpose of attempting to find some solution to these problems that the New York Joint Legislative Committee on Motorboats was formed. Its task is to try to develop a set of laws which will reflect and balance the interests of the various groups involved, produce statewide uniformity in boating laws as opposed to a hodge-podge of local regulations and, in general, prevent any one segment of the recreation groups from retarding or dominating the others.

As the first order of business, our Committee undertook (and is still conducting) a thorough investigation of all aspects of the problem—locally and statewide. We have analyzed what other states, the Federal government and Canada are doing about their similar problems. We have already taken steps which have resulted in legislation that will form the basis for further regulations as they may be required.

In the first place, we found that most of the laws pertaining to boats and navigation on the statute books of the State of New York were designed to regulate canal boat rather than motorboat traffic. It was immediately apparent that these laws had no feasible application to the modern outboard operation. We came to the conclusion therefore, that the whole Navigation Law must eventually be brought up to date, recodified and for the most part rewritten.

We also found that under the law as it existed in 1955, the State had no jurisdiction whatsoever over the very waters on which most of the problems existed. New York had specifically divested itself of any control over waters connected to tidewater by navigable channels and over those which were not "navigable in fact*." The first exception excluded from State control such lakes as Erie, Ontario, Oneida, Champlain, Cross, Cayuga and Seneca, rivers such as the Seneca, Hudson and Mohawk and the entire Barge Canal System. The second exception barred State control over approximately 2,200 of the 2,300 lakes in the State simply because they were not "navigable in fact."

It was obvious that if there was to be any effective State control, the basic jurisdictional statute had to be amended.

Therefore, we drafted a bill which eliminated the exceptions and took under State control all waters within the State lying north of Hastings-on-Hudson. The bill was passed by the 1956 Legislature and signed by the Governor. It became effective January 1, 1957.

Under the bill as drawn, we excluded those waters lying south of the 41st parallel, roughly Hastings-on-Hudson, and Long Island Sound. That was done because we assumed that active Coast Guard patrols were adequately taking care of any problems which existed in those areas. However, we now find that it may be

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* *The New York State Navigation Law defines "Navigable in fact" as a water "navigable in its natural or unimproved condition, affording a channel for useful commerce of a substantial and permanent character conducted in the customary mode of trade and travel on water. A theoretical or potential navigability, or one that is temporary, precarious and unprofitable is not sufficient, but to be navigable in fact a lake or stream must have practical usefulness to the public as a highway for transportation."*

Ed. Note—We would tell you what this means if we knew. But, though we have read and reread this definition we're still not clear as to its precise meaning—nor can we find anyone who is.

advisable to amend the new law to place under State jurisdiction those waters which were excluded by the 1956 amendment.

We have also amended the motorboat registration law. After January 1, 1957, all boats operating on New York State waters except those which are in the State for less than ten days, and those which display Coast Guard numbers, must be registered with the State and carry an assigned identification number. Registration is handled by the Department of Public Works and a $1.00 registration fee is charged.

The Committee also found that while the motorboat problem itself was gradually becoming acute, the complaints with reference to it jumped ten fold with the increase in popularity of water skiing. Ten boats on a quiet Sunday afternoon on a small lake stir up quite a bit of activity. But when you add ten people on skiis to the ten boats, then you really have everything and everybody thoroughly agitated. In fact, I think it can be said that it was not until the coming of the water skier that people seriously and sincerely began to demand some regulation of boating.

We are trying to find a solution to the water ski problem. A new law which took effect July 1st, 1956, provides that there must be at least two people in a boat which is towing a skier. This is intended to assure that there shall be one person available to steer the boat and another to watch the progress of the person being towed. We hope that it will cut down the number of accidents arising out of water skiing. We have had many other suggestions with reference to the further control of water skiing activities. We have been urged to set up ski zones on lakes, to prohibit the sport within 500 feet of shore, and to limit speed. While these suggestions on their face seem reasonable, we find they will not always work out on a practical basis. Therefore, we have not as yet adopted any of them, pending further study of the problem.

The Legislature also passed a bill which required that all accidents involving boats must be reported within 24 hours. It was similar to the automobile accident report system. The bill was vetoed by the Governor on technical grounds. We are sure the objections can be corrected and the law enacted in 1957.

It is in the field of minimum age regulation that we find the greatest amount of controversy. The public generally would like a minimum age ranging from 12 to 16 years. The children would apparently be satisfied with an eight to ten limitation. On the other hand, some members of the boating industry are violently opposed to any law whatsoever.

A bill which would have set up a nine-year limit passed the Assembly in 1956, but was defeated in the Senate where the members felt that the age limit was far too low. A further minimum age bill will be introduced in 1957, but it is impossible to determine at this time just how it will be drawn.

We appreciate, of course, the opposition to an age limitation bill. However, it does not seem reasonable to permit a child of eight or ten years of age to operate without guidance a boat with a 25 horse power motor on a small, crowded lake. Possibly an age bill coupled with a speed or horse power limitation may prove to be an effective and sensible solution.

We are, in addition, making a careful study of the boat livery problem and some legislation covering the registration and licensing of liveries, including annual inspection of their boats may eventually be recommended. A serious accident on a lake near Syracuse which last year resulted in the death of three children when a rented boat capsized, points to the need for some new laws in the livery field.

Coupled with the livery problem are questions concerning overloading and overpowering of boats. In this particular field, the boat industry has already taken the lead and adopted a comprehensive display plate program designed to point out these hazards. We hope to implement that program with appropriate legislation which will require the display of maximum load and power plates on home-made and all other boats.

It has been suggested that the Committee submit a program requiring the licensing of boat operators. We are not as yet prepared to give it our approval. In the first place, we are not at all sure that a licensing plan is necessary. Moreover, the administration of such program would involve a tremendous number of problems and a substantial amount of State expense. It is generally felt that the operator problem must become much more acute before we would be justified in advocating such a drastic, expensive step.

We are interested in bringing about the adoption of uniform, statewide boating laws. The enactment of different regulations by different towns, counties and villages can only lead to confusion, contempt and the harassment of boat operators. We hope to sponsor State laws which will solve local problems and thereby eliminate the necessity for local ordinances.

We recognize that the question of enforcement is our biggest problem. While we may succeed in securing the enactment of fair and practical statutes, they will not become effective unless they can be and are properly enforced. It appears that the problem can be solved by the employment of more State Police or extra local police, or by the establishment of a special Marine Bureau in one of the existing State agencies. While such a plan would involve additional appropriations for personnel and administration, a small, annual boat license fee could readily provide the necessary funds.

We are also investigating such problems as speed, reckless operations, water sanitation, noise, safety regulations, safety equipment and a host of other matters which are directly allied to our statutory mandate. The Committee feels confident that it will be able to determine the various fields in which new laws are necessary and to make adequate recommendations.

Throughout its entire investigation the Committee has been primarily aware of the fine natural resources which the State of New York has in its lakes, streams and forests. They make the State one of the most attractive in the nation and provide our residents with advantages of incalculable value. We are anxious that these precious advantages be conserved, safeguarded and made available in all forms to all people. Our lakes belong to everyone, not to just one group. We would like to see them enjoyed to their fullest by the swimmer, the boatman, the fisherman, and the property owner. We want to insure that any regulations pertaining to the operation of motorboats on these waters are sensible and sane in form and enforced in a uniform and wise manner.

In accomplishing these objectives we are receiving excellent co-operation from various other interested groups. The representatives of the Conservation Department, the Department of Public Works and the State Police have been most helpful. The sportsmen's organizations and boating units have contributed excellent suggestions and have willingly extended their assistance. We sincerely hope that the work of this Committee will benefit every individual user of our waters and enhance the enjoyment of the natural resource privileges with which our State is so bountifully endowed.

Experiment at Rockland Light

A hunter and good buck check out on first day

A Corporation With Large Land Holdings Demonstrates Benefits That Can Be Secured Through a Foreward Looking Policy of Employee Relations and Game Management

FOR the past two years, a successful and, we feel, progressive deer hunting experiment has been carried on by the Rockland Light and Power Company. The experiment was part of their Employee-Recreation Program and took place on their own property in the Towns of Bethel, Lumberland and Highland in Sullivan County. The area opened for the hunting experiment some 5,500 acres of the old Chapin Estate, all of which is now owned by Rockland Light.

The land was purchased by the Company from Chester W. Chapin in order to develop water power for electric power plants. Prior to this purchase, however, the land had been used by Mr. Chapin as a game preserve. He was a sportsman and nature lover as well as a financier. He brought in elk and deer as well as small game. By constructing fence, he provided the deer with more than adequate protection in an ideal environment. In fact, based on biological knowledge available in his day, which emphasized stocking and protection, he could be considered as one who really tried to practice sound conservation.

Little hunting apparently took place on the property while he owned it. Since then, although some hunting clubs leased hunting rights on the extreme fringes of the property, very little hunting has been permitted. The company believed it was justified in this policy. Rockland Light had great investment in reservoir construction, pipe lines and buildings and felt justified in banning trespass as a safeguard against the feared destructive and careless action of some hunters. The threat of fire that could destroy the forest cover of the watershed and greatly reduce the value of the property as a water reservoir was perhaps the greatest deterrent. In short, the attitude toward hunting and hunters was one of caution and distrust.

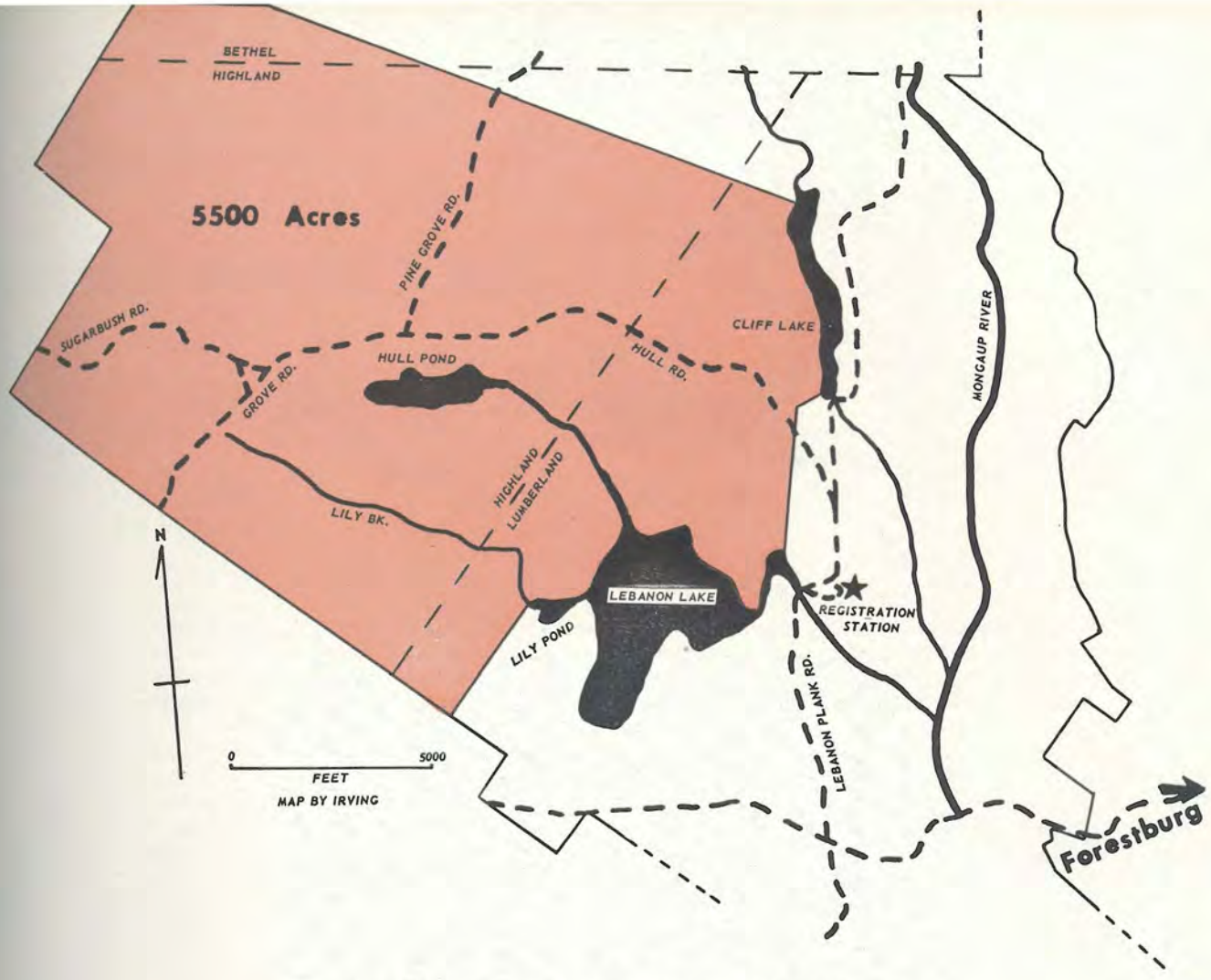
In time, however, all things change. Certainly this is true concerning the thinking and policies governing the best and wisest use of Rockland Light and Power Company properties. To have happy and healthy employees is now important to all big business. (Also, deer season sickness, often called "hunting pox," can be serious!) Rockland Light began to think that its land holdings might be utilized to help make its employees happier and healthier. The situation and thinking concerning deer changed, too. Initially it was supposed that they could survive and exist only by protection. But now they had become so numerous and had browsed the area so heavily that forest products were adversely affected—and possibly the water-holding capacity of the land was reduced. Along with this condition, modern biological knowledge has proven over the years that deer, as a crop, should be adequately harvested, or the land and the deer both will suffer.

The management of Rockland Light, always alert to progressive thinking and progressive ideas, put all the facts together and decided, in 1955, to try an experimental hunting season. They realized, however, that the property had a reputation of having an abundance of game, especially deer. Hunters from all over might well converge on the area in large numbers if wide open hunting were permitted. Consequently, it seemed wise for them to try and control the number of hunters that could hunt. This they handled the first year by limiting the hunting privilege to employees and their guests—each employee was permitted one guest—while during the 1956 season, employees only could hunt. Also, to make control easier to supervise, only 5,500 acres were opened, and parking areas were designated by company foresters who supervised the program during the hunting season.

Safety and good sportsmanship, aside from control, were both prime factors to consider, so that the following simple but very practical regulations were put into effect:

1. Check in and out at checking station. 2. Parking only at areas designated by foresters. 3. No shooting parallel to or from roads. 4. No spike deer to be taken (at least a "Y" on one horn). 5. No practice or target shooting. 6. Report all deer taken. 7. No drinking of

Employees line up for hunting permits



Area opened to controlled hunting by Rockland Light and Power

alcoholic beverages on Company property. 8. No open fires on Company property. 9. Indefinite suspension of all hunting privileges for violation of Conservation Law or these rules.

The regulations were conveniently printed on the back of identification cards furnished by the Company. Also furnished was a map of the open area so that hunters could keep themselves within its bounds and to reduce the possibility of their getting lost.

Related to safety is the fact that the property owner might be liable for any injury sustained by a person while on and using his property. Consequently, a release which all participating hunters had to sign was designed to protect the company from such liability.

This briefly summarizes the background and the details of organization of the hunting experiment tried by Rockland Light. What happened? Has it been successful? Will it be tried again? Here are some of the results:

In 1955, 43 deer and 4 bear were taken by 175 hunters, so that approximately 1 hunter in 4 was successful. In 1956, bear hunting was not permitted but 105 hunters took 18 deer, so that roughly 1 hunter in 6 was successful. (This success was realized in spite of a "Y" law which was put into effect as a safety measure. In New York State, 1 in 10-12 or 14 hunters is usually successful under a law that decrees a 3" spike legal.) There were 483 man-hunting days in 1955 and 270 man-hunting days in 1956 spent afield by the hunters in taking these deer. This represented 753 days of pleasure for company employees. There were, and this perhaps was most important to Rockland Light management, no accidents during the season, *nor was property damaged*. In addition, it is well to mention that because of sound planning and adequate control, no hunters were lost.

The above answers the first two questions pretty well. The hunting experiment was successful; the hunters were pleased and have voiced their satisfaction; the company officials have been favorably impressed, and certainly the deer herd did benefit. Whether or not hunting will be permitted in the future depends on the action of the directors of Rockland Light. However, the future should look bright as the experiment demonstrated that hunting can be safely regulated and produce real benefits to management in good will; to employees in recreational opportunity; to the watershed in preserving forest succession and to deer in improving the herd through proper management.

We would like to say this: Rockland Light asked our advice and to the best of our ability, we provided it by making recommendations following a field study of the area. Those recommendations were, as far as was practical, put into effect. We feel the Company's action to be not only an example of good employee relations and management—which it was—but also good, sound conservation. It is an action that others who own large land holdings and therefore have similar problems—whether they be private or corporate—could well follow to the benefit of themselves as well as to their property.

Our compliments to Rockland Light for setting an example of good conservation—and our thanks to those employees who, by conscientious observance of the regulations, helped to make it a success!

—Albert Hall and Robert Ohlman,
District Game Managers

The Crossley Survey in New York

THE Conservation Department has the responsibility to manage our wildlife resources so as to insure the greatest possible enjoyment and use of these resources by the citizens of this State. To provide good fishing and hunting for a continually increasing number of sportsmen, it has been necessary to intensify greatly the management of our important fish and game animals and the harvest of these animals. As with any other enterprise, reliable information on each step from production to harvest is essential for the improvement of management programs.

Research, although of recent origin in the fish and game field, has played a major role in furnishing the answers to important questions, in developing methods for determining the abundance of animals and changes in abundance and in explaining the reasons for such changes. Waterfowl census methods, procedures for evaluating the condition of deer herds and deer ranges and techniques for ascertaining the abundance and condition of trout population are a few examples of the outstanding contributions of research.

There has been one part of the total management picture, however, on which available information was clearly insufficient—that was reliable data on the number of customers (fishermen and hunters) and on their interests and preferences for the products (various species of fish and game). The difficulty of designing management programs better suited to meeting the interests of the sportsmen in the absence of such information is apparent.

There was, of course, some general information available on this subject from license sales. Such information was of limited value, however, because a number of people are permitted to hunt and fish without a license and because there is no way of telling the particular type of fishing or hunting in which a person is interested when he purchases a hunting or fishing license. Also, no information could be obtained on our important marine sport fisheries because no license is required.

There has also been considerable interest in the economic aspects of fishing and hunting as a means of determining the value fishermen and hunters place on their sports and the contribution that engagement in these sports makes to the economy of the State. Numerous estimates have been made of the amount of money spent by fishermen and hunters but all of them have been based on very limited factual information. Conservation agencies have often been at a disadvantage in negotiations to maintain and improve fish and game resources because of their inability to document adequately the importance and value of these resources. Despite the fact that these sports have great intangible values, which cannot be measured in dollars and cents, reliable economic information has been urgently needed to use in the development of better fish and game programs.

An opportunity was afforded in 1955 in connection with a National Survey of Fishing and Hunting to secure such information at a much lower cost than if an individual state undertook a similar survey independently. The nationwide survey was carried out by the U. S. Fish and Wildlife Service at the request of the International Association of Game, Fish and Conservation Commissioners (comprising the fish and game commissioners and directors of the 48 states and the Canadian provinces). The Service contracted with the Crossley, S-D Surveys, Inc., of New York to do the survey work.

Each of the 48 states was included in the nationwide survey but the sample in any given state was not large enough to provide reliable information for that state. Provision was made, however, for individual states to contract directly with Crossley, S-D Surveys to extend the sampling in a state to the point where valid information could be obtained for that state. New York and several other states took advantage of this opportunity to acquire needed information at a reasonable cost.

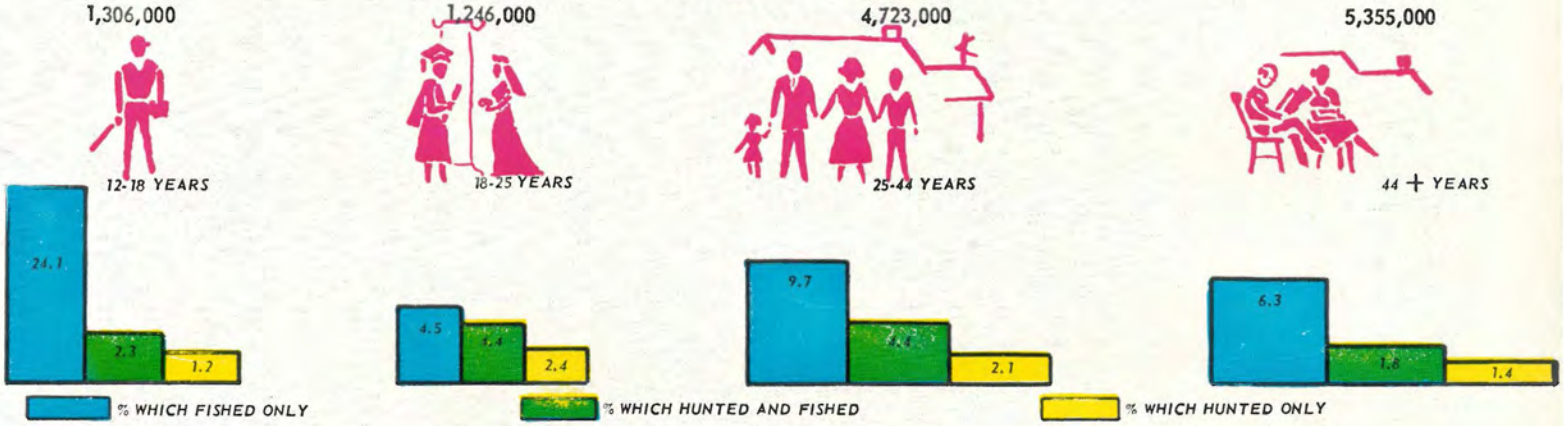
The Crossley Survey was designed to measure the number of individuals engaged in recreational fishing and hunting throughout New York State in the calendar year 1955, the days spent by them in these pursuits and the total amount of money spent by them in hunting and fishing. In addition, information was obtained on a number of other important questions such as the number of persons who fished in fresh water and in salt water, the number of persons who hunted for big game, small game and waterfowl, the number of persons who fished for trout, and the number of persons who hunted for cottontails and pheasants.

The highlights of the results of this survey are presented in the illustrations which accompany this article. In interpreting this information, it should be remembered that the survey covered the hunting and fishing activities during the calendar year 1955 of residents of the State who were 12 years of age or over.

A more detailed presentation and analysis of the results are planned for future publication. The data presented here, however, point out the great popularity of hunting and fishing in this State and the substantial contribution to the economy of the State attributable to hunting and fishing activities. It is evident also that these data together with information on the number of persons who hunt and fish for various species will be of real value to the Conservation Department and to the public in deciding upon future policies and programs for the maintenance and improvement of our valuable fish and game resources.

—W. M. LAWRENCE,
Asst. Director, Division of Fish and Game

THE POPULATION OF NEW YORK
By Age Groups

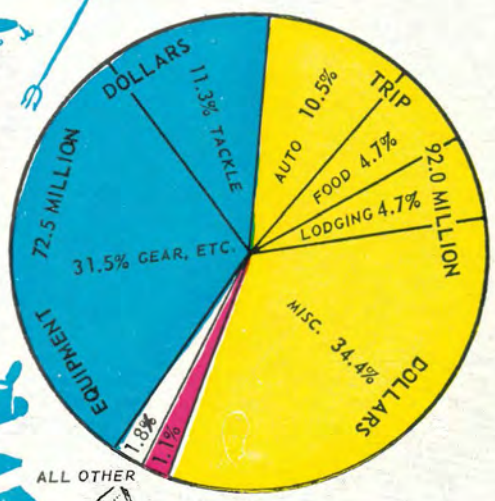


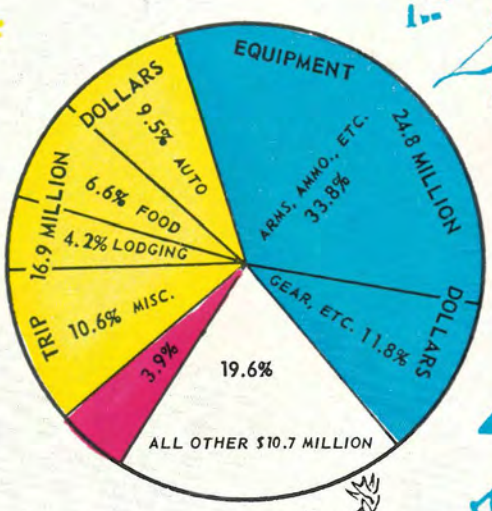
Annual EXPENDITURES

Fishing
$169,365,000

Hunting
$54,512,000

$127.28 AVERAGE PERSONAL EXPENDITURE

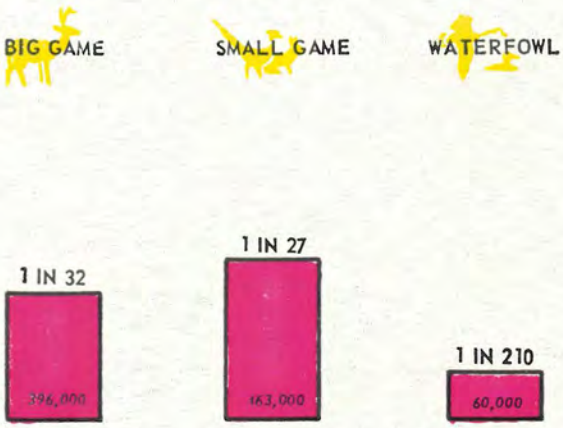




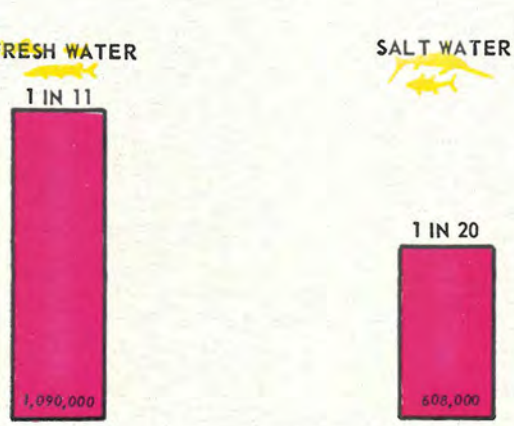
$1.8 MILLION — License fee - about one cent per dollar spent

$2.1 MILLION — License fee - about four cents per dollar spent

Hunting



Fishing



*439,000 OR NEARLY HALF OF THIS GROUP FISHED FOR TROUT

The Grange in Conservation

The Grange long has been an influential and guiding force in the social life and economic welfare of rural America. In New York the Grange, since 1873, has been instrumental in promoting good husbandry and good land use—and is still leader in that cause as evidenced by the new year's conservation message of State Master Leland D. Smith to New York's 122,000 Grangers.

"WE who live on the land are only the stewards of that land, and to become anything except a good steward is to become un-American. To be good stewards, we must pass on to future generations our soil and natural resources in better shape than they were when we took them over. Therefore, we must practice good conservation measures. In some sections of our State more upstream dams can be built, under our present conservation laws, to good advantage. The right kind of cropage and tillage is also important, not only to conservation alone, but to the whole economy of the State because if we continue to waste our resources, and let our top soils run down the rivers, thereby depleting our lands, not only will agriculture suffer but the urban population will suffer with us."

These were the words of Leland D. Smith, State Master of the Grange in New York, as he called upon the 122,000 Grange members in the State to carry out county and community conservation needs surveys as a major part of their 1957 program. He recommended as one of six considerations for 1957: "The support of the conservation of our national resources as a part of a permanent farm program based upon proper land use and upstream flood water controls."

"Every Subordinate and Pomona Grange should carefully study the conservation needs of its community," he added.

His message fell upon receptive ears. Conservation, of course, is vital to Grangers because most of them are close to the earth—and, to them, tomorrow is as real as today. They subscribe wholeheartedly to the Preamble to the Constitution of the National Grange which says, in part: "The soil is the source from whence we derive all that constitutes wealth; without it we would have no agriculture, no manufactures, no commerce. Of all the material gifts of the Creator, the various productions of the vegetable world are of the first importance. The art of agriculture is the parent and precursor of all arts, and its products the foundation of all wealth."

Grange members carry out conservation measures collectively and individually. The State Grange is represented by two members on the State Soil Conservation Service and on each of the district committees. It is represented on the State Legislative Committee on Water Uses.

Even the Juvenile Grangers, boys and girls from five to 14 years old, have turned to conservation practices for one of their top activities. This year they will conclude a five-year Grange Forestry project, sponsored by State Grange in co-operation with the State Conservation Department. The youngsters, with some aid from Pomonas and Subordinates, have raised $1,000 annually to pay for planting trees furnished by the Conservation Department and planted on State-owned land selected for the program. The reforestation tracts, averaging about 75 acres, already have been established in Chautauqua, Allegany, Tompkins and Chenango counties, with the final planting scheduled for this Spring in Lewis County.

When completed, more than 350,000 trees will have been planted as a lasting tribute to the young Grangers.

Conservation in action was one of the reasons why Mohican Grange at Glens Falls was named winner of the 1956 State Community Service contest and went on to achieve third place and a $3,000 award in the countrywide event sponsored by the National Grange and the Sears-Roebuck Foundation. Numbered among Mohican's projects was its leadership in obtaining a Soil Conservation District for Warren County, and assisting in its work. Conservation projects were common among entries submitted by the Grangers in the competition. They are bound to be again in the 1957 contest now getting under way "to encourage the Subordinate Grange to serve well the community of which it is a part."

And conservation in its various categories played a substantial role in the deliberations of the more than 600 delegates at the State Grange session. They gave final approval to resolutions which had originated at the community level, received the endorsement of Pomona groups and had been acted favorably upon by appropriate committees of the State Grange.

As a result, State Grange has requested the Conservation Department "to furnish and require to be worn in plain sight by all hunters and fishermen an identification number the same size as worn by big game hunters" because some "hunters and fishermen are not required to wear such an identification number and as a result are able to trespass and damage property of others without fear of identification." This action originated in Ulster County.

Another, originating in Delaware County, requests the Conservation Department and the State Legislature "to enact laws making heavy penalties and strict enforcement under both the Conservation and Penal laws for all hunters who injure or kill others in hunting accidents, and that a study be made as to the civil liability of such accidents." This resolution was based on the premise that "our hunting population is constantly on the increase, and there continues to be very serious carelessness on the part of some hunters, and penalties for careless taking of human lives are inadequate."

The Conservation Department, the State Farm Conference Board and the State Joint Legislative Committee on Revision of the Conservation Law were requested to study the question of payments for actual damage to persons or property caused by deer in the highways, with a report as to cost and the method of handling legal action to be submitted at the next annual session of the State Grange. This resolution was prepared by the Committee on Conservation, combining related requests received from Pomona units of Schoharie, Otsego, Chenango and Cortland counties. The study was sought because the question "is of much importance to all taxpayers and residents of our State, and has such far-reaching effects."

The Conservation Department was requested to declare an open season on doe for one or two days because of damage being done by deer on farm crops. This resolution originated in Ulster County and pointed to destruction caused by deer there and in Sullivan and Columbia counties.

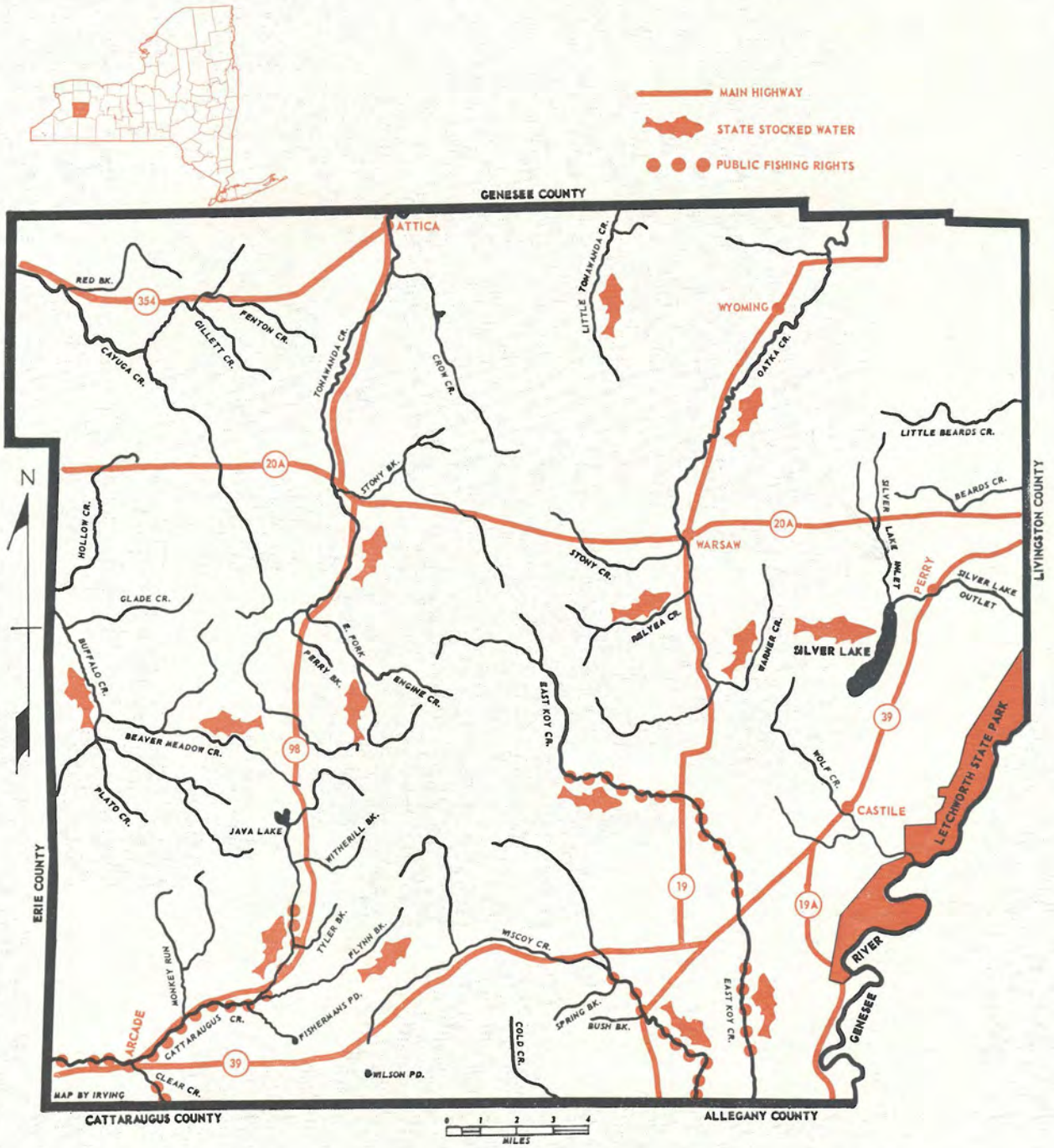
Another asked for a State-wide bounty on foxes, to be paid by the Conservation Department. This one came up from a Subordinate Grange in Cattaraugus County.

The Grange also adopted a Conservation Committee resolution which asked that since "there is interest in and a need for State legislation to make it possible for local Soil Conservation districts and other local groups to take advantage of the provisions of Federal Public Law 566 (known as the Small Watersheds Act)," there be "passage of such legislation with provisions for State assistance in carrying out the practices."

In 1957, the State Grange observes its 85th year. It is proud of its past and stands ready to meet the future's challenges—with conservation hardly the least of its avenues of action labeled as important to everyone.

—HERBERT J. THOMSEN,
State Grange, Director of Publicity

Wyoming County



N. Y. S. Conservation Department Offices

District Forester	335 East 3rd St., Jamestown
District Game Manager	2130 Scottsville Rd., Scottsville
District Fisheries Manager	2130 Scottsville Rd., Scottsville
District Game Protector	304 State Office Bldg., Buffalo

Farm Service Offices

Wyoming County Soil Conservation District	14 W. Buffalo St., Warsaw
Wyoming County Agricultural Agent	Court House, Warsaw

—Roy Irving

Finger Lakes Rainbows —Spawning Habits

by Richard W. Hatch,
Research Assistant, Cornell University

This is the first in a series of three articles dealing with rainbow trout in the Finger Lakes region of New York. The second article in the series will report on the results of tagging experiments and outline general management considerations, while the third will describe growth and general life history of rainbow trout.

This series, featuring one of our finest game fish in some of the most famous waters of the State, summarizes just one phase of the research work in fisheries carried out over the years by fisheries biologists at Cornell in co-operation with the Conservation Department.

A FEMALE rainbow perhaps six pounds in weight lay effortlessly at the tail of the pool. She was in plain view from my vantage point on a high bank of Catherine Creek, near Pine Valley. Below her there was a depression in the stream bed and behind her a heap of clean gravel. Suddenly she flashed bright as she rolled on her side, flexed into an "S" shaped curve with tail in the bottom of the depression. With powerful thrusts of the tail region, she raised a quantity of stream gravel into the current. The effort drove her upstream a couple of feet.

This was the digging action so characteristic of nearly all trout and salmon in preparing a nest. Disturbed gravel, sand and silt were swept downstream by the current; larger stones settling out quickly, while finer material disappeared in the stream current. Quickly settling back to her original position, the female dug again. Gravel and fine material swept downstream, the gravel settling on the tailspill mound stretching about three feet below the pit. As this action was repeated again and again, the depression grew until it was eight to ten inches deep.

Two prospective mates lay below the tailspill. One buck rainbow was almost as large as the female, the other male about two pounds. They were narrower from side to side and much darker in color, so they were easy to distinguish from the female. The small buck, who had been farthest downstream, eased up toward the female. He didn't get far. The bigger male was "boss" of the area and he turned savagely to drive the rival to the side and downstream. The large buck returned to his post near the tailspill. The smaller male also slipped back, but did not try to pass the dominant male.

The female paid no attention to the fight. She dug again and then settled back into the nest she was building. Seemingly she was testing the depth of the pit, but the big buck showed immediate interest. In a flash he was beside her. But spawning did not take place. The male merely rubbed up against the female who then drifted to one side for a rest. This has been interpreted as part of courtship. The big male again attacked the small buck who had taken advantage of the opportunity to move up. Both fish returned to position without delay. The female drifted over and settled into the pit. The large male darted forward again. This time both fish arched quivering bodies deep into the pit, mouths open wide. The smaller buck took immediate advantage of his rival by rushing in on the other side of the female. A small white cloud of milt or sperm dispersing from the bottom of the pit indicated spawning had taken place. The eggs were not visible, but I knew they were settling rapidly into the cracks between the larger rocks in the bottom of the pit. There would be several hundred, somewhat less than a quarter inch in diameter, orange to salmon pink in color.

From a hiding place under one bank, a yearling buck about four inches long flashed out and grabbed a couple of eggs that failed to lodge in the egg pit and were being carried away by the stream. At once the large male attacked the intruder and drove him back to shelter. Then he led his previous adversary downstream a way and resumed his position below the tailspill. Meanwhile the female methodically began digging again. Now she dug upstream from the egg pit and clean gravel settled upon the eggs. Gradually they were buried several inches deep as the tailspill grew upstream. A new depression had been started and the cycle began again. It would continue until the female had spawned her 4,000-odd eggs in a succession of pits.

These observations formed a part of the field work in locating a number of nests (redds in technical parlance) of rainbow trout in streams of the Finger Lakes area. Catherine Creek (Seneca), Cold Brook (Keuka), and Grout Brook (Skaneateles) were involved. A research project on biology of Finger Lakes rainbow trout is being conducted by Cornell University and the State Department of Conservation. Information was needed on efficiency of natural spawning in these streams. Some time before hatching, 15 redds in each stream had to be opened for egg samples. The proportion of dead eggs would indicate the quality of the stream as Nature's hatchery. Since silt is often a major cause of egg loss in Nature, a sample of stream bed material was also taken from the covered egg pit.

I carefully noted the location of this redd in my notebook and got up to look for more. The action frightened the fish and they immediately sought shelter in the deeper water of the pool. But on my way downstream an hour later, they were back in the same positions.

The behavior of these fish is typical of spawning salmonids. The accompanying photographs, taken by Dr. Osgood Smith, actually show cutthroat trout, but illustrate the action well. The number of males in attendance varies, depending upon number present in the area at a given time. Males spend a good deal of time in territorial battles, and the right to "rule the roost" may change several times. These battles may become quite fierce at times, but there is no evidence to indicate that the kype, or hooked lower jaw developed by males at spawning time, serves any particular function in these

engagements. The female will also actively defend her digging territory, especially against other females.

Time required for spawning varies greatly with water temperature and ripeness of fish. A female which is very ripe when she arrives on the spawning area may complete spawning in a single day. One less ripe (or in very cold water) may take several days to a week or more. Spawning is an arduous affair. The female's tail may become worn and frayed from digging and her body bruised and scratched. Males may remain on spawning grounds considerably longer than females and may spawn with several females. Natural mortality of both sexes increases during the spawning season because of greater exposure to enemies and general rundown condition.

It was three weeks before I returned to the redd near Pine Valley. Its surface was now covered with algae and some silt had settled into cracks between stones. The redd was easily found, however, for the graded gravel of the tailspill was evident. Using a nursery spade with a hood welded onto the top (to retain all the gravel and fine material), I dug into the mound about a foot below the upstream end. The contents of the shovel were emptied into a pan for inspection. No eggs. After a couple of tries, an egg pit was found. One hundred seventeen eggs were removed from about three quarts of gravel and returned to the laboratory for study. One of the eggs proved infertile, two had died from unknown causes and five were covered with fungus. Fungus usually starts on dead eggs. In redds containing a large number of dead eggs, the infection spreads to living eggs and may wipe out everything. In general it is not a major cause of loss. The remaining 99 eggs in the sample were living. Practically all egg losses take place early in development, so the expected hatch for this redd was about 93 per cent. The gravel sample, returned in a can to the laboratory for analysis, showed only 0.09 per cent silt and clay.

This procedure was repeated on a total of 45 redds in the three streams mentioned. Over-all expected hatch was about 93 per cent. This figure is as good or better than survival to hatching in most hatcheries. Of the streams studied, redds in Grout Brook had the highest expected hatch, Catherine Creek was second and Cold Brook third, except that the lower

region of Catherine was about the same as the lower region of Cold Brook. Expected losses before hatching in individual redds ranged from none in two redds in Grout Brook to 100 per cent in one in Keuka Inlet. Three-fourths of the samples had losses of less than 15 per cent. Only once did the amount of silt and clay in the gravel samples exceed 1 per cent. No correlation between egg loss and amount of fine material could be established. It was concluded, then, that these streams provided excellent spawning conditions from the standpoint of successful development.

Nonfertilization loss was about 2 per cent of the 4,400 eggs examined in this study. This figure is in sharp contrast to general beliefs before 1930, when natural fertilization was assumed to be low. Study of introduced trout and Pacific salmon in New Zealand has shown that egg losses may be high, but not due to infertility. The results of the Finger Lakes study are in agreement with the New Zealand and other studies. Structure of the egg pit aids greatly in insuring fertilization. Newly spawned eggs are heavier than water and immediately sink to the bottom of the pit, settling into cracks between stones. They absorb water rapidly and become temporarily adhesive. Eddies are created inside the pit by stream flow which keep milt in the immediate vicinity of the eggs for a period ample to insure fertilization. Water circulation is such that currents in the bottom of an egg pit even flow upstream!

Hatching Hazards

Under favorable conditions few eggs are lost to egg eaters. These are mostly the few eggs failing to lodge in the gravel. Small trout are often the worst culprits and they may even dart into the egg pit for a quick mouthful before being chased out by irate parents. Since eggs are soon buried under several inches of gravel, there is not much chance for this kind of loss. Gravel on top of the eggs also protects them from the shock of booted feet which tramp the Finger Lakes tributaries.

When a trout leaves her redd after spawning, conditions are ideal for hatching. The gravel around the eggs is clean, full of open spaces through which water can percolate carrying oxygen to the developing embryos. The preferred gravel, pea to walnut size, means lots of small cracks for circulation. A preferred site for redd building, at the tail of a pool, means an insured supply of water. Even if stream level drops dangerously low, water must pass through this gravel dam to leave the pool. In a good quality stream, then, the chances of a good hatch are excellent.

In a poor stream flowing through a poorly managed watershed, water-borne silt and clay resulting from erosion can settle into the gravel. By filling the spaces between stones, this fine material may shut off the flow of fresh water to the eggs. These eggs are doomed. Some sections of the stream bed may be so unstable that a freshet could destroy redds in wholesale lots.

The Stream Quality Factor

Pools and undercut banks provide places of shelter where fish may rest during digging and hide if danger threatens. Shelter of some kind is necessary if an area is to be fully utilized for spawning. In Catherine Creek, for example, there is a long stretch of stream below Millport that contains excellent gravel for spawning but is only slightly utilized by rainbows. There are very few pools or shelters of any kind here. In Grout Brook, on the other hand, there are many areas of good gravel where landowners or local clubs have built small dams creating good pools. Spawning trout concentrate in these areas and spawn successfully. In much of Grout Brook, the banks are well protected from erosion by woodlands.

If the number of pools is small, trout may concentrate and rework the same gravel many times in successive weeks. This happened in Keuka Inlet in 1954. A late run of trout came up in early May. They reworked one area so much that it was impossible to find redds made in April. This results in digging up early spawned eggs. Thus the crop of young trout may be directly regulated by the amount of good area available to spawning adults.

Losses resulting from water-borne silt, clay, and limited spawning area can be lessened by stream improvement and watershed management. These measures can result in increased production of young by natural spawning. The success of rainbow trout, an imported species which has established itself in the Finger Lakes, shows that natural reproduction can maintain a trout population if sufficient good quality spawning area is available. Conditions in all these streams are changing rapidly, however, and each year the quality of spawning area is reduced.

Classification of Spawning Area in Three Finger Lakes Tributaries (1956)

Spawning Area Types	*Cold Brook*	*Catherine Creek*	*Grout Brook*
Adequate gravel and shelter:	21%	17%	16%
Adequate gravel, shelter lacking:	30	44	11
Generally unsuitable for spawning:	49	39	73
Total length studied (miles):	3	7½	5½

The accompanying table, constructed from field measurements, shows the status of the three streams in Spring, 1956. The total length studied extends from the lower to the upper limits where rainbow trout were found spawning. Portions of the stream containing adequate gravel and shelter are almost completely utilized. Note that these make up less than one-fourth of the stream used by spawning fish. Portions characterized by adequate gravel but lacking shelter are principally the broad open riffles. Riffles develop partly as a result of stream action and erosion, but are also developed artificially as "flood control" measures. Bulldozers operated in all three streams during the Summer of 1956, with an especially noticeable effect in Catherine Creek. Many fine pools have been eliminated in an attempt to keep the stream bed as broad and shallow as possible. This practice is definitely detrimental to spawning rainbows. They are fully exposed to natural enemies, including man, for long periods in their journey upstream. Many miles of gravel ideally suited to spawning are wasted due to absence of shelter. Construction of stream improvement structures favoring development and maintenance of pools in these areas could make a great contribution to increased spawning area in Catherine Creek and Cold Brook.

Let's return to the redd near Pine Valley. Eggs develop in gravel at a rate dependent upon water temperature. Rainbow eggs hatch in about one month at 50° or six to seven weeks if the average water temperature is 45° F. The heart of the young rainbow begins to beat during the first week, while the eyes become visible inside the egg about half way through the incubation period. Newly hatched trout, called fry, are not ready to feed. They still carry part of the egg in a yolk sac beneath their bellies. As this yolk sac and its nourishment are absorbed, the fry work their way up through spaces in the gravel. One to two weeks after hatching, they arrive in the top inch of gravel with its rich food supply. But one last pitfall may bar their way to the stream proper. Sand, again the product of erosion, may have settled on top of the redd and effectively sealed it. The fry are trapped. But if stream quality was good, about 3,700 young trout might be expected to leave this redd and enter a hazardous life in the stream.

The Squirrels of New York

by W. J. Hamilton, Jr.,
Cornell University

THE fine illustrations of our New York squirrels by Wayne Trimm will give the reader some idea of the variety that exists in our State. Squirrels occur almost everywhere (except Australia). Some are pygmies, others approximate four feet in length. In this article, we shall try to summarize the habits of those resident in New York. Actually, the woodchuck and the teeming billions of ground squirrels in our western states (prairie dogs, ground gophers, picket pins, and the like, might well be included). For the family Sciuridae encompasses a vast host of related animals that are part and parcel of the squirrel family. We shall consider only five.

Gray Squirrel

The gray bannertail, also known as the black and cat squirrel, is widespread throughout New York, shunning only the higher elevations of the Adirondacks and Catskills. While its usual color is gray, with a brownish caste in Summer, certain areas (notably Bronxville and Buffalo) support large numbers of the black phase. Litter mates may be black or gray. Indeed, at the turn of the century, the black squirrel was far more abundant than the gray phase. A full grown gray weighs a pound and a half, occasionally a little more.

In Revolutionary times, the gray squirrel hordes of our northeast occurred in untold millions. They plagued the settlers, destroying their corn and other crops. So abundant were the bushy tails that a hunter often took a hundred squirrel scalps in a day's shooting. With the settlement of the country, the inevitable decline occurred. Presently a gunner, even in a good squirrel year, is hard pressed to get five in a morning's shoot. Like the grouse, the gray's numbers change from one year to the next, although their fluctuations are much less marked than in the case of grouse.

Occasionally great numbers magically appear, trouping thru an area and then disappear. In 1933, many thousands crossed the Hudson, some boarding ferryboats or scampering across bridges. Two years later, multitudes appeared in western New York, all moving in a westerly direction. The leafless November woods disclosed hundreds of large nests, the temporary abodes of the creatures which soon vanished. In September, 1951, Vermont squirrels crossed Lake Champlain on the Crown Point Bridge in such numbers that a man was detailed to remove the toll of dead each morning.

Winter holds no fear for the gray squirrel. It is abroad in the bitterest weather, garnering the hidden stores of nuts and other edibles cached beneath the leaves. If snow is too deep to unearth the acorns, the dormant buds of elm, beech, maple, and many other trees will stay its hunger. For the gray squirrel, like others of its tribe, is a lavish feeder, sampling many foods. If one crop fails it readily turns to another. Certainly it is not dependent on a good nut crop, statements to the contrary notwithstanding.

The love season is at hand in late January. Often several males will pursue a female in a rough chase. A little over six weeks will pass before the several blind, hairless young are brought forth in a weatherproof nest of leaves, or more often, a cavity in some venerable den tree. The brood chamber is a warm one, as well it must be, for Winter still locks the frozen world. Nearly two months will pass before the young will venture from the nursery. The older females will often produce another litter in August. We have shot nursing squirrels during the hunting season in the Fall.

The gray squirrel is a prime favorite of many hunters. While the majority are presumably killed by the pheasant and grouse hunter, there are many who hunt the squirrel alone. These hunters utilize the rifle, with or without a scope. Settled in a good oak stand or beech ridge, the shooter waits during the early morning or late afternoon hours, when all squirrels are most active. The scolding "qua-qua-qua, qua-a-a" and the spasmodic jerking of the bushy tail is given when the animal is alarmed, and is often a clue to the hunter that game is at hand.

Squirrels are host to many parasites. Many, unfortunately, are discarded if a warble, a scabby area caused by mites, or some other presumed disease is evident. But these have no effect on man and every squirrel should be utilized.

Many hold to the widespread belief that the gray and red squirrel are implacable foes, the latter driving the gray from its domain, and actually castrating its larger cousin. There is absolutely no foundation in fact for this assertion. Both species live amicably together on the Cornell University Campus; either may drive the other off while busily feeding. This myth may have arisen through the fact that the testes of young grays taken by hunters are drawn into the abdominal cavity, rather than descended into the scrotal sac.

The gray squirrel is more familiar to us than others of its family. Common in the great cities of our State, it has abiding faith in man, and will take food from one's hand in the parks. Those who hunt the squirrel in our wildlands find it quite another animal.

Fox Squirrel

Largest of New York tree squirrels, the fox squirrel is characterized by its grizzled grayish-brown back and brownish-orange underparts. The ears, cheeks and feet are colored like the underparts. Large individuals may weigh two or even three pounds, and measure two feet in length. In New York, the species is not uncommon in Chatauqua County, particularly in the vicinity of Jamestown. We have received specimens from Fredonia and Dunkirk, Van Buren Point near Dunkirk, at Morris, Otsego County, the environs of Buffalo, Rochester and Clyde. Two fine specimens have been taken in the Ithaca vicinity in recent years. So the beast is more generally distributed in central and western New York than is generally known. Look carefully at Wayne Trimm's figure of the fox squirrel, and if you have other records, please let us know. Send in the tail another year if you should turn one up. We may have this beauty generally distributed throughout our western counties in another decade.

More of a ground squirrel than either the red or gray, this big fellow will outwit the hunter unless it is treed by his dog. Presently it sticks rather close to the city parks and towns, and has not noticeably invaded the countryside. Its habits are, in many respects, similar to the gray. Reproduction and food follow that of the bannertail. It is, however,

(*Continued on page* 26)

(*Continued from page 23*)

slower and more deliberate in gait than the gray and more inclined to walk than to jump.

The large nest is an ingenious affair, designed to keep out the driving rain or heaviest snow. Round or oval in shape, it is tightly woven of fresh cut twigs of some hardwood. Within there is a thick layer of compressed leaves, closely packed to form a rigid wall. Finally the softer lining is composed of shredded bark or fine leaves and other soft material. With a single opening, the nest is so placed that the heaviest winds will bring it no harm.

If danger threatens, our tree squirrels carry their young to another site in an ingenious fashion. The mother grasps the young by the loose skin of the belly, the young assisting by grasping the parent's neck by the fore and hind feet. In this manner, a compact ball is formed that interferes little with the progress of the mother, either on the ground or in climbing.

In general, the fox squirrel is a species of the south and the lake states; its invasion and establishment in New York will, in time, add another fine game species to our list and be a source of delight to the city dweller.

Red Squirrel

Widely distributed over our State, the saucy red squirrel is a familiar sight to many. Except for Long Island, where a few sporadically occur, it has a wide range, occupying the lowlands of the Hudson Valley to the timberline of our highest Adirondack peaks.

Flashing through the spruce tops of dense forests to avoid the marten, or searching the underground burrows beneath to avoid the bobcat, fox, or fisher, it lives an active life. Quite at home in the village, it often makes a pest of itself by taking up residence in a building. A good bit of time is spent on the ground, for homesites beneath a favored canopy of tree roots provides as good a residence as in the trees. A grape tangle offers a site for the globular nest of shredded bark and grasses. More often it occupies a natural cavity in an old stub or deserted woodpecker hole.

The chickaree has a more catholic diet than the gray. It utilizes almost any bit, the anthers of flowering trees and even the insects which are harbored by these trees. In the late Summer, the red squirrel will harvest fungi, carting them to a forked branch where they will cure in the warm sun. As the leaves disappear, these curious stores are revealed. Let none tell you that any fungi collected by the red squirrel is safe for man to eat. The deadly amanitas that would prove fatal to us are eaten with impunity by the red one. Before the spruce, pine and hemlock cones ripen, the squirrel cuts these and stores them in the moist earth or a trickle, thus preventing the ripening and dispersal of seeds. These are gathered in the lean Winter months, when other food is scarce. As sap swells the young shoots of maple, the squirrel will cut through the bark, the flowing sap forming little icicles that provides a sweet dessert for this wise one.

Our subject has gained a bad reputation as a nest robber. Ample evidence indicates it will, upon occasion, feed on eggs or nestling birds, but this must surely be the exception. Robins, jays and other birds will drive away any intruding squirrel, and often raise their young in the same tree that harbors the squirrel.

The staccato "tchickity-chickity-chickity" sounds an alarm through the silent woods at the slightest provocation. I suspect the little red one at times calls merely to hear himself, for often I have watched them through a window and seen no evidence for alarm.

It is somewhat more prolific than the gray squirrel, two litters of three to six young being produced each year. Otherwise the reproductive habits are similar to the gray.

Both the red and gray squirrel have well defined travel routes through the canopy of branches overhead. They may exercise some caution when not alarmed, but if pursued or frightened, they crash through the overhead branches with ease. If footing is lost, a squirrel may drop fifty or more feet to the ground. Spreading its legs as widely as possible, it lands with little effect on the earth below and scampers away.

None of our New York squirrels contribute to the fur market, but in recent years Canadian red squirrel pelts have been taken in some numbers for the fur trade.

Flying Squirrel

As darkness descends on the forest, a small furry head with great lustrous eyes peers from the long deserted woodpecker hole. A brief survey, and then it quickly climbs higher, until, well above the ground, it takes off in a long graceful glide, sailing many feet. Just before its destination is reached, the squirrel turns upward and alights gently on the neighboring trunk. Up this it scrambles, and again the glide is repeated, until it tires of the sport. Now to the ground, to seek its supper, then to the safer haven above the forest floor.

The lovely soft-furred flying squirrel is actually incapable of true flight. The fold of loose skin between wrist and thigh and the flattened tail are fine adaptations for gliding. These permit the squirrel to soar distances of a hundred feet or more, although a marked loss in elevation is sustained during such a glide. These squirrels can actually change their course during such a glide. The big eyes are a stamp of nocturnal life, such as we see in the owls.

Flying squirrels are far more abundant than we might suspect. Their ghostly habits and secretive ways mark them as a rarity, when in truth they may be as abundant as the reds or grays. Should you wish to see one, walk through the leafless woods of a warm Spring morning, armed with a hammer or stout club. Search out the flicker holes, or any tree or sizeable snag that supports a cavity, and knock or rap smartly on the trunk. Be persistent, and almost certainly one of these little beauties will appear at the opening, scrambling up the tree and taking off in one of its graceful glides. Indeed, you may have a family in your attic or bird box, for these are creatures of the village as well as the wildlands.

Few animals are more sociable, a dozen or more often occupying a single nest. In late February, the mating season is at hand, and the two to six young are born in very early Spring. When only a week old, and still blind and naked, they may be recognized as miniature flying squirrels.

The food is primarily nuts, seeds and berries, although insects are avidly eaten. Rather surprisingly, much flesh is eaten and hapless nestlings are taken. Trappers who use flesh bait for cubby sets often take this squirrel. Enemies are legion, the larger mammalian predators and owls all taking their toll, but none are more relentless, particularly about the towns and villages, than the domestic cat. Many cat owners in rural districts have found the tail of some luckless flying squirrel on the doorstep.

These graceful creatures are easily tamed, but one who is up and about with them during their hours of frolic must likewise nap during the day.

Chipmunk

A February thaw hints of the coming Spring, and, aroused from its sleep in the snug den well below frostline, chippy stirs and awakens. Its telltale tracks on the melting snow are everywhere, and one catches a glimpse of the little striper scurrying about its domain. A cold spell, and back it goes to the earthen chamber, to sleep away a few more weeks. For the chipmunk is the only true hibernator of those we have discussed. The Winter sleep is far less pronounced than its relative the woodchuck. The coldest days of Winter may provide evidence of its activity in the snow.

Once abroad in March, the chipmunk's first thought is the propagation of more chippys. After mating, a month passes before the young are born in a great ball of dried leaves well hidden in the earth. Another month will pass before the eyes open. Soon the young will venture into the great world above. The mother is a staunch defender of her territory, which it well marked out from other chipmunks! She will send any neighbor scurrying if it should approach her home site. The youngsters grow rapidly and by Summer the female is ready to produce another litter. In fact, all fully adult squirrels normally produce two litters a year, the pattern of late Winter and early Summer matings being the rule.

During the Spring and Summer a variety of berries, seeds, tubers, small fungi, snails and slugs are eaten. The chipmunk's face may be stained with the blackberries and mulberries it favors in season. Ground nesting birds are eaten, and even grouse eggs are rolled from the nest. The striper does not disdain flesh, and has been known to kill small snakes and mice, eating these with relish. But the provident chippy anticipates the lean months ahead while food is yet abundant. Although it is a good climber, its home is on the ground, and the snow covered earth provides little fare. Here the capacious internal cheek pouches serve as market baskets for the varied foods the chipmunk must harvest. The bulging pockets will hold a dozen or more beechnuts, two large hickory nuts (the sharp ends being snipped off to prevent injury to the delicate pouch lining) or a score of wild cherry seeds. The Fall harvest is garnered until a bushel of varied foods is cached in the several chambers of the tortuous underground tunnel. Now the chipmunk can take a respite, continuing to fatten on the bounty of Indian Summer. Its "tchuck, tchuck" is heard well into the Fall. (The last one I saw this past Fall was November 29). Comes a freezing spell, with the first snows and down it goes into the hibernal den. Curled into a tiny ball, the head is drawn between the hind limbs and the fore feet knotted into tiny fists. The heartbeat is retarded, respiration appears to have ceased and the body temperature may approximate that of the bulky nest well below the frostline. This condition does not persist throughout the long Winter, hence the need for a well provisioned pantry.

Few of our squirrels have more enemies. Snakes, hawks, owls, foxes, skunks and cats are ever ready to dine on the striper. A small weasel can undoubtedly enter the underground chambers. Even bears will trouble themselves for this tidbit. But each year appears to bring out similar numbers. It's nice to have chippy about.

The Deer Season at Montezuma

IN THE CONSERVATIONIST for June-July, 1956, we published an article on Montezuma National Wildlife Refuge near Seneca Falls, describing its function as an important link in the chain of waterfowl refuges strung along the flyways and administered by the Federal Fish and Wildlife Service. We pointed out that while the principal function of this big central New York marsh area is to conserve our valuable waterfowl resource, many other forms of wildlife—including deer—find a home on the area. As in many another area of the State, these deer periodically become too abundant for their own good and pose a problem in management. To meet this problem, the Service occasionally opens the area to deer hunting during the regular open season.

That's the way they met the problem in 1956—providing a controlled season for deer of either sex on December 1—coinciding with the antlerless season in surrounding areas declared by the Conservation Department. Lawrence S. Smith, Refuge Caretaker at Montezuma, describes what happened at Montezuma during last Fall's season:

"I will give you a summary of the entire operation of our controlled deer hunt held on December 1st.

"It was realized that our deer herd was too large in view of damage to adjacent farm crops and the hazard they pose to motorists on the several highways through or adjacent to the refuge. Following the announcement of the deer-of-either-sex season for December 1st we submitted plans to our Regional Office for a deer herd reduction by public hunting.

"In 1952, about ⅓ of the refuge area was opened to deer hunting and no limit was placed on the number of hunters. After consulting the records to learn how many waterfowl were present on December 1st in the past years, I felt that we would be taking only a slight risk in opening the entire area. This we felt would be easier to explain to the public than to try and limit areas. We decided to limit the number of hunters to around 350-400. This we did by drawing 500 names from all postcard applications received by close of mail on November 15th. (The State fellows had advised us that about 80 per cent of the hunters issued permits could be expected to show up.)

"As of the time of the drawing on November 15th, we had a few over 4,000 applications. We put all the applications in a cement mixer, gave them a good tumbling and then my two pre-school children (who can't read) made the drawing of 500 names.

"We mailed permits to the 500 successful applicants and instructed half to check in through the headquarters checking station, half through the sub-headquarters station. We had back tags prepared to correspond to the permit number which we had the hunters place below the State tag. These tags we held for the hunters to pick up before going afield December 1st and this gave us a count of total number that hunted.

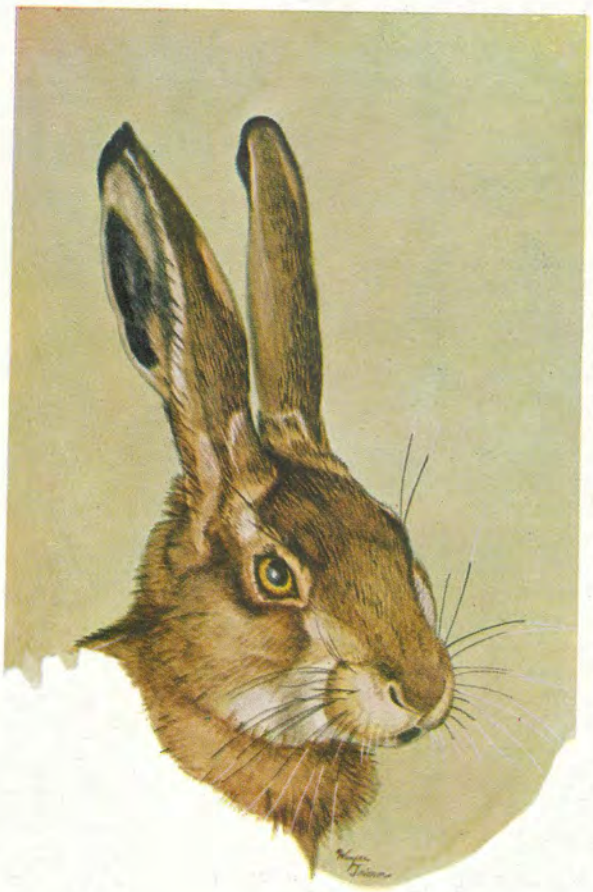
"State Conservation Department personnel arrived late on November 30th for the purpose of operating the two checking stations on December 1st. We started checking hunters in at 5:30 A. M. and about 10 hunters were on hand at each station at that time. The biggest number of hunters checked through between 5:45 and 6:45 A. M. After that only four or five hunters reported in the remainder of the day.

"The gunfire was pretty heavy for the first hour and a half and I believe that most of the deer taken were shot prior to 10 A. M. and that less than four were shot after 2 P. M.

"I was disappointed in the lack of good heads on bucks, but feel that during the breeding season they traveled off the refuge and made themselves available to hunters during the preceding two weeks. The best buck was a 207-lbs. (hog dressed), tenpointer with massive antlers.

"I was agreeably surprised at the good behavior exhibited by the hunters. (Probably comes from expecting the worst for so long in advance.) State Protectors took a few hunters to the Justice of the Peace for untagged deer. Two cases we would liked to have made were instances in which cars stopped on the Thruway and fired at deer—one from the car window; the other took the time to get out of the car. In both instances the vehicles were too distant to make out the number plate. They both missed. (Loaded gun in car, shooting from highway, shooting on a refuge.) I would comment though that hunter behavior is to be commended. It is felt that most appreciated the opportunity to hunt on a restricted area and followed our instructions. No accidents were reported.

"Final statistics were that 340 hunters took 152 deer and many were driven off the area. We are guessing that we have 40-50 deer left of an initial 300. I personally haven't seen one since Dec. 1. —LAWRENCE SMITH, *Refuge Caretaker*



Portrait of an European hare

The European Hare in New York

THAT belabored phrase, "you can't please everyone." is especially appropriate to wildlife topics. Perhaps second only to politics, mention of any game or nuisance wildlife species is almost a sure bet to touch off a lively discussion between a minimum of two opposing factions.

The European hare is not exceptional in this respect, but because of its rather limited range commands a much smaller if no less emphatic audience. The issue is clear cut if the answer is not—whether to consider this naturalized exotic as an animal worthy of game stature (with appropriate controls to assure a sustained maximum harvest), or as an agricultural pest (to be suppressed insofar as possible).

To set the story in its proper perspective requires a look back at European hare history in this State. As its name implies, this hare is not native to America, but is widely distributed in Europe. Beginning about 1893, a wealthy resident of Dutchess County began importing hares from Hungary in shipments of up to 500 each. These importations and releases continued at about five-year intervals until 1910 or 1911. First liberations were made on an estate enclosed by a 9-mile long fence which proved inadequate to contain the hares. At the same time the area was found too small to meet the aims which prompted stocking these animals — the sport of coursing—and further releases were made in the open. A gradual build

Typical European hare range in State. Note hare "formed" beside boulder

Hares spend daylight hours in forms, beside rocks, trees or in lee of drifts

up in abundance and extension of range into neighboring counties and states occurred, apparently starting with the earliest releases.

During this same period Dutchess County was undergoing a rapid expansion in orcharding, and apple stock in particular was being planted at an accelerated rate.

A third factor, weather, helped precipitate an early showdown between farmers and sportsmen. The two-decade period following the turn of the century was characterized in several Winters by unusually deep and persistent snows which caused the hares to turn to bark for subsistence. Of the fruit species, apple was taken almost exclusively; no tree with smooth bark was immune, but a definite

European hares and cottontail rabbits. Note contrast in size

preference for young trees was shown. In the severe Winter of 1915-16 damage to orchards in Dutchess County estimated at more than $100,000 was attributed to the European hare. The estimated abundance of hares at the time was 10-40 per square mile. In the six-year period 1912-17 bounties of $.25 each were paid on 12,000 hares by the county. Outside of the orchard district no serious complaints were voiced against the hare.

As complaints of serious orchard damage mounted a Federal investigation of the situation was initiated and we are indebted to a report issued in 1924 for the history of introduction, distribution, and abundance summarized above. (Silver, James. "The European Hare in North America." *Journal of Agricultural Research*. Vol. XXVIII. No. 11. June 14, 1924.)

A general, rapid, drastic, and apparently unaccountable reduction in range and abundance occurred sometime in the 1930's according to information gathered from game protectors, county farm agents, farmers, hunters, and other interested persons. These reports were supplemented by field surveys to establish present range limits. The current hare population consists of three isolated colonies occupying less than half the territory inhabited during the peak in abundance. Hare density per square mile likewise is considerably below the figures mentioned earlier.

Early in the 1950's it became apparent that the European hare was again making slow increases in abundance and extensions in range. However, hunting pressure on them soon drew apace and currently appears to have contained, or in some cases reversed hare increases, thus prompting requests for seasonal protection by those valuing their sporting qualities.

Lands generally suited to dairying and characterized by rolling terrain and predominately open cover appear to provide the environment preferred by these hares. Several hundred acres, much of it too sparse in escape cover to support a sizeable cottontail rabbit population, is included in home ranges. Winter wheat, ear corn, apples, grasses and clovers are preferred Winter foods eagerly sought out until covered by too much snow to dig through. Other major Winter food items include the twigs and buds of thornapple, elm, apple, maple, sumac, blackberry, and raspberry. No "barking" of the numerous wild apple trees observed was encountered in field surveys of the past two Winters, although deep snows persisted into early April, 1956.

The unusually early mating season and its overlap with snow conditions favorable for hunting may be important considerations affecting current hare abundance. Fifteen female hares have been collected for laboratory examination between December 10, 1954 and March 30, 1956. All but one of the twelve collected after January 29 showed evidence of recent successful mating (the exception was collected February 8). The earliest mating date, as determined by subtracting the approximate age of unborn young from the date of the female's death, was January 3. As early as mid-March some hares were in their second pregnancy, strong evidence that as with other hares and rabbits mating ordinarily occurs again within 36 hours after conception. From one to three healthy fetuses were found per female. Dead fetuses in the process of resorption were relatively frequent.

Average weight of the 20 hares of both sexes that yielded this measurement was slightly less than 9 pounds. The heaviest weighed 9¾ pounds, several pounds under the maximum recorded elsewhere for this species.

In an article which appeared in THE CONSERVATIONIST, February-March, 1947, the late Fred Streever outlined some of the qualifications of this large hare as a challenge to hounds and hunters. Conversations with other hare hunters and several days afield spent in hunting this quarry have confirmed for me those qualifications without reservation. Moreover, the flesh of this hare I find very palatable and nearly on a par with the cottontail rabbit.

Surely no one can dispute the desire of orchardists to safeguard their economy. However, those interested in the hare for its sporting value point to (1) the tremendous increases in hunting pressure in recent years (not only in numbers of hunters, but in mobility, improved guns and ammunition, etc.); (2) changes in the status and operational practices of present day orchardists and (3) the fact that current range is almost entirely outside of major orchard districts as reasons for doubting that this hare will ever again become the serious pest it was in orchard districts three decades ago.

It was not the purpose of this article to try to state the course to be followed in the future but rather to outline some of the background on which to predicate decisions. Certainly this issue will not be satisfactorily resolved until both sides meet at the council table and hash over all the facts bearing on the subject. As a matter of fact it presently is contrary to the Conservation Law to import or release anywhere in the State, European hares, jack rabbits or European (San Juan) rabbits.

Because common names for animals frequently make for confusion, one further word of explanation seems pertinent. The European hare is commonly called "jack rabbit" and it closely resembles the black-tailed jack rabbit of our Western States. Although it is probable that jack rabbits have been released in New York State in the past, all 31 specimens collected in the State and examined in the last three years by the writer have been the European hare.

—JOSEPH DELL,
Game Research Investigator

Howland's Island

Department's Report

THE Howland's Island Game Management area is a man-moulded wildlife oasis of 3,000 acres. (See CONSERVATIONIST, Feb. - March, 1954.) The Island is managed basically as a wild waterfowl resting and nesting area as well as a wild waterfowl artificial propagation plant. However, other wildlife, and deer especially, find the Island to their liking.

Consequently, the protected and well-fed deer herd builds up rapidly and must be harvested, periodically, to maintain a compatible situation between the deer and the other wildlife occupants of the Island —not to mention some orchardists adjacent to it.

In 1955 a one-day archery hunt netted 71 deer and a one-day shotgun hunt netted 147 more for a total of 218 deer of either sex legally taken. In 1952, 158 deer of either sex were taken with a 2-week archery and one-week gunning season while back in 1950, 359 deer were taken in a one-day shoot. Needless to say, such successful deer "hunting" attracts a lot of hunters, and a lot of hunters trying to crowd into a limited area usually create problems.

While considering the 1956 deer season on the Island we were confronted with five problems: (1) To harvest the deer herd increment; (2) to provide hunter satisfaction; (3) to disturb the wild and artificially propagated waterfowl as little as possible; (4) to provide controlled hunting without having to issue permits (in 1955 we had over 2,000 requests for 750 permits and two stenographers, one hired just for the occasion, and two field men were harassed for almost a month trying to allocate the permits as equitably as possible); and (5) to keep our field men and Caretaker, John Battram, free to do other work than man check stations on the Island.

Line up on Island, Dec. 1, 1956

Game technician checks tooth wear to age Howland's Island buck

When discussing the dilemma with Bill Wadsworth, local Boy Scout Executive and archery enthusiast, it appeared that the above problems could be solved as follows: Open the area to archery hunting only during the regular deer season! Twanging bows would not scare the ducks and geese as much as shot guns; archers had clearly demonstrated in '55 that they could be effective in the necessary harvest of surplus deer; two weeks of archery hunting would provide considerable hunter satisfaction; by limiting the hunting to archers only, effective hunter control could be achieved without having to resort to the issuance of permits. Finally, Bill agreed to organize a volunteer work committee to man the check station, distribute a map and literature to all hunters, control traffic and check the deer out. Department personnel, it was further agreed, would help out on the first and last days of the season.

Now that the '56 Howland's Island deer season is history, we are pleased to report that it worked out quite satisfactorily. There were 11,788 hours of interesting hunting enjoyed by hundreds of enthusiastic archers. The only thing that bothered the waterfowl was the ice. Everyone qualified to hunt got on the Island when he wanted to. Only 36 deer were taken, but not many additional deer moved on the Island from outside.

Except for John Battram who worked with the "volunteer workers" part of each day, our limited Department manpower spent very little time working on the hunt.

Best of all, we have another fine example of what can be done by organized sportsmen under capable leadership. But that's another story and it's on the next page.

—A. S. TAORMINA,
District Game Manager

Deer Hunt—1956

Archers' Report

AT the final count, only 4 of the 24 volunteer bowmen who manned the Howland's Island 1956 hunt were lucky enough to get their deer. By rights they should be unhappy at this gloomy outcome of another deerless season; however, such is far from the case. As they received the "thanks" and congratulations from the last bowmen late on the night of Saturday, Dec. 1st, the general conclusion was that this had been the most satisfying bowhunting season they had ever enjoyed. Probably the largest and most successful bowhunt in New York State's history had just come to a close and each man could rightfully claim his share of the praise for a job well done.

During the two weeks of the regular 1956 deer season, 1,684 bowhunters enjoyed their favorite sport on Howland's Island's 3,000 wooded and pond-studded acres. They spent approximately 11,788 hours of hunting, saw hundreds of deer and took more than 1,000 shots. Although their take—36 deer—was not too impressive, we must remember that for the first 13 days of the hunt bowmen could take only bucks. By far the most impressive figure is the one on all those hours of bowhunting recreation which contributed so much to the real success of the hunt.

It all started in the office of Tony Taormina, District Game Manager, when Bob Halloran, Ray Klumbach and I, representing the bowhunters, sat down to work out some of the details of the proposed bowhunt. We knew that we could expect more than 1,000 bowhunters, with perhaps as many as 500 appearing on the last day when both doe and buck would become legal game. We were particularly hopeful that we could find a way to eliminate the permit system which had caused the Department so many headaches in the operation of the 1955 hunt at the Howland's Island area. Yet we did not want to be in the disagreeable position of disappointing hunters who had made the trip to the Island. Secondly, we were anxious to get certain information from each bowman who hunted the area, thus providing valuable data for both the Conservation Department and the organized field archery clubs. Moreover, we had an educational job to do with the usual number of brand new bowhunters whom we knew would be hunting perhaps for the very first time. And some of this educating, we were frank to admit, would be good for some of the older bowhunters too. There would be rules and regulations to be explained as well as licenses and equipment to be checked. This last task pointed to the need for a carefully selected, well instructed crew of volunteer checkers who would man the checking station and conduct the hunt 12 hours a day for 14 days. It was a big order but we were convinced that it should and could be done.

A total of 22 volunteers were recruited from the members of our local Central New York Bowmen and two from our neighbor club at Camillus. Instructions for the volunteers were drawn up in detail explaining the purpose of the hunt, what the Conservation Department and the bowmen wanted to accomplish, time schedules, lists of equipment and explanations of how to get the information for the checker sheets. From each bowhunter we wanted to learn the weight of his bow, the type of hunting arrows used, the number of deer (buck and doe) he had seen, the number of shots he had taken, and whether or not he belonged to a local field archery club, the N.Y.F.A.A. (the State field archery association), and the N.F.A.A. (the National organization).

When the hunt opened on Monday, Nov. 19th, a full crew was on hand at 5:30 A.M. to greet the 242 bowhunters who showed up that first day. Each hunter was given a map of the Island plus a "Read and Heed" sheet which reminded hunters to take only legal broadheads into the hunting area; to remember that random shots through brush, in the unlikely event they hit, only wound and rarely kill deer; that the bowman who drew first blood was entitled to the deer, and, most important of all, that we, as bowhunters, were on trial; that similar opportunities in the future depended upon each and every man himself, his actions, and whether he helped enforce the rules and regulations. By 6:55 A.M. every bowhunter had been checked and the long line of more than 100 cars proceeded to the two parking areas where John Battram, Howland's Island caretaker, supervised the parking. By 7:10 A.M. every car was parked and all bowhunters were on their way to the hunting areas.

It was interesting to note that 38.6 per cent of the 471 bowhunters present on the last day were members of organized field archery clubs; 49 different field archery clubs were represented during the 14-day hunt; the average bow weight was 49 pounds; the 24 volunteers who conducted the hunt gave up 366 hours of hunting time and drove 4,472 miles to discharge their responsibilities.

Our story would not be complete without exending our special thanks to Tony Taormina, District Game Manager for the Conservation Department, for his fine co-operation and his confidence in the sportsmen of his District; to John Battram, who gave so much of his time to this project and who was never too tired to help in every possible way towards its success, and finally, to all the bowhunters who accepted the challenge of real sportsmanship.

Add one deer to archers' score

I believe that we accomplished many things during this hunt. Foremost among them was the fine example of co-operation between the Conservation Department and the organized field archery clubs, the excellent attitude and sportsmanship demonstrated by the more than 1,600 bowhunters and the willingness and ability of volunteers to make such an endeavor successful—once they saw the need.

—WILLIAM H. WADSWORTH, *Chairman, Howland's Island Volunteer Committee*

the back of the book

Rainbows for Afghanistan

Back in February, 1956 a request came to the Department from the Rev. J. Christy Wilson, Jr., a missionary at Kabul, Afghanistan, for information on the possibility of establishing rainbow trout in that country. He also asked if New York State would furnish eyed eggs or fry. It was also requested that plans and specifications be forwarded for all necessary hatching and rearing equipment since the King, Zahir Shah, was very interested in the project and wished to establish a hatchery.

Rev. Wilson, through the American Embassy at Kabul, was furnished with plans for constructing standard hatchery troughs, ponds, egg trays and screens as used by New York State. Other pertinent information concerning the hatching and rearing of trout was also forwarded. The Department agreed to furnish up to 50,000 eyed rainbow trout eggs and to ship them by air express when eggs were ready in November, 1956.

We were later informed that Dr. Keh, a Chinese silk expert working with the United Nations at Kabul, had been trained in fish breeding. He studied this in France and worked especially with trout in the Pyrenees Mountains. Dr. Keh was very interested in the possibility of establishing rainbows and consented to take over the supervision of the hatching and rearing operations. Under his direction, a site was located in Paghman in the mountains about twenty miles from Kabul and a hatchery built during the past Summer. The hatchery is rather small and Dr. Keh suggested that we send only 25,000 rainbow eggs as he felt that would be all the hatchery facilities could rear and he did not wish to waste any eggs. The King, through Rev. Wilson, has expressed his gratitude to the Conservation Department for the help to Afghanistan.

On November 28, 25,000 eyed rainbow eggs from the Caledonia Hatchery were shipped via Royal Dutch Airlines from International Airport, New York to Kabul, arriving there December 1. Rev. Wilson reported the eggs were received in fine condition with no mortality in transit.

The Deputy Minister of Agriculture, Gholam Siddig, has since written Conservation Commissioner Mauhs as follows: "We are most grateful to accept, through the kindness of Dr. J. C. Wilson, your wonderful gift of 25,000 rainbow eggs that you so kindly sent to our country. As you know, Afghanistan is a country without seaport and it is almost impossible for people to obtain any fresh sea food, rich in phosphorus, for their nutrition. We are therefore looking forward to the possibilities of raising more and better fresh water fishes in our lakes, rivers and even in our streams."

Swift justice

Last December 4, W. S. Brown, Superintendent of Tolls for the N.Y.S. Thruway, was cruising the Thruway in the vicinity of Spring Valley when his radio picked up the conversation of a motorist reporting to a toll station that he had just struck a deer on the Thruway. At just about the same time Brown observed two men loading a doe deer in the back seat of their automobile. Adding two and two together and noting the license number, Brown reported the incident to State Police.

Despite quick action, the suspected automobile managed to leave the Thruway without being intercepted. More fast action revealed that the license in question was issued to a Brooklyn resident who, upon his arrival at home, was greeted by the State Police. They returned the two men to State Police Thruway Headquarters at Tarrytown and Game Protector Saglibene was called. He effected civil compromises in the amount of $102.50 with each man before Justice of the Peace J. R. Raven, Armonk.

More on Trudeau

Proposed establishment of a college on site of Trudeau Sanatorium, closed since 1954, has the approval of the Saranac Lake Village Board. Expression of public opinion is expected to be favorable. Board pronouncement was prompted by Trudeau Foundation's announcement that a meeting of leading educators was being arranged by the Ford Foundation to explore requirements for setting up a college at the former tuberculosis sanatorium.—R.B.M.

A record?

Bill Pearce, Aquatic Biologist, working in the Department's Ontario-St. Lawrence Fisheries District, recently passed along to us an account of what may be the oldest black bass on record: "The following information on the return of a tagged smallmouth bass (#H3308), may be of use to you in THE CONSERVATIONIST. It is the oldest, reported, smallmouth that we know of.

"This fish was trap-netted, tagged and released in Eel Bay, St. Lawrence River, on June 14, 1948 by Dr. Stone and Donald Pasko. At that time this female bass was ripe, measured 17½ inches in length, weighed 3 pounds, 1 ounce, and was 9 years of age (a rather young fish for the size in the St. Lawrence River).

"Mr. Charles E. Dingman, local guide, Alexandria Bay, N. Y. reported that the fish was caught on August 25, 1956, while fishing in the Lost Channel on the Canadian side of the River. At that time the fish measured 20¼ inches in length and weighed 3 pounds. The loss of weight is not unusual in old fish—apparently many old fish lose weight just as many humans do as they get old. Some fish even shrink in length.

"This fish was between 17 and 18 years of age when caught. There may be older ones on record that I do not know about and if so, this ought to let us hear about them."

Forest (dental) Practice

Do you ever wonder where your dentist gets the strong arm when it comes to yanking out a troublesome molar? Well, Dr. Alexander M. Telfer, dentist and Forest Practice Act co-operator from Glen Spey, gets his from working in his woodlot. He maintains that the exercise gained from improving his woodlot helps him to keep in good physical condition for his dental practice.

At the same time the results of his exercise will increase the future timber value of the woodlot. Presently he is releasing young white pine from competing hardwoods and is also giving them a light thinning where necessary.

(Ed. Note—I can hear it now: "I'm afraid this one will have to come out.")

Public Hunting

The Problem *(cont. from p. 2)*

more than 25 years ago. The commonest effort was educational — attempting to teach the sportsmen to be sportsmen, and the farmers to live with them. Many states have issued much printed material, and some have produced movies promoting better farmer-hunter relations. Ohio's is particularly good. Oregon has twice sponsored "Red Hat Day" with their Governor's aid, an all out statewide campaign to encourage better sportsmanship. Such educational efforts are fine, and will always be necessary, but they should not be all.

Pennsylvania, among all the state programs we examined, seemed to have the best in their Co-operative Farm Game Project. Over a million acres of farmland are under agreement in this program. The farmer agrees to leave his land open to hunting, but he gets several things in return from the Game Commission. A safety zone around his house and farm buildings is posted, and enforcement is reported very effective. The regular game protector staff is assisted on a few days of peak hunting pressure by a large contingent of deputies hired for that purpose. The farmer receives the *Pennsylvania Game News*. He may get one or more of several other benefits, such as technical assistance, trees and shrubs for planting, or other wildlife habitat improvement work which interests him. He can cancel the contract if dissatisfied, but very few do—and more are willing to join in place of any who resign. The Pennsylvania farmer-member *does* consider this a "workable partnership." It is a long term program which has stood the test of 20 years, and is stronger today than ever before.

At the invitation of Dr. Logan Bennett, Executive Secretary of the Pennsylvania Game Commission, arrangements were made for the Lawrence Committee, together with key staff of the State Conservation Department from Albany and the District Game Managers, to visit some of the Co-operative Farm Game projects in the field, talk with participating farmers and sportsmen, and check the program carefully with Commission field men. Over twenty of us found the trip, in mid-November, intensely interesting. Some of the Pennsylvania plan seems directly useful in New York; some does not. In some respects New York has already gone considerably further than Pennsylvania. But the feeling was quite general that we in New York can make excellent use of some of the Pennsylvania features now that a New York wildlife management act is being written.

The Program *(cont. from p. 3)*

It was recommended for the Department's consideration early in 1955.

An active interest in this proposal was taken this past Summer and Fall by Commissioner Mauhs and Assemblyman Leo Lawrence, Chairman of the Joint Legislative Committee on Revision of the Conservation Law, and his staff. These two influential leaders in conservation affairs agreed on the objectives, need, and vital importance of such legislation, and Commissioner Mauhs instructed the Division of Fish and Game to give its full co-operation in providing whatever assistance was required by Mr. Lawrence's Committee which undertook a study of the proposal and preparation of a bill for submission to the Legislature for its consideration. The services of Prof. Gustav Swanson, Head of the Department of Conservation, Cornell University, were secured by Mr. Lawrence to guide this study and to work with the Committee in drafting the legislative proposal.

As presently contemplated, this legislation would follow the Forest Practice Act in organizational principle. Its primary objectives would be (1) to obtain on privately-owned lands of the State, practices of wildlife management which will conserve and develop the wildlife resources of the State and (2) improve access to them for recreational purposes by the people of the State. It would direct the establishment of Wildlife Management Districts, District Wildlife Management Boards, and a State Wildlife Management Board. It would direct the Conservation Commissioner to provide a District Wildlife Manager to assist the District Boards in their program planning and to provide Wildlife Management Co-operators the technical services, labor and materials as might be required in compliance with practices or programs approved by the District and as authorized by order of the Commissioner.

It is necessary that the landowner be provided sufficient incentives so that his co-operation will extend to permitting hunting on his lands, as well as permitting or actually conducting those practices of land use which will promote the welfare of wildlife. Visits to the Farm-Game Areas in Pennsylvania have demonstrated to us that the posting of safety zones and adequate patrol to assure proper conduct on the part of hunters are two services provided by the Pennsylvania Game Commission which have major appeal for the co-operating farmer. Other services are provided, depending upon the opportunities afforded on different farms. Many of these we are already providing in New York through our 48-D program in which small marshes are constructed, trees and shrubs beneficial to wildlife are planted, and woodlots are fenced. Even more tangible benefits can be devised, and as Dr. Swanson has stated in his comments on landowner incentives "they should not be regarded as unearned gifts from the State, but as all too inadequate compensation to the landowner for his custodianship of the wildlife and his permitting public use of it."

The organizational framework established by the Act and the system of incentives and program possibilities contained therein should stimulate the kind of "grass roots" planning which is so essential to the success of any program which affects the use of our basic resources of soil and water. It would provide a means of fostering and developing a community interest in the programs, and a closer co-operative landowner relationship with the Conservation Department and sportsmen of the State. These advantages are sorely needed—AND THE TIME IS LATE.

Bonus bears

During the opening week of the Adirondack bear season three successful hunters fell heir to $25 each in addition to having a good time. They were the first to bring down any of the 54 black bears that were live trapped, ear-tagged and released by the Conservation Department in the Adirondacks during the Summer of 1956. These bears were permanently marked with monel metal stock tags in both ears as part of a co-operative black bear research project conducted by Cornell University and the New York State Conservation Department. It is hoped that returns will assist in the study of the range and habits of New York's bears.

Anthony Kozak, Clayville, was the first hunter eligible for a reward. He killed his bear at the north end of Eighth Lake. Checking the record it was found that this bear, when killed, was only 1½ miles from the release point and about 2½ miles from the point of capture.

Harry Budine, Walton, took his tagged bear due west of Big Tupper Lake. This bear was 2.8 miles from the release point but only about 1 mile from the point of capture. Budine's bear hog-dressed at 191 pounds. It had weighed 205 pounds on Sept. 6 when released.

James Weir, Barneville, killed his bonus bear near Mt. Arab Station in St. Lawrence County. This one was about 7 miles from the release point but only about 3.7 miles from point of capture. It had weighed 332 pounds on Sept. 5 and hog-dressed at 285.

Conservation Library

Part 6

Books on Soils, Rocks and Minerals

Part 1 of the Conservation Library appeared in the February-March, 1956 issue and dealt with the identification of animals. Part 2 in the April-May issue listed books on trees and shrubs. Part 3 in the June-July issue listed books on herbs (wild flowers) and grasses. Part 4 in the August-September issue listed books on fungi and aquatic plants. Part 5 in the December-January issue listed books on lichens, ferns and mosses.

In future issues, reference guides will appear on resource management and conservation philosophy.

Reading Guide: *Books are listed in the left hand column and recommending authorities across the top. Stars indicate which specific books these authorities recommend. Accompanying digests show source and briefly outline contents of each book listed.*

	*Edminster	*Christman	*Muller	*Stone	*Seaman
THE NATURE AND PROPERTIES OF SOILS *T. L. Lyon, H. O. Buckman, N. C. Brady*	☆			☆	
SOILS AND MEN **1938 YEARBOOK OF AGRICULTURE** *U. S. Dept. of Agriculture*	☆				
SOIL SURVEY MANUAL **AGRICULTURAL HANDBOOK NO. 18** *U. S. Dept. of Agriculture*	☆			☆	
HOW TO KNOW MINERALS AND ROCKS *R. M. Pearl*		☆			
THE ROCK BOOK *C. L. Fenton and M. A. Fenton*		☆			
DANA'S MANUAL OF MINERALOGY *C. S. Hurlbut, Jr.*		☆			
A FIELD GUIDE TO ROCKS AND MINERALS *F. H. Pough*		☆			☆
GEOLOGY *C. L. Cooper*			☆		
OUR AMAZING EARTH *C. L. Fenton*			☆		
INTRODUCTION TO PHYSICAL GEOLOGY *C. R. Longwell and R. F. Flint*			☆		
GEOMORPHOLOGY *O. D. von Engeln*			☆		
PRINCIPALS OF GEOMORPHOLOGY *W. D. Thornbury*			☆		
SOILS AND SOIL ASSOCIATION OF NEW YORK *M. G. Cline*				☆	
OUR NEW JERSEY LAND *G. A. Quackenbush*				☆	
OUR GARDEN SOILS *C. E. Kellog*				☆	
USING AND MANAGING SOILS *A. F. Gustafson*				☆	
SOIL FERTILITY *C. E. Millar*				☆	
ELEMENTS OF SOIL CONSERVATION *H. H. Bennett*	☆			☆	
SOIL CONDITIONS AND PLANT GROWTH *Sir E. J. Russell*				☆	
FOREST SOILS *H. J. Lutz and R. F. Chandler*				☆	
FOREST SOILS AND FOREST GROWTH *S. A. Wilde*				☆	
NORTHERN CONIFEROUS SOILS *O. Tamm*				☆	
SOILS OF WISCONSIN IN RELATION TO SILVICULTURE *S. A. Wilde*				☆	
THE MINERALS OF N. Y. CITY AND IT'S ENVIRONS *J. G. Manchester*					☆
FIELD BOOK OF COMMON ROCKS AND MINERAL *F. B. Loomis*					☆
A CHILD'S BOOK OF STONES AND MINERALS *V. Swenson*					☆
THE FIRST BOOK OF STONES *M. B. Cormack*					☆

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Books on Soils, Rocks and Minerals

Natures and Properties of Soils: (1952) 5th Edition by T. L. Lyon, H. O. Buckman, N. C. Brady; Macmillan Co., New York. Classic college textbook covers most aspects of soil science with emphasis on basic concepts rather than detailed application.

Soils and Men: (1938 Yearbook of Agriculture); U.S. Department of Agriculture, Washington. D.C. Over a thousand pages of soil identification, management and economics. Illustrated in black and white. References cited.

Soil Survey Manual: (1951) by the Soil Survey Staff, U.S. Department of Agriculture Handbook No. 18; Superintendent of Documents, Washington D.C. This describes the procedures, units and terminology of soil classification as used in the United States. In addition, many of the concepts and applications are indicated. Of interest chiefly to the more technically minded. Many illustrations.

How to Know Minerals and Rocks: (1955) by Richard M. Pearl; McGraw-Hill Co., New York. Simplified descriptions of 127 important minerals and 32 common rocks. General chapters on origin of minerals, how to make a mineral collection, simple methods of recognizing some minerals.

The Rock Book: (1940) by C. L. Fenton and M. A. Fenton: Doubleday, Doran and Co. New York. Interesting book for beginners dealing with rocks and rock forming minerals. Information on origin, history and economics adds interest to the book.

Dana's Manual of Mineralogy: (1952) 16th edition, by C. S. Hurlbut, Jr.; John Wiley and Sons, Inc., New York. Useful for both technical and non-technical study of minerals. Identification emphasized but also chapters on crystallography, physical and chemical mineralogy, occurrences and uses of minerals.

A Field Guide to Rocks and Minerals: (1953) by F. H. Pough: Houghton Mifflin Company, New York. Well illustrated with black and white and color photographs, careful descriptions and short sections on collections, physical properties, crystal systems and chemistry, this book is a useful handbook for amateur and the technician.

Geology: (1953) by C. L. Cooper and others; Boy Scouts of America, New Brunswick, N. J. Booklet prepared for merit badge study, this manual contains a competent, though elementary, survey of physical and historical geology. Short bibliography.

Our Amazing Earth: (1938) by C. L. Fenton; Doubleday, Doran and Co., New York. Fairly detailed geology textbook for advanced high school level. Discusses briefly earth history, rocks, minerals, and geomorphic agents—wind, water and ice.

Introduction to Physical Geology: (1955) by C. R. Longwell and R. F. Flint; John Wiley and Sons, New York. A concise, authoritative statement of the basic principles of physical geology, fairly well illustrated and in attractive format. Against the broad background of physical geology emphasis is laid on the conflict of forces involved in erosion and sedimentation, in uplift and denudation of the earth's surface.

Geomorphology: (1942) by O. D. von Engeln; Macmillan Co., New York. An excellent standard college text on land form development, which introduces a wide vocabulary of geomorphic terms and incorporates an understandable treatment both of the American (Davisian) and the opposing German (Penckian) schools of geomorphic thought. A number of land forms are illustrated by familiar features of New York State.

Principles of Geomorphology: (1954) by W. D. Thornbury; John Wiley and Sons, New York. Probably the most up to date and widely employed college textbook on land form development. Discussion of the scope of geomorphology and preliminary concepts prefaces detailed study of geomorphic processes and features. A strong point of this textbook is its careful treatment of dissimilar views on controversial hypotheses.

Soils and Soil Associations of New York: (1955) by M. G. Cline; Cornell Extension Bulletin 930, Cornell University, Ithaca. Readable general account of physical background and major kinds of well drained soils and descriptions of regional groups of soil. 18" x 24" colored soil association map included.

Our New Jersey Land: (1955) by G. A. Quackenbush; New Jersey Agricultural Experiment Station Bulletin 775, New Brunswick, N. J. Similar to booklet above and of interest to people in southeast New York State. More emphasis on geology and land forms than the above.

Our Garden Soils: (1952) by C. E. Kellog; Macmillan Co. New York. Simply written, informative book by chief of U.S. Soil Survey Division. Excellent single reference for layman interested in growing both cultivated and wild garden plants.

Using and Managing Soils: (1948) by A. F. Gustafson; McGraw-Hill, New York. Elementary textbook for prospective farmers and vocational agricultural students. Good simple introduction to problems of managing soil by the acre.

Soil Fertility: (1955) by C. E. Millar; John Wiley and Sons, Inc., New York. College textbook on soils with emphasis on fertility and factors affecting crop yield.

Elements of Soil Conservation: (1947) by H. H. Bennett; McGraw-Hill, New York. Comprehensive textbook-style treatment of soil conservation problems, experiments and methods by former Chief of U.S. Soil Conservation Service. Supplements earlier well known "Soil Conservation" by the same author.

Soil Conditions and Plant Growth: (1950) 8th Edition by Sir E. J. Russell; Longmans, Green, New York. This is an unsurpassed reference work or text for advanced students. Selected bibliography.

Forest Soils: (1946) by H. J. Lutz and R. F. Chandler; John Wiley and Sons, Inc., New York. (See below.)

Forest Soils and Forest Growth: (1946) by S. A. Wilde; Chronica Botanica Co., Waltham, Mass. The above two are textbooks suitable for students or advanced amateurs. Both are illustrated and have a bibliography.

Northern Coniferous Soils: (1950) by O. Tamm translated from the Swedish by M. L. Anderson; Scrivener Press, Oxford, England. A textbook of soils of the northern coniferous forests. Applicable to coniferous forests of New York State.

Soils of Wisconsin in Relation to Silviculture: (1949) by S. A. Wilde, F. G. Wilson, D. P. White; Wisconsin Conservation Department, Madison, Wisconsin. Although written about Wisconsin conditions and using terminology peculiar to that State, this bulletin illuminates many relationships between soil and biological communities.

The Minerals of New York City and Its Environs: (1931) by James G. Manchester; Bulletin of the New York Mineralogical Club. Illustrated reference of rocks and minerals in the New York City area. Selected bibliography. Semi-technical and local.

Field Book of Common Rocks and Minerals: (1948) by Frederic Brewster Loomis; G. P. Putnam's Sons, New York. Popular guide for identification of rocks and minerals illustrated with black and white drawing and some color pictures.

A Child's Book of Stones and Minerals: (1955) by Valerie Swenson; Maxton Publishers, Inc. An elementary introduction to the study of rocks and minerals illustrated with color and black and white drawings.

The First Book of Stones: by M. B. Cormack; Franklin Watts, Inc., New York. A very general book for beginners. Illustrated with black and white drawings.

A '56 record?

Pictured here is what may well be the heaviest buck deer to fall to a hunter's gun in New York during the 1956 season. This magnificent animal, dressed weight 262 pounds, was brought down by John Smutek of Tarrytown while hunting the Round Top area near Cairo in Greene County.

Panthers—continued

There are some things we can bank on. We were sure this Fall that soon it would be Winter, and we're sure now that in due course Spring will be here. Another thing we can depend upon is the receipt each year of from eight to a dozen "authentic" reports of panthers still at large here in New York.

1956 was a good year for panther reports. Their tracks were seen in the Catskills; they pulled down quite a few cattle in Schoharie County and in the Adirondacks they were both heard and seen—sometimes at such close range that if the observer "had only had a gun . . ."

Well, we think this business of panther reporting is a perfectly legitimate and entertaining way to pass the long Winter days. So, to sharpen the vision of those who may wish to join the hunt, here, pictured above, is a real, honest to God panther in the grasp of Ed. Maunton, (with hat), of the Conservation Department.

Before anyone jumps to the conclusion that the long drought is over—that after 62 years of "panther reporting"—one from the wilds of New York was finally produced, we hasten to say that this is one of a pair which, until the Fall of 1955, graced a big cage at the Department's "Zoo" in Delmar. They were presented to the Department by the Fort William Henry Corporation at Lake George and came via the Baltimore Zoo from Arizona or thereabouts.

The pair was added to the Departments' animal exhibit in the Spring of '55 and all was well until that Fall when, for reasons known only to the principals, a king-size cat fight developed—from which neither recovered.

The panther pictured here was the male. The female, equally dead, was posed by Clayt Seagears for his painting that appeared in THE CONSERVATIONIST for December-January, 1955-56. The big cats were about two-thirds grown and weighed in at about 75 pounds each when hatred did them in.

'Nessmunk again

"Cast your bread upon the waters" could easily be the title of many tales—including this one. Some years ago, Martin Pfeiffer, a Conservation Department fish biologist, was fly fishing near Saranac Lake on a windy day from the small 'Nessmunk-type guide-boat he is standing by (see photo). A fateful gust of wind swirled the line off course on the back cast and Martin hooked himself in the eyeball.

The doctors at the Saranac hospital didn't have anything small enough to clip the hook's barb and called in Jack LaRoche, a local jeweler, who had some fine pliers. Jack clipped the barb and the doctors removed the hook.

A couple of years later Pfeiffer walked into LaRoche's and asked Jack if he'd be interested in the guide-boat. (It was designed to float 150 pounds safely but now Pfeiffer, at a hefty 175, was too big for it.) Naturally, Jack said yes. If you look at the other photo, you can see Jack, weighing a flat 90 pounds soaking wet, enjoying the guide-boat he at one time wished he owned. Now, thanks to a favor he did, he does.—NICK DRAHOS

Guide-boat statistics: 8′ 3″ long; weight, 14 lbs.; oars, 4′ long; has a back rest, no seats and is made of white cedar. About 100 years old.

Raising bait fishes

This is the title of a new booklet which is a good reference for those interested in raising minnows for profit. Covering such subjects as the design of suitable rearing ponds, feeding and handling of the fish and many other operations, this 124-page publication is available at 45 cents per copy from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. In ordering, ask for Circular 35.

On the same subject, CONSERVATIONIST, reprint No. 165, "The Bait Fish Business," is available free of charge from the N. Y. S. Conservation Department, Albany. This reprint contains information tailored to New York and other northern state conditions and includes the applicable laws and regulations which govern the raising and selling of such fish in New York State.

Apple cider

Awhile back there appeared in the mail a short article on apple cider by one David H. Thompson, Senior Naturalist for the Forest Preserve District of Cook County, Illinois. Thompson, as will be noted, is talking about the early days in the Mid-west, but what he has to say is just as true a commentary of country life here in New York.

This is pretty nostalgic stuff to me—as I'm sure it must be for all country boys. There ought to be a society for the preservation of cider mills—and covered bridges, and stone walls, round-oak stoves, country stores, dill pickle barrels and hand crank telephones. Oh well, at any rate, here's to apple cider by Dave Thompson: "There was a time, here in the Middle West, when almost every farmstead had an orchard. It often included a few peach, pear, plum and cherry trees but most of them were apples. A few kinds, such as the Early Harvest apple, ripened in Mid-summer at about threshing time and were soon eaten, but most varieties ripened in late Autumn. Some—firm, hard and with an acid flavor—were used principally for cooking. Others, more mellow, were 'eating' apples and the choicest of these were hand-picked, carefully wrapped, packed in barrels or boxes, and stored in cool cellars for Winter use. The windfalls and culls were used to make 'the farmer's champagne': Cider.

"Some farmers had small hand-operated cider presses—especially where the wife was very finicky about the cider which was served as a beverage to her guests and which was such an important ingredient in the quantities of mincemeat, apple butter and vinegar she made each Fall. *Her* cider was stored in a cool place and in tightly-corked jugs to keep it from fermenting. Usually, those ladies would use only sound well-ripened apples of two or three choice varieties, insisting that apples which were blemished, damaged, or had spots of decay, ruined the flavor of the cider and were fit only for hog feed.

"In many communities there used to be a cider mill to which farmers, for miles around, brought their surplus apples as well as their windfalls and culls unsuitable for sale or storage. Such mills were of two types. In one, the grinder which crushed the apples into a pulpy mass called 'pomace', was turned by a horse plodding round and round at the end of a long heavy pole called a 'sweep'. In the other type, the power was furnished by a big water wheel rotated by the current in a millrace just below a dam.

"In the larger mills, the grinder was mounted above the press. At intervals,

a quantity of pomace was allowed to fall onto a heavy cloth laid on a table. The cider man folded the cloth over to contain tub-like 'cheese' which he put in the press. Over it he placed a slatted wooden cover. This was repeated until the press was full and then, using one or sometimes two huge jacks like house jacks, the mass was compressed and the juice flowed out.

"With few exceptions, gasoline engines have replaced the horses and water wheels. There are a few water-power cider mills still operating in the northeastern states and one in Michigan. Nowadays, most cider is made in large processing plants which produce vast quantities of pasteurized apple juice in addition to an unfermented cider sold as a beverage and used to make vinegar.

"Those old-time cider mills attracted people—both old and young. They had a rare spicy smell. They were fascinating to watch. And it was a treat to sample the aromatic amber-colored sparkling liquid that ran in rivulets from the press into jugs and barrels or into a storage vat.

"Many farmers used to age some of their cider; let it ferment in casks until it was a pleasant but somewhat* alcoholic beverage called 'hard' cider. Others, particularly in the eastern states went a step farther; they allowed a barrel of hard cider to freeze until the alcohol was concentrated in the center. This, when decanted was a powerful brandy called 'apple jack'.

"But if you really want a drink that's neat,

"Take the durn stuff when it's sweet."

**"Somewhat,"—he says!—Editor.*

More on carbon tetrachloride

In THE CONSERVATIONIST for June-July 1956, we published an article by John A. Wilcox, Associate Curator of Entomology, New York State Museum, on the moths and butterflies of New York. Recognizing that the collecting of insects—particularly the moths and butterflies—is a popular hobby, Dr. Wilcox wrote in some detail of the techniques used in both collecting and preserving. Since the article appeared a number of readers have written to us and to the author questioning his recommendation of carbon tetrachloride as a killing agent and pointing out that, under certain circumstances, it could be poisonous to humans.

We are glad to present here the author's further thoughts on this matter—thoughts which lead us to believe that when carbon tetrachloride is used with caution and *as prescribed*, the risk is somewhat less than of breaking one's neck in the bathtub.

"We appreciate the concern shown by several of the readers over the use of carbon tetrachloride as an insect killing agent by amateur collectors. We also welcome the opportunity afforded by the editor to add a word of clarification to the explanation already given by Mr. Trimm on page 41 of the October-November 1956, issue of THE CONSERVATIONIST. *What was intended was the use of the 'few drops' in a closed bottle, as explained, but evidently it was not clearly brought out that all insect-killing agents are poisonous to a certain extent and must be used with caution. Sodium and potassium cyanide, which are frequently recommended rather casually, are among the most violent poisons known, and it is only in comparison with such poisons as these that certain others can be said to be relatively less dangerous.*

"Carbon tetrachloride was recommended since cleaning fluids composed of it are common household items and it was presumed that the precautions recommended for them would be followed even with the small quantity needed for an insect killing bottle.

"In industry, 25 parts per million has been considered the maximum allowable concentration in which a person can work continually during the working day but it takes only one-fourth of a teaspoonful of carbon tetrachloride, vaporized in an unventilated space 10 x 10 x 10 ft., to give a concentration of 25 parts per million. By way of comparison, the maximum allowable concentration of hydrogen cyanide gas is 10 parts per million. That of ethyl acetate is 400 parts per million, or a concentration 16 times as great as for carbon tetrachloride.

"Ethyl acetate is not ordinarily considered to be a 'poison' even by some health authorities. The chief effects of continuous exposure to higher concentrations of ethyl acetate vapors are irritation of the nose and throat and some skin inflammation. It does not commonly cause permanent ill effects.

"Nail polish remover and thinner for model airplane cement are two other liquids which have properties similar to those of ethyl acetate. They are not as satisfactory as ethyl acetate or carbon tetrachloride for killing insects, but can be used."—JOHN A. WILCOX

Coyote study

Is the coyote extending its range in New York? What are the food habits of the species throughout the year and how important is the coyote as a predator?

These questions and others bearing on the life history of these animals are presently being investigated under a P-R co-operative research study by the Conservation Department and Cornell's Department of Conservation.

Dr. W. J. Hamilton, Jr., Professor of Zoology, Department of Conservation, Cornell University, Ithaca, is heading up the investigation and would appreciate hearing from deer hunters or others who may have observed coyotes while afield this Fall and Winter.

Similar in appearance to a police dog, the coyote has shorter legs and tail; brownish ears.

If you have seen one—or more—Dr. Hamilton (and we) would appreciate the information. A postal card to him at Cornell will do the trick.

NOTE: Should any coyote carcasses come your way, Department gamemen will appreciate shipment, express collect, to Game Research Center, Delmar.

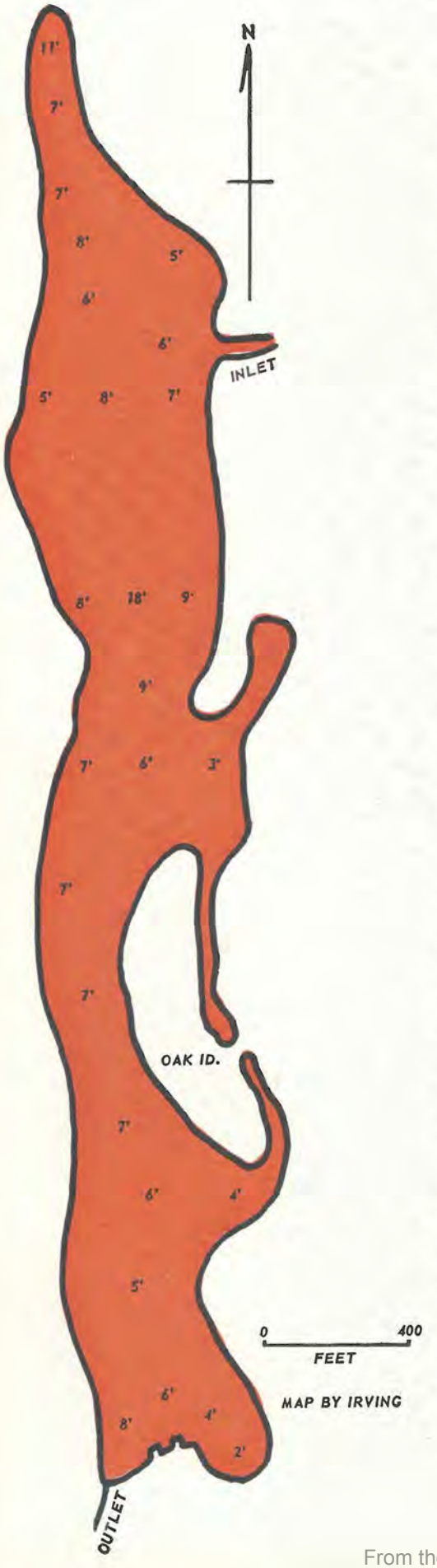
Information please

In an attempt to have the horse before the cart we are seeking advance information. We feel that many of our readers would enjoy a story about the old fashioned water mills that have played such an important part in the early development of New York State. At the moment it is planned to restrict the story to water mills that are still operating and producing, whether it be lumber, feed or anything else. If you know of any such mill in New York State please drop us a line telling where it is and how to get in touch with the owner.

A ringer

Luck finally ran out on this oak tree when it was cut at Massapequa, L. I.—even though it had worn its own good luck charm for the last 80 years. With a calculated age of 100 years when felled it must have been just a sapling during the Civil War and about 20 years old when someone placed the horseshoe around it. Time and Nature did the rest. Most of us can't help but marvel at Nature's handiwork but sawmill operators will shudder at the sight.

Chenango Lake— before and after



For many years, Chenango Lake, a 33-acre body of water in Chenango Valley State Park, Broome County, has produced only mediocre fishing for the average angler. There are, however, many fishermen among the thousands of tourists, campers, picnickers and local people who take advantage of the Park's facilities each year and in order to improve their sport, a project was initiated in October, 1955 to develop better fishing in this popular lake.

The lake was drawn down and all of the game fish that could be recovered by netting were transferred to other waters. The water was then treated with emulsifiable rotenone, a fish poison used by fisheries biologists as an important management tool. Included among the fish eradicated were common sunfish, rockbass, yellow perch, chub suckers, bullheads, carp, chain pickerel and some largemouth and smallmouth bass. The greatest poundage of fish was comprised of carp and chub suckers—species seldom if ever taken by fishermen. Most of the panfish were stunted and few of those observed had attained desirable size.

When the water lost its toxicity in late Fall, restocking with a combination of marked rainbow trout and marked brook trout was begun. The decision to stock with trout rather than warm-water fish was made as a result of several factors. Although approximately one-half of the lake's area is made up of water six feet or less in depth and subject to warming in the Summer, the remainder is more suitable as year-around trout habitat. The deeper half of the lake with water up 20 feet in depth is well supplied with large springs. Chenango Lake is a headwater lake with only a short inlet stream with a dam which serves as an upstream fish barrier at the outlet. This physical setup seemed ideal in minimizing the chance for re-introduction of non-trout species through natural means. Moreover, the lake lies in an area poorly supplied with good trout waters but well supplied with trout fishermen.

In order to determine the benefits to fishermen as a result of this work, a creel census was carried out during the 1956 trout fishing season. The census was set up as a Dingell-Johnson project which means that funds for its operation were shared by both the State and Federal governments. Special park fishing permits were issued gratis to every fisherman at the lake. These permits returnable daily at the termination of fishing were also used as a method of recording each fisherman's catch. The creel checker was stationed at the lake throughout the entire trout fishing season during the hours 8 A.M. to 8 P.M., the period when fishing was permitted each day.

When the permit data were summarized at the end of the season it was found that a total of 8,644 anglers had fished the lake, the majority during the early weeks of the season. Of these 1,488 anglers or about 17 per cent were successful in taking one or more trout. Though early season fishing was best, trout were taken throughout the season including limit catches in July and August. A total of 67 per cent of all trout stocked were caught and very probably some of the remaining ones will enter the catch in 1957 which will raise the percentage return still higher. This is considered an excellent return on stocked trout and in general fishermen were satisfied with this project. An interesting sidelight noted by the creel checker was that certain fishermen who took several fish during a trip to the lake returned and repeatedly made limit catches. This further substantiates information collected in other parts of the State, indicating that a relatively few fishermen are taking the majority of all fish caught.

The one discouraging fact now apparent is that some of the warm-water fish are already back in the lake and some of them even spawned successfully during the past Summer, Smallmouth bass, chub suckers, bullheads, rock bass, and sunfish are known to be present. It is not known whether these fish, undesirable in combination with trout, survived the rotenone by remaining in springs or whether they have been reintroduced. It is planned to continue the project for two more years.

Bite worse than bark

According to Rhode Island's *Providence Journal*, Australians recently reported the discovery in their "down under" waters of a race of barking lobsters. The bark, better described according to the Australians, as a harsh, grating noise, is produced by the crustacean's short, stubby antennae.

What's needed now, the *Providence Journal* thinks, is a volunteer team of salt water biologists who would import some of these barking Australian lobsters and crossbreed them with our native lobsters.

The resulting, longer antennaed crossbreeds could be liberated along this coast, the *Journal* says, to multiply in great numbers. The lobster fleet, much of it already equipped with two-way radio, electronic depth-sounders and the like, then could invest in some additional gear tuned to the frequency of the crustaceans.

Imagine, they point out, the lucrative catches that could be made by the fleet in the otherwise tough Winter fishing

season as the boats tuned in to the wavelength of an off-shore pack of lobsters, all barking like mad. A fish horn might be sounded by a short-wave radio, calling the lobstermen to mount their craft and be off over trough and cresting swell, heeding the bark of the lobsters at puppy play on the bottom.

1909-1957

Back in 1909, *The Philadelphia Public Ledger* published a bit of doggerel about the habits and manners of sportsmen of that day who went afield to hunt. We are reprinting it here, courtesy *Outdoor California*, with just one comment—Times haven't changed much.

A hunter popped a partridge on a hill;
It made a great to-do, and then was still.
It seems (when later on his bag he spied)
It was the guide.

One shot a squirrel in a nearby wood—
A pretty shot, offhand, from where he stood,
It wore, they said, a shooting hat of brown,
And lived in town.

And one dispatched a rabbit for his haul
That later proved to measure six feet tall;
And, lest you think I'm handing you a myth,
Its name was Smith.

Another Nimrod slew the champion fox
He glimpsed him lurking in among the rocks.
One rapid shot! It never spoke or moved,
The inquest proved.

A "cautious' man espied a gleam of brown;
Was it a deer, or Jones, a friend from town?
And while he pondered on the river's rim,
Jones potted him.

"Man wants little . . ."

Very often, when school children write in for information—and thousands of them do—we have little difficulty in filling their requests. Bill Smith may want the same things Jimmy Brown asked for—practically everything on the shelves of our publications library. But one lad almost stumped us the other day. He wrote: "Send me Lake George." We worked it out that he wanted our Lake George recreational circular—and he got it. That seems to have done the trick. At least we haven't heard anything to the contrary.—Roland B. Miller

Governor Harriman and Conservation Commissioner Mauhs look on as Dr. Emmeline Moore christens the Department's new marine research vessel.

The "Emmeline-M", a seaworthy 40-footer shown tied up at Freeport on christening day, Dec. 21, 1956. Designed for the job, she is fully equipped for fisheries research.

Letters to The Editor

Fox in the tree

Dear Editor: While hunting nearby Hamburg my dog got on the scent of something. I didn't know just what it was at the time. He ran back through the woods like a bullet. I went back through the woods to see what he had and sitting in the crotch of a hickory tree, about 30 feet off the ground, was a big gray fox. I shot him. Now, could you explain how that fox got into that tree? There were no branches until at least 23 feet and they were very small.

Dan Torre, Hamburg

• *Foxes, particularly grays, are good tree climbers.—Editor*

Questions and answers

We received a letter recently from Mr. E. J. Jorgensen, Milford, N. Y. in which he asked us a number of questions concerning the Conservation Law; the manner in which the Department presents condensations of the law in its Hunting and Trapping, and Fishing guides; hunting seasons; license fees, etc.

Now, there's nothing remarkable about questioning letters. We receive and reply to hundreds each day. Rarely, though, do we receive a letter wherein the writer has pulled together so many questions—so often asked—by so many sportsmen—throughout the State.

Sooo—we asked W. Mason Lawrence, Assistant Director of the Department's Division of Fish and Game, to provide the answers. Here they are, item by item:

1. Question. Let's get the Hunting and Trapping Guide law as well as the Fishing Guide law fixed so we know what we are doing.

Answer. The laws governing the taking of fish and game are fixed. They are fixed by the Legislature as the Fish and Game Law. Nevertheless, because conditions do not remain the same, various changes are needed from year to year. Also, with respect to certain game species and fur animals, the required information on which to base the most appropriate open seasons and bag limits cannot be obtained until after the Legislature has adjourned. Therefore, the Law makes the Department responsible for declaring the regulations for these species after field surveys to get the information needed.

The Guides are condensations of the regulations in force each year which, unavoidably, are complicated in some respects because of the diversity of conditions over the State. Every effort is made to have them as clear and definite as possible, although, in the case of the Hunting and Trapping Guide, it must go to press before decisions can be reached on a few items such as the closing of the muskrat season. I believe, however, that anyone who reads these Guides carefully will find few questions unanswered.

2. Question. Let's have publication of the Fishing Guide before January 1.

Answer. The Fishing Guide is now published each Spring just as soon as it is possible to do so and incorporate changes made in the law by the Legislature and signed by the Governor. Therefore, it contains all the regulations in effect until the next session of the Legislature, except for occasional instances in which additional protection may be granted to certain waters.

We realize that it would be helpful to have this Guide available earlier in the year. However, the Governor has up to 30 days to sign bills after the Legislature adjourns, and then time is required for the process of printing.

3. Question. Let's have publication of the Hunting and Trapping Guide no later than August 1.

Answer. As noted under Question 1, the Department is responsible for declaring the open seasons and bag limits for certain species. These decisions are not made until Summer, following an assessment of breeding success. The Guide is printed as soon as possible thereafter. Within these limits we are striving to have it available as soon as practical.

In this connection, consideration is now being given by the Joint Legislative Committee on Revision of the Conservation Law to a proposal to change the license-year from the calendar year to the period from October 1 to September 30. Such an arrangement would mean that the Fishing Guide and the Hunting and Trapping Guide would be available each Fall when people purchased their new licenses.

4. Question. Let's fix times and dates so people are not made outlaws by others' foolishness.

Answer. Because this question is so general, no specific answer can be given. Nevertheless, it can be stated that there are good reasons for all the times and dates fixed by law or Department order. In addition to biological factors, the desires of sportsmen and landowners are taken into consideration. Not only because of differences of opinion among these groups but also in the interest of achieving as much uniformity over the State as possible, compromises are inevitable. The idea that this will make a person who may disagree an outlaw would apply only to those who are unwilling to abide by the democratic process of government. At the same time, a constant effort is made to find ways in which the regulations may be improved.

5. Question. Let's have small game hunting permitted from 9:00 a.m. to 6:00 p.m. daylight saving time on opening day and from 7:00 a.m. to 6:00 p.m. thereafter.

Answer. Because most of the hunting season comes after the date on which we revert to standard time each Fall, it is best to use standard time for the hours specified in the Fish and Game Law. To use daylight saving time for any portion would only create confusion.

The reason for the 9:00 a.m. opening on the first day of the small game season is

to give the game a chance to disperse somewhat from their roosting areas before being subjected to shooting for the first time, especially where hunting pressure is heavy.

With respect to permitting shooting at 7:00 a.m. daylight saving time on other days, that would mean 6:00 a.m. standard time and, during the hunting season, it is not sufficiently light at that hour for safety.

6. Question. Let's have standard time 7:00 a.m. till 5:00 p.m. as it is now.

Answer. This is what we feel is most appropriate.

7. Question. Let's have the deer season at 7:00 a.m. opening day in every county in the State.

Answer. The counties where the deer season opens at 9:00 a.m. on the first day are those that are chiefly agricultural. Landowner sentiment has brought about this compromise.

8. Question. Let's lower the license fees; they are getting out of reach, especially the archery license.

Answer. Unfortunately, the cost of all the work of the Department has been constantly rising, just as has the cost of living and industry generally. Therefore, increases in license fees have been inevitable. In terms of the privileges granted, however, they are still very reasonable and New York's fees are lower than those of most other states. With respect to archery, it has been felt that the special license to hunt big game for two weeks prior to the regular season warrants the added fee. Furthermore, the fee was proposed by the archers themselves as represented by the New York State Archers' Association and has been continually supported by that group.

9. Question. Let's have it so that when one asks a direct question of the Department he may get an answer, such as: Is it lawful to set muskrat traps in holes along small streams where muskrats might get food or that might be made with a trowel for the purpose of catching muskrats.

Answer. So far as I know, no one has ever addressed a question to the Department without receiving a reply.

With respect to the above question regarding muskrat trapping, there is nothing in the present law to prohibit setting traps in holes in the bank of a stream. The law does prohibit trapping at muskrat houses, dens, or the structures made by muskrats above holes in the ice and commonly called "push-ups".

10. Question. Let's not ask the game warden for the answer to the above question.

Answer. I fail to understand the reasoning behind this comment. It is a basic part of a game protector's job to answer such questions as a means of promoting as wide an understanding as possible of the Fish and Game Law and related regulations.

11. Question. Let's see laws made and put on paper so we the public learn our rights.

Answer. The Fish and Game Law as enacted and amended by the Legislature is published in its entirety each year as a booklet which may be obtained from the Department for 25 cents. The Fishing Guide and the Hunting and Trapping Guide are condensed forms designed to give the sportsmen the information they need most. Because the latter are distributed free, costs must be kept at a minimum and, consequently, the items must be abbreviated. This constitutes the best way we know to inform the public of the regulations in force.

12. Question. Let's have two maps in our guidebooks, one of the small game seasons and the other explaining the management districts.

Answer. As noted under Question 11, it is necessary to keep the cost of publishing the Guides as low as possible. Because of the way in which these leaflets are printed and bound, they must be made up in multiples of four pages. It is not felt that inclusion of a map of the districts would justify adding four pages.

13. Question. Let's have Sunday hunting in every county of the State.

Answer. Because pheasants are found primarily on agricultural land, Sunday hunting is prohibited in response to the strong sentiment among farmers for such a regulation.

The same sentiment is the reason for the prohibition of Sunday hunting for deer in the predominantly agricultural sections of the State.

14. Question. Let's have it so we can take dogs afield July 1.

Answer. The purpose of the provision that dogs shall not be trained afield on game from April 1 to August 1 is to avoid harassment of game during the breeding season. Young game birds and animals are still quite immature throughout the month of July. It is felt that August 1 is the earliest date that training dogs on game may be permitted.

15. Question. Let's keep our rules and regulations in the simple form so our minors and young hunters can learn the right way.

Answer. We heartily agree to the desirability of simplicity. In fact, because the Fish and Game Law had grown involved and cumbersome over the years, it has been completely recodified. The new version went into effect July 1, 1956. Nevertheless, it can never be a really simple thing, both because of the diversity of subjects it must cover and because there are always a few persons who try to find ways of circumventing it unless all loopholes are legally plugged. Within these limitations, however, every effort is made to make it simple.

Your interest in these matters is appreciated. I hope the information in this letter will give you a better understanding of the problems involved and of the basis for the regulations in effect. I can assure you that we in the Department are aware of the need for keeping the public as fully informed as possible regarding the Fish and Game Law and welcome suggestions.—W. Mason Lawrence, Assistant Director, Division of Fish and Game

The Payne rod

Dear Editor: In the April-May, 1956 issue of THE CONSERVATIONIST, Mr. Clayt Seagears asked for knowledge of Fred Thomas who was with Payne Fish Rods. Mr. Thomas died several years ago in Bangor, Maine where he had moved and set up his own rod factory.

His son, Leon, now has the business at Bangor and still makes the same excellent rods.

I. Thompson Welling, Monroe

Fiberglass Adirondack guide-boat

Dear Editor: I have long been a fan of the Adirondack guide-boat. These are, unfortunately, becoming more and more scarce.

I have been told that they are now building a guide-boat of plastic. Can you tell me if this is true? Are they strong? Can they be repaired? Weight? Do they resemble the original in color, etc.? Can you give manufacturer's name and address?

Any information will be gratefully received.

Kenyon H. Pruyn, Mechanicville

• *The Allcock Manufacturing Company in Ossining is now building these boats by modern methods. The boat illustrated is built of fiberglass and polyester resin, maintaining the same design and characteristics of the original wooden boat. The color—and there is a choice—is an impregnated part of the plastic material. The fiberglass hull is considerably stronger than the wooden hull of the original guide-boat and fracture proof under normal conditions. However, the fiberglass can be patched if necessary. It is leakproof, requires no calking or painting and, of course, will not rot. The boat is equipped with two compartments containing Urethane foam for buoyancy and is surprisingly stable, compared to a canoe. It is made to row or paddle, but a small outboard may be attached by means of a bracket.*

Specifications of the model illustrated, "The Swallow," are: Length overall, 15'10"; maximum beam, 42"; depth amidship, 13¼"; height at bow, 24"; weight, 85 lbs.; equipped with cane seats and double oarlocks.—R. B. Miller

Crabapples

Dear Sirs: Sometime ago THE CONSERVATIONIST asked for information about an apple tree which held its fruit late in the Winter. These apples enclosed in this box are pushed off by the new leaves if they haven't already been eaten by a large flock of cedar waxwings which sometimes visits us in the early Spring.

The apples are from a tree we rescued from land being cleared by a bulldozer. It has repaid us by being laden each year with fruit, some of which I use for jelly. It is in a sunny spot.

We have let the suckers grow this year, untrimmed, in case you would like any to cut.

Ellen E. Sammis, Huntington

• *Thank you for your letter of November 4th and the crabapples you sent along at the same time. Evidently you are sending these in response to the item entitled, "Wanted, March Meals," in our June-July issue of* THE CONSERVATIONIST. *I am referring both the apples and the letter to our Wildlife Research Laboratory.*

We hope to make seed collections and obtain cuttings late this Winter from the most promising of the plants you have brought to our attention.—Arthur W. Holweg, Supervisor, Game Management

Help—and where to find it

Dear Sir: I recently bought some land in Steuben County which has tremendous possibilities for a game farm, and I am writing to you in hopes that you can advise me in the development of this land to make it more suitable for hunting.

For the present time there are partridge, red and gray squirrel, a few cottontail rabbits and some deer on the land. I would like to do whatever I can to improve the present population and in addition try to stock other varieties, such as bobwhite, quail, wild turkey, and if possible, stock a pond with trout or bass.

This land has been idle for several years and all the trees need trimming badly. I would like to know if trimming will improve the growth of these trees, or if it would be just a waste of time.

There is a small creek running through my land, and I would like to know what I have to do to be able to dam it up to make a small pond. Are there any regulations prohibiting the damming of creeks and streams? This creek is not deep enough to stock with fish and if I had a pond I would like to stock it with trout or bass. Also a pond would be a ready supply of water for fire protection since there is no body of water in the area.

Also I would like to know where I can get an aerial photograph or detailed map of the Towns of Bradford and Sanora, N. Y. I have already got a map of the County of Steuben, but it is not detailed enough to be of any help to me. What I would like is a map showing all town roads, and property boundary lines. I was told that the County Farm Agent has such maps. Do you know who the Steuben County Farm Agent is, and how can I get in touch with him?

E. W. Siebert, Jr., Rochester

• *The Conservation Department, through its district offices, is in an excellent position to provide recommendations and, in many instances, direct assistance in helping landowners achieve objectives of the type you mention in your letter.*

The State is divided into 15 Forest Districts, 9 Game Management Districts and 5 Fisheries Districts, each serviced by a small staff of experienced personnel and designed for "grass roots" contact with landowners like yourself. The names and addresses of these district personnel who might best assist a particular individual can be obtained by writing the Conservation Department, Albany, stating the nature of the problem and the name of the county in which the property is located.

The contact for wildlife problems and game management recommendations is the District Game Manager who can also advise and may be in a position to materially assist in the development of small marshes for wildlife. The contact for forestry and related information is the District Forester who can explain the advantages of becoming a co-operator with the Forest Practice Act. The District Fisheries Manager is the man to contact concerning fish stocking problems and fish stocking permits. We urge all landowners to take advantage of the services offered by our district offices.

Although separate agencies, the Conservation Department works closely with Soil Conservation Districts and we feel they are in the best position to assist landowners with the planning and construction of farm ponds. Co-operators with these Districts are usually provided with an aerial photograph of their property to assist in planning proper land management.

However, for map coverage of a town or county the best we can suggest are the U. S. Geological Survey quadrangles which are extremely detailed insofar as showing town roads, streams, etc. Property lines are something else again and we know of no town or county maps available which include individual property lines except what might be on file in County Clerks' offices.

We can also provide addresses of Soil Conservation Districts and County Agricultural Agents if the name of the county concerned accompanies the inquiry.—Editor

"Wild Flowers of New York"

Dear Mr. Bromley: I am writing to ask if you can either furnish us with a copy of "Wild Flowers of New York," or give us any information as to where we can purchase a copy of this book.

We would appreciate any help you can give us in this matter.

Patricia Collins, Secretary,
Dr. Anton C. Pegis, Editorial Director
Doubleday & Company, Inc.

• *Except for second hand book stores, I know of no place where copies of the two-volume sets, "Wild Flowers of New York," can be purchased. However, the color plates from these books are for sale in Albany at $2.50 plus mailing and insurance. To New York City you should add forty-four cents.—Wayne Trimm*

Duck dinner

Dear Sir: I am sending you a picture of seven snapping turtles that two friends and I caught one afternoon last June in the Seneca River west of Baldwinsville. The total weight of these turtles was 103 lbs., 9 oz. The largest of these weighed 20 lbs., 6 oz. We caught them while bow hunting for carp in a flooded marsh. This swamp for the past few years has been the breeding spot of many wood ducks, but this year there was a very small number of ducks there. I believe that these turtles have been largely responsible for this. When I cleaned these turtles I found a tag from what I believe was a duck. The number on the tag is 547-07245, if you have any information on the species of duck that wore this tag I would appreciate if you could inform me.

Walter T. Novak, Solvay

• *Band No. 547-07245 was placed on a Game Farm, adult, male mallard duck liberated on the Seneca River on 1/14/53.*

Evidently this bird survived two hunting seasons in the wild. It is possible that the duck was picked up as carrion. However, a large snapper would have no trouble removing a leg or killing the duck.

Thank you for sending in the return information.—Donald L. Schierbaum, Game Research Investigator

Chenango post-mortem

Dear Sir: While in Lake Placid, I had an opportunity to discuss with Bill Severinghaus his article in THE CONSERVATIONIST on the starvation of deer in Chenango County which took place during March and April of 1956.

Bill, after a thorough investigation, wrote that they estimated the death total to be around 400 deer. After the snow had melted and the streams were open for the trout season, we began to receive almost daily reports of dead deer from the trout fishermen who fish almost all of the creeks and streams that empty into the Chenango River from the west. They reported dead deer along the stream banks and the draws, extending from the river to, in some cases, a distance of nearly ten miles.

We investigated some of these reports and came to the conclusion that Bill should have doubled his figure. We do not know whether the deer died trying to reach the southern exposed slopes of the ridge that runs from Norwich to Greene or whether they died trying to return to their Summer hangouts. We do know, though, that the deer that were fed by the various sportsmen from Broome and Chenango counties were in terrible shape and conjectured at the time whether they would survive even if they did reach nourishing food.

Paul W. Crouch,
Chenango Co. Fed. of
Sportsmen's Clubs, Inc., Oxford

Panther

Gentlemen: You may be interested in the enclosed news clipping which I found in an old scrap book now in my possession. While the date of the incident is not stated, several other clippings on adjacent pages are of the years 1845, 1843, and one of 1826, so I suppose this catamount killing took place about that time.

A direct descendant of the Mr. Cheney herein mentioned, now keeps a general store at Moriah Centre. He is Fay Cheney, a friend of mine:

"A Catamount—In Essex County, New York recently. Mr. John Cheney gave battle to a catamount, and after a well contested fight, killed it. Cheney had a dog and a horse-pistol. A paper before us gives the following account of the battle: As soon as the dog reached the top of the precipice, a catamount took to a tree, and Cheney found himself directly under his ferocious enemy, before he was aware of his new position. He retreated about three rods, took off his snow shoes, cut a club, trod down the snow, and prepared for battle. He fired as the catamount lay apparently asleep on a limb. The ball struck his shoulder without disabling him, for he sprang about the tree making hideous yells, but returning to the same limb, fixed himself in attitude for springing, his tail lashing his sides, his eyes flashing fire and intently fixed on Cheney, who, in the meantime, reloaded and fired the second time, which struck the catamount at the point of his breast and passed through his heart. He gave a spring on the limb, and the next moment he plunged a hundred feet down the precipice, which was to him like Sarn Patch's last leap. Afterwards, Cheney drew his fallen foe in triumph to the settlement. He weighed 110 pounds, and measured nine feet and nine inches in length, and stood three feet in height."

Now I think I should tell why I think there was a panther near Cranberry Lake about 1914, or 42 years ago.

With one companion, a man much older than I then was (32 years), I slept out in hunting season on a small island near the back end of Black Duck Hole, a bay off Dead Creek Flow. As a result we nearly perished with cold, and at midnight I arose and kindled a fire of driftwood. As it blazed up, an animal on a point about 100 yards away across the water emitted a blood-curdling scream ending in a snarl. In the still night it was enough to raise one off his feet. My companion said it was a panther. Now he was not a particularly truthful man, and much given to exaggeration, but nothing could exaggerate that scream. The creature remained at its post and at about twenty minute intervals would let out a blast to raise one's scalp. Then for quite a time it was silent, and my companion, who seemed to know his panthers, said: "The next time you hear her scream she will be right here back of us. She's coming to see what we are." Sure enough, the next scream was back of us, close by. I wish the skeptics could have been there with us. Then silence again until our visitor resumed its former position on the point opposite, then the screams at twenty minute intervals until daylight, when we could hear the heavy animal departing in great bounds up over the hill toward Toad Pond and the Cat Mt. country.

So we have these facts. It was a large heavy animal which screamed as nothing else on earth could, I am sure; it followed the habits the Old Timer ascribed to panthers. I have no doubt there are some still in the Adirondacks, though have had no personal experience since this of which I write.

Rev. Harry F. Smith, Mineville

Dear Editor: To bring the panther stories back to life, I would like to give an experience of my own: late Spring of '37. I was at the far end of Middle Saranac (or Round Lake to some) from Bartlett Carry and had been trolling for pike. Making my way back to the carry leisurely, I noticed in a cove, about 100 yards away a panther. It apparently hadn't noticed me, and I kept perfectly still with the breeze and light perfect. It soon spotted me but just couldn't seem to make out what I was and was curious. He travelled back and forth on the rocks of the shore two or three times. It sure was a beautiful sight. It's long tail switching and its eyes always glued to the boat waiting for some movement.

After a while it went on a quickened pace into the woods. I guessed that it had come to the shore to get a meal of fish, as the pike often lay in close to shore in that cove. I was really thrilled.

That evening I was talking to the caretaker of Bartlett Carry Club and a friend of his who was a trapper. The trapper had seen tracks in the area which he believed were of such an animal.

Leonard Wright, Medford, Mass.

• *They (panther stories) never really died. —Editor*

Closure of fishing waters

Dear Sir: I have been fishing in the Hoosick River below Eagle Bridge. I have since been told by my friends that the River has been condemned for fishing because it is polluted. Please inform me as to the true condition of the Hoosick River concerning fishing.

John F. Jankowski, Schenectady

• *While this Department, after public hearing, is empowered to restrict fishing when by reason of disease, danger of extermination or other causes the fish appear to require additional protection and in the case of danger of undue depletion due to low water level brought on by drought they may close the water to fishing on order, these powers are seldom used.*

In the case of pollution, where the fish are in imminent danger of being killed by pollution or other cause, the Department may permit removal by any manner it shall choose to specify.

Waters are commonly posted (or closed) to bathing because of pollution and I suspect that may be the basis of your information. This is done by the health agencies. Since there is no indication that fish taken living from such waters are in any way detrimental to health after cooking, such closure does not apply to fishing. There has been no closure of the waters of the Hoosick to fishing by this Department.—G. E. Burdick, Senior aquatic biologist

Tragedy

Dear Editor: I found these two buck deer November 1 in the vicinity of Rathbone (Steuben County) with their antlers locked together.

I tried in vain to get them apart but both plunged into the Canisteo River, drowning within seconds.

The deer on the left had 14 points and weighed 184 pounds, hog dressed. The other had 11 points and tipped the scales at 186 pounds.

Russell W. Wilkins, Game Protector,
Olean Division

Snowshoe caucus

Dear Sir: I would like to report an incident which occurred Friday, June 22, 1956 in the Town of Day on the north side of the Sacandaga Reservoir.

My friend Mr. J. P. Kennedy maintains a home on Snow Road in this area. About 11 o'clock in the morning Mr. Kennedy heard a sound from the woods which surround his property (except for the road). He reports it sounded like a herd of deer approaching and he was amazed to see a group of snowshoe hares running into his clearing. He estimated at least 50 in number. The hares split up as they came to a small out-building and stopped around the clearing. Some of them stopped on the lawn. They did not seem to be afraid and he could approach them very closely. Many remained on his lawn all day. All of the hares had badly scabbed and bloody ears and they would sit up and brush or scratch their ears with both front paws. During the night they all left and he saw no more of them.

I would appreciate very much if you can perhaps tell me what you believe the reason for the hares to gather in such a large group and act as they did. Mr. Kennedy reports that there was an abundance of black flies about and could they have been the cause of the stampede and also the sore ears? I have never heard of a similar occurrence and do hope you can shed some light on this.

Harold L. Paige, Brooklyn

• *Your report of the strange behavior of snowshoe hares is very interesting. While there have been reports of these animals gathered together in a clearing, the occasion has invariably been at night when hares are normally active and was induced to some extent by baiting.*

The scabbed and bloody ears you described almost certainly were caused by ticks. These parasites abound on snowshoe hares in the warmer months and at times number in the hundreds, affixed mostly to the ears and eyelids. Frequent scratching of these irritations by the hares tends to reopen healing scars and cause bleeding.

However, the reason for more than 50 hares to gather together and move in a body to a clearing, and to remain unconcealed and apparently unafraid in spite of the presence and activity of a human is something else again. Your supposition that black flies may have become intolerable and drove them to a woods opening where perhaps a breeze was stirring would seem a logical explanation, in part. However, snowshoe hares normally live a solitary life, although the home ranges of several usually overlap so that is not unusual to see several in the same general vicinity. But I can recall no previous records of a mass movement by snowshoe hares and am at a loss to explain their actions as you described them.

It is unfortunate that a few of these hares were not collected for pathological examination. Post mortem examinations may well have given us clues to their behavior. Thank you very much for providing us with a very unusual record.—Joseph Dell, Game Research Investigator

Sick squirrels

Dear Sir: This morning our son, John, found one of the fairly tamed squirrels which frequent our neighborhood in a dying condition on the front lawn.

The appearance of the squirrel was so very peculiar that I thought perhaps you could help us find out what it was suffering from.

The squirrel had several bumps in its skin around its face and neck and seemed to have a growth on its head. It acted stiff yet it was able to move a little. The fur was completely gone from its buttocks. This condition appeared rather suddenly because the squirrels have been around regularly and have appeared to be in good health.

The mother and their remaining young ones are still around and now we're wondering what we should do. If the condition is contagious what precautions should we take? Should the children around still feed them?

We do hope that you will be able to help us. The local S.P.C.A. who called for the animal had never seen a case like it before.

We are hoping to hear from you in the very near future. Thank you for whatever information you can give us.

Mrs. Richard J. Bries, Elmira Heights

• *The condition you describe is probably a condition known as multiple cutaneous tumors. The condition is a tumor known as a fibroma which is the result of a virus infection. These fibromas histologically (serum reaction) resemble and show a close relationship with the fibromas described by Dr. R. E. Shope from cottontail rabbits.*

This condition has been found in a limited number of cases in squirrels in the past and your report is of value as a contribution to our records. It is unfortunate that the animal was not sent to this laboratory, and should you find another squirrel with this condition please send it to me at our Delmar address express collect.

Your question on the contagious nature of this condition may best be answered by stating that it is not known to be infectious to man and I see no reason why the children should not continue to enjoy the squirrels.

I am enclosing a reprint on the occurrence of these skin tumors in squirrels which may be of interest to you.

Thank you for your interesting inquiry and for the contribution to our records.—James R. Reilly, Game Pathologist

Credits

First, second covers, pages 2, 3, 12, 13, 16, 18, 21, 24, 25, 30, 31, H. Wayne Trimm; 4, 5, Wm. S. Miller; 6, Soil Conservation Service; 9, 15, 17, 19, 38, Roy Irving; 10, 11, Dr. N. F. Truesdale; 14, Rockland Light; 28, 29, Trimm, Jos. Dell; 35, Daniel Berry, C. Wilde; 36, Nick Drahos; 37, Tackapausha Museum; 39, Fred Chambers; 3d cover, Clayt Seagears; 4th cover, Louis Agassiz Fuertes.

Never too old

Sir: When I purchased my deer tag I was told that at 72 I was too old to go deer hunting, but I came home with a fine big buck, as you can see by the photo. I have killed many deer in my 60 years of hunting. I took a walk in the woods one week before season opened and jumped up a nice buck. Knowing that they nearly always bed down near the same place, I went out the first day and waited for him and along about 10 o'clock he showed up.

Charles Wilde, Rome

The ironwood tree

Dear Sir: Will you please settle a pro and con question for me? My neighbor spoke one day of an iron-wood tree which he claims is native to this part of the country. I replied that to my knowledge, iron-wood is a name applied literally to any species of very hard wood as per Webster, and is not the name of a specific tree. Then one Sunday, Dave Garroway on "Wide Wide World", made mention of the iron-wood tree, throwing a few more embers on the question hanging fire.

I would appreciate an iron-clad answer as per the iron-wood tree, and if it is a specific species, please tell me what to look for when I go on an iron-wood field trip.

D. Wipfler, Stephentown

• *I am not surprised that an argument should have arisen over the identity of the "ironwood" tree, since that name is applied to a considerable number of trees in different parts of the world, and varies in its application here in the Eastern United States from one locality to another.*

I think what your neighbor probably had

in mind was the native species, Ostrya virginiana, *called variously by the name of ironwood, hophornbean, or hornbean. The latest Check List of the U. S. Forest Service gives "Eastern hophornbean" as the accepted name.*

It is a small to medium sized tree found as a component of many northern hardwood stands, or occasionally in small groups of pure ironwood. The name ironwood as applied to this species is quite appropriate, since the wood is exceptionally hard and dense. In earlier times this wood was in some demand in rural sections for tool handles, wedges, sled runners, and similar uses where it would be subject to a lot of wear and tear. Today however, it has little use except for firewood, and it is considered good forestry practice to eliminate it in cutting operations; foresters are cautioned by the wildlife people not to carry this too far since the fruit is of considerable value as game food.

Unfortunately, the name ironwood is also applied locally to another small tree, Carpinus caroliniana, *which is more commonly known as the blue beech, 'though it is not related in any way to the real beech tree. In addition, the name is applied to a number of tropical woods and I think that is where most of the confusion arises.*

You may identify Ostrya virginiana *most easily by its bark which looks considerably like that of an elm, only finer grained. The leaves might be said to resemble a cross between those of elm and birch. In the late Summer and Fall, the fruit is the most conspicuous characteristic of the tree, being composed of a loose cluster of small pale green sacks from which it derived the alternate name of hophornbean. In Fall these turn brownish and are still more conspicuous since they hang on for a while after the leaves have fallen.—E. W. Littlefield, Assist. Director, Div. Lands and Forests*

Chemicals vs fish

Dear Editor: I was just noticing that everything is black along the East Branch of the Delaware here at Hancock and as I was wondering what it could be, got to thinking of the many people that use chemical to clean out their plumbing. This chemical is, of course, poison to fish and living things.

In the first place, the chemicals are worthless and worse, for they cook what is in the pipes and leave an ash which will eventually fill the pipe up completely if there is a long stretch with not too much fall. I have cleaned them out where they were filled up with this ash where chemical was used.

If a person flushes out the grease with hot water for a few minutes each week they will melt this grease, etc., and it will clean out their drain better than any chemical.

Upriver from here there are several small towns where the sewage is run directly into the river, and if one-quarter of these people used these chemicals the fish would either be so sick they wouldn't eat and grow or would just die. I admit there are other causes of pollution but in my mind the use of chemicals where they have free access to streams should be abolished. I would bar them from the market. Put a few drops of any of these chemicals in your fish bowl and see how they like it. I would suggest that these chemicals be tested on fish and the results published in THE CONSERVATIONIST so that something would be done about it.

What is the use of stocking a stream where the bass won't grow over eight inches in a year and there are no big ones.

When you stop to think of it, there were plenty of fish in the streams up until about twenty years ago when these chemicals first became popular.

Yours for anti-pollution.

Ray C. Mudge, Hancock

• *I was very interested in your recent letter to* THE CONSERVATIONIST. *I definitely agree that these chemicals are quite generally toxic and the possibility of a fish kill is present whenever coincident use by numerous parties would exceed the dilution capacity of the stream.*

On the other side of the picture, it seems that the use of such chemicals has not taken to the extent that they constitute an appreciable menace to streams at the present time. Probably this is due to the fact that they are partially spent before they reach a stream and use is periodic rather than continuous.

This Department has had a unit studying situations where fish are destroyed for about 17 years. In this period of time we have never found a fish kill ascribable to such a cause. While future development and increased use may pose a problem which will require regulatory control, it would be necessary to first establish that it is necessary for the protection of aquatic life. Without direct evidence in terms of streamlife, such regulation would be impossible, especially as it would appear to be covered by Section 180 of the Conservation Law which forbids the discharge of any substance in quantity which is detrimental to fish life in a stream. The new pollution law, Article 12 of the Public Health Law, also makes it a violation of the Standards to put substances in water where fish life is in question at a concentration which can be established to be harmful to them.—G. E. Burdick, Senior Aquatic Biologist

Here and there

Gentlemen: One illegal deer for every two legally taken. Hunters will take 90,000 and leave 43,000 dead in the woods. Some 400,000 Michigan deer hunters will take about 90,000 legal deer this season, but for every two they take legally, another one will be unlawfully shot and left to rot in the woods.

One out of every ten hunters will kill an illegal deer. This waste will occur if this season is a repetition of last year.

I quote the above facts from *Michigan-Out-of-Doors*, official publication, Michigan United Conservation Clubs, November, 1956.

This is "deer slaughter" and senseless waste, isn't it?

So, the question comes up. How do New York State hunters stack up against Michigan hunters in this respect?

Van Allen Best, Castleton

• *Deer hunters are human—and human nature is just the same in New York as in Michigan but our deer herd is smaller.—Editor*

Bears and bannertails

Dear Sir: While on a hunting trip to Lewey Lake in the Adirondack Mountains, I ran across a big clump of branches in a big beech tree. It was about five feet square and was composed entirely of beech limbs. There were broken branches on the ground also. Claw marks ran up and down the beech tree.

There was a controversy as to what made the nest of branches. My answer was that a bear had stored the beech limbs there for future use. We would like your opinion as to what made this. Incidentally, there were two other bunches in different trees on the same mountain.

Raymond P. Johns, Binghamton

• *Squirrels for the nests; bear for the claw marks—is our guess.—Editor*

Coypu invasion?

Gentlemen: Had just finished reading the article on page 36 "The Coypu" of the June-July CONSERVATIONIST and while reading the evening edition of our local daily paper came across the enclosed news item from St. Petersburg, Fla.—"An aquatic rodent with webbed hind feet has been put to work here clearing lakes of vegetation. The rodent, known in its native South America, as Coypu, weighs 20 to 25 pounds and resembles the muskrat although it is much larger.

"C. G. Hewitt, who imported a male and two females from Grapeland, Tex., by special permission of the Florida Game and Fresh Water Fish Commission, said 17 states have imported the rodents to rid lakes and ponds of vegetation.

"Their food includes water, moss, water hyacinth, sword grass, bull rushes and duckwood. Also, Hewitt reported, their meat is palatable."

Don't these Florida experts know what they are doing?

Are we in for another starling invasion?

Fredk. E. Webster, Auburn

• *In answer to your questions, it is believed that the Florida experts are also aware of the dangers, since importation was allowed by special permission only. Fortunately these animals are not airborne like the starlings and therefore may be less difficult to control, particularly since they have value for fur and meat which would offer incentives for hunting or trapping them. Nevertheless, we realize the introduction of any such foreign species should be undertaken only with extreme caution to prevent possible damage to native species and to avoid introduction of species that may become a costly nuisance. In New York, this was the reason for the recent amendment to the Conservation Law precluding their introduction except under permit.*

You may be sure that importation of the coypu into New York State would be permitted only under conditions where they can be controlled.—E. A. Westervelt

Reflection

Dear Sirs: I have a suggestion to make. It is one which I think might save some lives in the future.

Each year, countless people are accidentally and needlessly killed in the forests of our country while hunting, by other hunters. Suppose a hunting cap was manufactured with reflectors attached to it which could be seen at distances to serve as a warning to other hunters. Perhaps some needless deaths may be avoided this way. I would appreciate your opinion of this suggestion.

Ann Bennette, Schenectady

• *Your suggestion is, we must admit, a new one. It's doubtful, though, that we could ever sell very many hunters on the idea. It is certain that they don't wish to be shot but it is equally true that they don't wish to be as conspicuous as would be the case if they were decked out with reflectors.—Editor*

You have been warned!

Dear Sir: This little incident seemed quite humorous to us so we decided to pass it on to you in the hope your other readers might enjoy it.

Early this September, four of us were making the canoe trip from Old Forge to Saranac Lake. We were headed for the lean-tos just beyond Raquette Falls when we saw this ominous sight on the right bank. The cryptic message was like several we have since noticed near the Thruway exits at Albany. It merely read: "You have been warned." Perhaps you know something about this?

Peter Schineller and John Hilberg, Bronx

• *A little sleuthing here reveals that the signs—"You have been warned"—are being used, locally at least, by highway construction contractors to emphasize the need to drive with caution. The cross, dirt mound and old shoes appear to be an improvement on the original idea. The "deceased" was rather short, yes?—Editor*

Wonderful

Dear Sir: While fishing in Oneida Lake, Sunday, Aug. 12 at 9:15 a.m. I caught a pike with tag No. 4G4037 on it.

It measured 13½ inches. Sorry I didn't have any scale with me to weigh it. The fish was in nice shape. I would say about 1¼ lbs.

The fish was taken about 50 yards from buoy 130. I was using live minnows.

As you know the fishing on Oneida Lake has been wonderful this year.

John Gilbert, Oswego

• *We have the report of the pike-perch you caught in Oneida Lake on August 12 bearing tag numbered 4G-4037. This fish was a male tagged in connection with a study being conducted by the Department to obtain more information on the pike-perch population in Oneida Lake.*

When this fish was released near Constantia on April 22, 1956 it measured 14.7 inches in length and weighed 1.0 pound.

Thanks a lot for your interest in turning in the report of tagged pike captured. Your future co-operation in reporting any tagged fish you may catch will be greatly appreciated.—A. C. Petty, Dist. Fisheries Mgr.

*Ed. Note: Catching a pike in Oneida Lake is good—but not wonderful; thousands have been taken there this year. And getting a tagged pike is good too—but not wonderful; a great many walleyes have been tagged and released this year in the Department-Cornell study on that lake. But admission that this year Oneida Lake fishing is wonderful—*IS WONDERFUL! *Last year: "There wasn't a pike in the lake."*

Conservation camps

The writer of the following letter is one of ten boys sponsored last year by the Sportsmen's Club of Northern Westchester to attend one of the Department's conservation camps.

Members of the De Bruce Conservation Camp Committee, Club members and all those who, in any way, contributed to the most enjoyable and worthwhile week which ten boys ever spent:

I find it a difficult task to write this letter of thanks, not I may assure you because there is nothing to write, but because there is so much to write I don't know where to begin.

When I was first notified that I was to attend the New York State Conservation Education Camp I began to wonder about the "education" part. And from the hour of arrival on, I found I had good reason to wonder. Hunter safety course, fly casting, fly tying, forest and fisheries management, game control, soil and water conservation, forest fire and insect control, archery and ecology. These and several other equally absorbing subjects were crammed into the all too short space of a week. They were taught under the watchful eyes of such competent instructors as Roy Steenrod (originator of Leadwing Coachman, Hendrickson, etc.) There were as many as five lectures a day including at least one movie or slide series and one or two learn-by-doing sessions. And, with all this there was time for keen competition in the form of a softball league. There were two games daily and an all star game on Thursday.

At the end of the session there were contests in various fields and a general camp exam. The Sportsmen's Club group fared quite well in these. Out of five prizes (subscriptions to THE CONSERVATIONIST), the Club came home with: (1) First prize in the General Camp Exam—won by Johnny Bliss. (2) Best N.R.A. Target—George W. Clark. (3) Best N.R.A. Written Exam—myself.

But I feel, and I'm sure the rest of the gang does too, that the real value of our week has been in the experience gained. Not every boy can have this opportunity and we are grateful. Therefore it is our job to "pass it along." I intend to do this in every way possible: in my personal contacts, in the Scouts, and even some day to my own children. For conservation is not a one-man job. It is up to each and every one of us to do his part. For, if in 50 years America has been depleted to a land without abundant forests, having muddy streams and low fish and game populations, we will have no one to blame but ourselves.

Yours thankfully in conservation,
Dave Ryan

Paging Mr. Speare

Dear Sir: I would like Mr. E. Ray Speare of Boston, Massachusetts to know my opinion about the poem he sent you for publication, entitled, "De Huntin' Season," published in your October-November issue. It is supposed to be "French Canadian Patois."

Altogether, the sender and his article are stupid. I was born in French Canada and I know very well that if there are people over there who do not speak a foreign language perfectly well there are others—and a great majority of them—who speak it perhaps much better than some ignoramus from Boston.

Mrs. Alban Mazeau, Garden City

Back tags and accidents

Dear Editor: I notice that hunting accidents, including fatalities, have been continually increasing since the low of 1953. Big game accidents increased nearly 1¾ times in 1955 as compared to 1954.

I also notice that 1953 marked the advent of back tags. I do not understand the reason for back tags since it seems to me that any game warden, questioning a violator or even any person under suspicion, would certainly ask to see his regular license. I do understand that if any accident (fatal or otherwise) is directly due to the back tag, that this portion of the law should be repealed immediately before someone gets hurt during the big game season.

Roland Bowers, Gloversville

• *Some increase in accidents, 1955 vs 1954 but parallel increase in licenses issued reduced accident ratio to a point only slightly higher than for 1954. No hunting accidents in New York have been attributed to wearing back tags.—Editor*

Cats in Poland

Dear Sir: William "Bucky" Haskell, Poland (New York) bagged these two bobcats this Fall while hunting for deer in the Town of Morehouse, Hamilton County in the Adirondacks. The two animals, male and female, were spotted by Haskell from a distance of about 300 feet in the woods. After shooting the first cat, the second one, angered, started to charge his mate's killer and was dropped with one bullet.

Henry R. Blue, Cold Brook

Highway kills

Dear Sir: Would you please inform me if there is a law prohibiting a motorist to pick up small game on the highway which has recently been killed by a passing car?

It seems to me such a law would be wasteful when the meat of the game in question could be used to make a very tasty meal for some one who cared enough to pick it up.

Mrs. Howard F. Slate, Oriskany Falls

• *The Conservation Law does not permit a motorist to pick up small game or big game on the highway which has been killed by a passing car, in that such game would not be legally acquired. Game may be taken by shooting with a firearm or with the longbow only, except under special permit.*

We will concede that there is a waste of a resource in prohibiting people from taking possession of game killed by automobiles. However, to so permit would tend to lose all control over possession of game in that they picked it up along the highway, and further might tend to make people attempt to hit such game with cars rather than avoid hitting such game.—A. J. Vormwald, Chief, Bureau of Law Enforcement

Trapper and ornament

Dear Sir: Of all the excellent contributions by Clayt Seagears that have appeared in the "Inside on the Outdoors" series, his story, "The Trapper and the Ornament," is so outstanding as to deserve special praise.

I have never met Mr. Seagears but from the quality of his writings and illustrations, together with the good-natured ribbing he has received from the Editor on occasion, I have concluded that he must be quite a fellow.

Foster W. Lake, Poughkeepsie

• *We are very appreciative of your comments and I know that Clayt will likewise be pleased. I am surprised though, that you have never met him. I had assumed, until now, that he had a speaking acquaintanceship with every citizen of the State.—Editor*

Lightning and beech

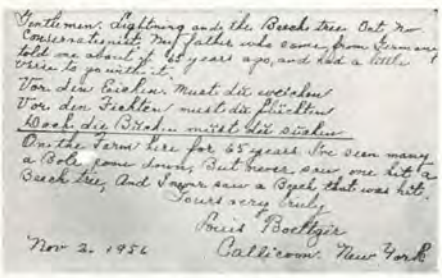
Dear Sirs: Your article, "Lightning and the Beech Tree," in the October-November CONSERVATIONIST is very interesting. Good stuff.

There is a large American beech in Crestwood, a neighboring suburb, which was struck by lightning about 25 or 30 years ago. It was one of those "knife thrust" bolts which left a splintery scar on the main trunk of the tree for about 30 or 35 feet. Callous growth has closed all of the scar except for an opening 18 to 20 feet from the ground, which is at present, used by a squirrel as a means of ingress and egress.

The location of the tree is such that it is impossible to take a good snapshot of the lightning scar or I would send you a picture of this tree.

Lots of trees have been struck by lightning in this region, especially the tall tulip trees, but the Allen Eaton beech in Crestwood is the only one I've seen in this part of the State.

R. R. Fenska, Sec.-Treas.,
Westchester Co. Tree Protective Asso.,
White Plains


Gentlemen: Lightning and the Beech tree. Out in Conservationist with Mr. Father who came from Germany told me about it 65 years ago, and had a little verse to go with it.

Vor den Eichen, must die weichen
Vor den Fichten, must die Fichten
Doch die Buch... must die Buch

On the Farm here for 65 years I've seen many a Bole some lovely, But never saw one like a Beech tree, And I never saw a Beech that was hit.

Yours very truly
Louis Boettger
Callicoon, New York

Nov 2. 1956

• *The article on "Lightning and the Beech Tree" also brought us an interesting postcard from Mr. Louis Boettger of Callicoon, New York which we are reproducing here from the original. The German verse somewhat freely translated tells us to, "Go away from the oaks, flee from the spruces (or conifers in general according to non-technical usage), but look for a beech".—Editor*

Public hunting and fishing

Dear Sir: During the 1956 New York State deer season I had occasion to travel through Beaverkill, Willowenoc and the East Branch of the Delaware Valley. This territory was not new to me in that I have had the pleasure of hunting and fishing these sections the past 18 years.

However, one radical change has come about which gave me a large degree of personal satisfaction. In all of the above mentioned valleys I found an absence of posted signs that had appeared on sections of land and streams for many years. In place of these there now appear wooden markers imprinted "State Land."

I should like to express my gratitude to the Conservation Department for the obvious effort they have made and are continuing to make to provide for the sportsmen of this State more land and water on which to pursue their sport.

Roy Hunt Bernhardy, Flushing

• *Perhaps we will be forgiven for publishing this letter. We get so many of the other kind!—Editor*

Skunks vs. oranges

Dear Editor: I want to take this opportunity to let you know how much I enjoy every issue of this fine and very interesting magazine. It certainly is well worth its price.

Now, for a little favor. On page 48 of this month's issue in an article 'titled "All about the One Man Smog," by Clayt Seagears, dealing with skunks, I would like to know whether the offspring of deodorized skunks are also deodorized or not? Can you give me the correct answer to this question?

Walter G. Huber, New York

• *We may raise seedless oranges but so far seeded old skunks have not yet been able to raise seeded little skunks.—Clayt Seagears*

The back cover

Northern Raven: Decidedly larger than the crow and tends to alternate flapping with soaring on horizontal wings. Nests on cliffs and trees, often the same site used many successive years. Notes, low gurgling chuckle or hoarse rolling "cr-r-r-cruck." Feeds on refuse, dead fishes, and other animals, young birds, frogs, mice, etc. Once common in New York State, the raven has been reduced in numbers until now rare. Remote regions in Adirondacks most likely spots to look for this bird. Seen from below, tail wedge-shaped.

Canada Jay: In New York State this bird inhabits the coniferous region of the Adirondacks and though locally common it is seldom noticed except when attracted by food due to its quiet habits. Nesting begins during February or March, the bulky structure usually being located in a conifer. Feeds on refuse, carrion, insects, frogs, etc. Young, usually three to five in number, are fully fledged and on their own by mid-June.

Notes on

THE GREAT HORNED MEAT HOOK

A couple of years ago I had a young Silver Fox which I was in the process of taming. At night it was chained under a tree at Bootstraps Farm. I dug it a hole for a home. It was a playful little cuss, and even had made friends with the big push-faced English Bulldog which shared my house.

As is the nature of foxes, this handsome little beast enjoyed singing at night. But I had grown used to its squalling bark. It proved soothing to slumber—just as did the Bulldog's snuffling snore.

But one night the Fox pup woke me up with its screeching and I ran out into the Summer moonlight to see a Great Horned Owl trying to carry it away. I almost had the big bird in my hands before it dropped its victim and flapped off. The Fox died in a few minutes.

The owl was a big one, even for its kind. It was probably a female which would have a five-foot wing span and weigh about 4½ pounds. The Fox pup weighed about three.

That Fall, a wild hen Pintail stayed behind when the last of the migrating ducks left my new pond. Apparently she had a broken wing.

When the pond iced over, I threw out corn for her and she used to roost under a pile of brush on a miniature island.

At dawn one morning I saw a Great Horned Owl land on the brush. Soon the duck ran out of her haven and squatted on the open ice 50 feet away. The owl dropped down and, with raised wings, hopped grotesquely out on the ice to the duck which made no further attempt to escape.

By the time I got outdoors, the duck was dead. The ice was too thin to bear my weight and the Pintail stayed there three nights before the owl apparently came back to feed, leaving only a dark blotch of feathers.

Late one rainy afternoon last November I sat at my window watching a Ruffed Grouse feeding under a patch of gray birch and alders. I was using binoculars and the field of vision was limited. So I failed to see the Great Horned Owl sail in. The Grouse didn't either—until the last split second. It took off in a spatter of alder leaves. The Owl barely missed its mark and flopped around in the brush for several seconds before it got untangled.

I do not like Great Horned Owls.

These notes represent only a few negative encounters with this magnificent bird —for, give the devil its due, it really *is* a spectacularly built, wondrously garbed creature. It is our heaviest owl, matched only in wing span by the rare northern visitor, the Great Gray Owl—a much less damaging bird as far as its conflicting interests with Man can be measured.

This is written at the close of January. For several nights I have heard Great Horned Owls calling in the wooded hills around my isolated place. It is getting to be *that* time of year when Ma and Pa Great Horned Owl begin to make eyes at each other. This is a high class operation because their eyes are by far the largest of all our birds.

By Washington's Birthday it's probable that in the abandoned nest of a Red-Tailed Hawk in a huge white pine at the swamp's edge there will be three large white eggs. It is further probable that, somehow or other, I will climb that tree around mid-March and lay hands on three young Great Horned Owls. Also, it is probable that, while doing this, I'll take a beating from the old she bird. And this I'll no doubt deserve. But I prefer to have more young wood ducks and more small mammals around my place than Great Horned Owls.

It so happens that I like to listen to owls at night. But I listen better to Barred Owls and Barn Owls and Screech Owls and Sawwhet Owls.

Speaking of the voices of owls, many readers of THE CONSERVATIONIST ask the difference between the Barred and the Great Horned. The hunting hooting of the Barred is by far the more common. It usually is an eight-part series uttered in cadence something like *who hoots for you, who hoots for you-aw.* The last note (*aw*) is lower and more gutteral and often is omitted.

The voice of the Great Horned is much softer and deeper. The pitch is more even. It sounds like the distant cooing of a dove or the horn of a diesel engine. Usually it's in five or six parts—like *whoo, hoo-hoo-hoo, whoo whoo.*

In the Adirondacks, it's ten to one the call belongs to a Barred Owl. Elsewhere the odds would be something like three to one—mainly because the smaller owl is by far the more persistent caller.

Both these owls have great repertoires of other sounds. Sometimes a Barred Owl carries on like a maniac. The rare single scream of the Great Horned is truly a terrifying thing. And it's probable that this is the sound most commonly attributed to a Panther or a Bob-Cat.

The Great Horned Owl is an important predator of the Cottontail Rabbit which seems to be, locally, its most important fare. Birds are taken far less frequently than small mammals, probably because most of them are much less active targets at night when owls do most of their hunting.

This big owl is fearless and fairly often kills Skunks, House Cats and even Porcupines. His raids on poultry, turkey and pheasant farms sometimes result in substantial losses.

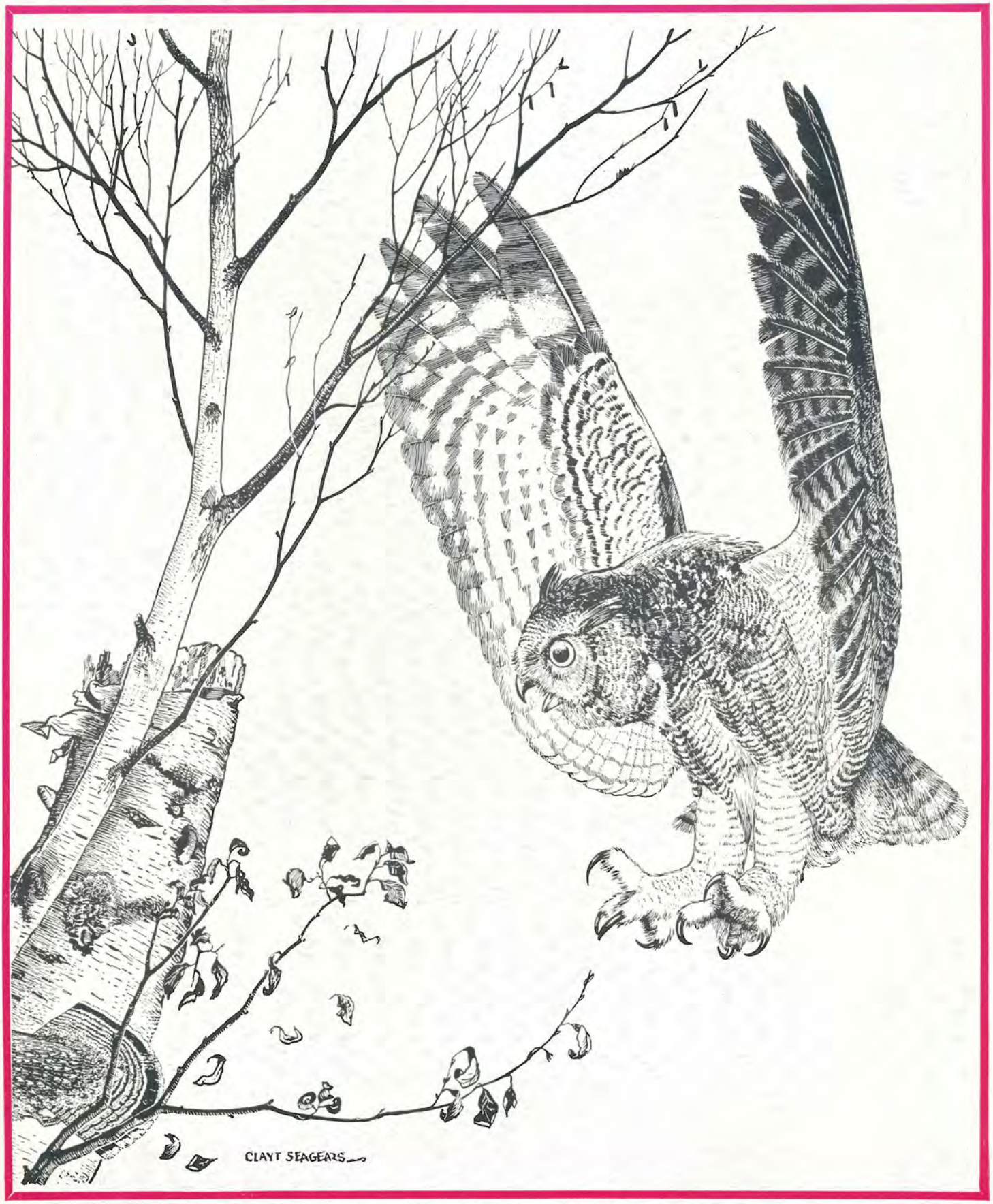
I remember one old male which one night killed six tame Grouse believed predation-proof in the safety of a large chicken wire pen. He landed on top of the pen. This sent the Grouse into a panic and they flew wildly against the wire. The owl merely hopped around, pulling off the heads as they protruded and swallowing them at leisure.

That was *almost* the neatest trick of the week. But next day at the same game farm there happened to be temporarily quartered an adult Bald Eagle. It was leashed to a stump by a longish tether. There was also a guy there who liked to tease the Eagle. But this day the Eagle played it smart. He teased the guy into extra-good position, flew off his perch and put his talons right smack through the seat of his tormentor's pants. The tether snapped and both parties parted company and flew off in different directions.

We often figured it was pretty painful for the Eagle to have his grip pulled loose so suddenly.

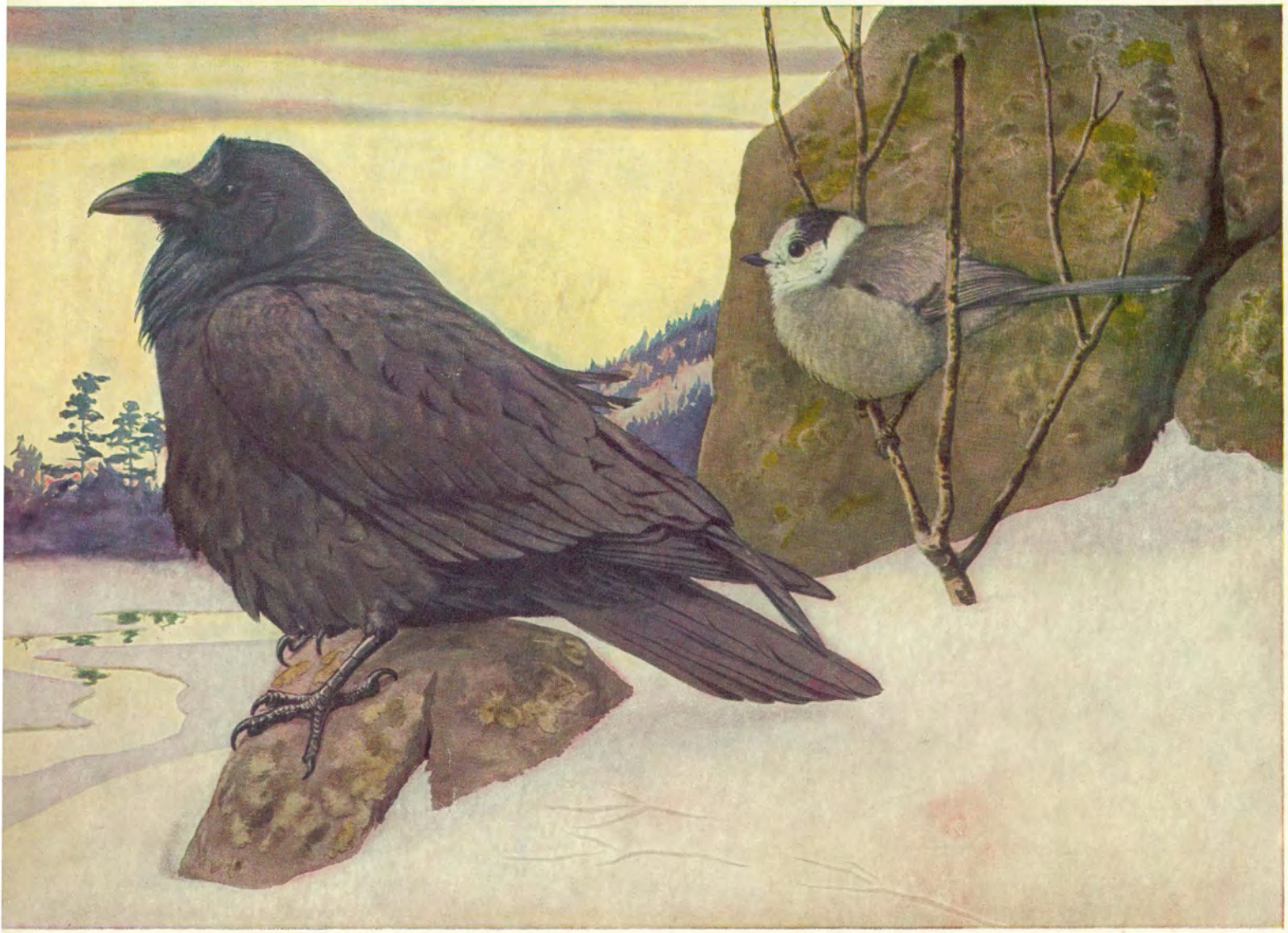
When I go after those young Owls, I will wear an extra pair of leather pants. My head is much harder. Well, personally I think so, that is.

—CLAYT SEAGEARS



"The Grouse took off in a spatter of alder leaves. The Great Horned Owl barely missed."

Courtesy of the New York State Museum



NORTHERN RAVEN
Corvus corax principalis Ridgway

Both ¼ nat. size

CANADA JAY
Perisoreus canadensis canadensis (Linnaeus)