NEW YORK STATE

Conservationist

August-September, 1949

Painting by Eastman Johnson, courtesy Lewis Iselin

STATE OF NEW YORK
CONSERVATION DEPARTMENT

SCHOOL DAYS

We think schools open too early. Who wants to start school (or anything except a vacation) the day after Labor Day? We're apt to get a hot spell about this time and then it's just too hot for school, or if we get a nice crisp spell it's too crisp for school. But it's fine outside, and our own opinion in this matter is that our schools would have to go some to equal the education offered by the physical world at this time of year.

This weighty opinion will be ignored, of course; schools will open as usual the day after Labor Day. But when the schools open—not this year and maybe not next, but soon—there will be something new in the curricula. A dream shared by conservationists and educators alike is now well beyond the dream stage; a real program for teaching conservation—in the schools, where it should be taught—is in the making.

Much has already been done. At a two-day meeting last spring the Conservation Department had as its guests the Presidents of our 11 State Teachers Colleges, as well as Dr. Herman Cooper of the Education Department and Dr. Lawrence Palmer of Cornell. All present agreed on the necessity of teaching more conservation. The discussion then naturally turned to a first requirement—the training of teachers to do this job. To investigate how this could best be done the Presidents of the Teachers Colleges voted to appoint a three-man committee from each faculty, and Dr. Palmer assigned one of his graduate students to find out what facilities were currently at hand. An excellent beginning.

Immediately after Labor Day the Conservation Department will be host at another, much larger, three-day meeting at its Conservation Education Camp at DeBruce, in Sullivan County. This meeting is sponsored jointly by the State University and this Department. The committees appointed by the college presidents will be there; also top officials of the State University and of this Department; the Executive Deans of the Teachers Colleges and of the six Agricultural Institutes; Deans of the City Colleges, Presidents of the Teachers Colleges and of the Agricultural Institutes; the heads of curriculum development for both elementary and secondary education.

It will be the objective of this second meeting to determine what aspects of conservation are now being taught in the Teachers Colleges, what should be taught, and how. Without exception, the response from each institution has been magnificent, and the stage is set for a meeting which should make history in Conservation Education.

It looks as though we're really getting somewhere, at long last.—Editor

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ACCORDING to the last enumeration our State now has 614,000 dogs as well as an unknown but increasing number which are wild or semi-wild, and therefore not enumerated. This is 100 per cent more than we had only 20 years ago, and in those 20 years indemnity payments for the loss of domestic stock have tripled. Such payments now amount to around $200,000 a year. In addition, and of great concern to wildlife conservationists, is an increase in the number of dogs which are breeding in the wild and living off both wild game and domestic stock.

These simple facts attest a big and still growing dog problem. It is a problem for the dog owner, the farmer, the conservationist, and the State and local officials who must wrestle with issues involving health, agriculture, licensing and the administration of the dog law.

This problem is not only complicated and vexatious; it is extremely controversial. Most people love dogs—rightly so—and there is so much sentiment as well as prejudice involved that agreement or concerted action is difficult.

Nevertheless, on the basis that nothing can ever be done unless a start is made, I took it upon myself last year to establish by invitation a Special Dog Committee composed of representatives of the Departments of Agriculture, Health, and Conservation; the Farm Bureau Federation; the New York State Conservation Council; and the Association of Town Officials. At its first meeting the committee discovered that the Association of Justices had already established a committee which had done a vast amount of work on improving the dog licensing law. This work was explained and various aspects of the dog problem were discussed. Two specific proposals were approved: first, the amendment sought by the justices to the dog license law; and second, another amendment, subsequently endorsed by the New York State Conservation Council representing the sportsmen, which provided for a short quarantine period after the licensing period was over so that all stray wild and semi-wild dogs could be rounded up.

In this issue we publish statements by Justice of the Peace George Weiffenbach covering the new licensing law proposal, and by Mr. Michael Petruska, of the N.Y.S. Conservation Council, who writes about the wild dog and the conservation aspects of the problem. Both of these gentlemen as well as this Department invite suggestions on the material presented herewith. Both of the groups which they represent are to be congratulated for having the courage to tackle this very real, very large problem.

—COMMISSIONER DURYEA

the DOG problem

Dogs and Conservation

by Michael Petruska
Vice-President, N. Y. S. Conservation Council

NOBODY knows better than a sportsman that a dog can be man's best friend when properly harbored, trained and controlled. In the minds of many sportsmen a good dog is indispensable for bird hunting and for the hunting of raccoons, cottontail rabbits, snowshoe hares, and foxes. They regard them as indispensable not only because they add so much more pleasure to the sport of hunting but also because they serve a very useful conservation purpose in greatly reducing the amount of game which is crippled and lost.

At the same time, especially in recent years and particularly in certain areas of the State, sportsmen and wildlife lovers of all kinds have realized that a growing horde of unharbored dogs, unlicensed dogs, and dogs that are actually living in a wild state have become a serious menace to wild and domestic animals.

One of the principal dog problems is that of dogs running deer. While losses from this cause are especially great under certain winter conditions when deer vitality is at a low ebb and running conditions are poor—losses occur at almost all times of the year. Deer in their prime have been found run down and killed by dogs. A deer so mangled is not a pretty picture.

The problem is difficult because the Legislature has not found it possible to legalize the killing, by the general public, of dogs running deer at any time and at any place in the State. The authority to kill dogs running deer has been confined pretty much to game protectors, park patrolmen, and certain other officers. Even these officials are handicapped because of the difficulty of actually witnessing, within gun range, an actual deer chase. Moreover everyone is reluctant to shoot a dog, even if it is suspected to be a wild or semi-wild one, for fear of shooting a valuable dog which may happen to have gotten away from the control of his master.

As Commissioner Duryea has pointed out, efforts to solve this problem have almost invariably run into a solid wall of sentiment and prejudice and yet, from the sportsmen's point of view, it cannot be ignored. The New York State Conservation Council was, therefore, more than pleased to respond to the Commissioner's invitation to have a representative on a special dog committee set up for the purpose of studying the dog problem in its various aspects and to make recommendations for its solution. I was especially glad to serve as its representative because the dog problem has been a serious one in my own county of Rensselaer.

At the first meeting of the committee we were delighted to learn that the town officials had gone far in the development of legislative proposals to improve State and local handling of the dog licensing and related administrative and judicial problems. These proposals, sketched briefly in Justice Weiffenbach's statement which appears on these pages should, if enacted, do much to increase the effectiveness of our dog licensing procedure and act not only to speed up the licensing processes each year but to insure greater compliance by dog owners with the State's licensing requirements. However, it was apparent to the committee that even if all of this were accomplished and all enumerated dogs were licensed as of April 1 each year, the problem of the wild and semi-wild dog—the dog which belongs to no one—would still remain.

IT was therefore suggested that immediately following April 1 there should be a short quarantine of a few days during which everyone would be required to keep their dog at home and under control. During this period it would, therefore, be possible for game protectors, dog wardens, and park patrolmen to proceed with a round-up of all unlicensed dogs, secure in the knowledge that dogs which were licensed and had a home would not be afield at that time.

A bill, with ample safeguards for dogs in cities and villages and designed to inconvenience people as little as possible, was drawn and presented to the New York State Conservation Council at its annual convention. It was approved. Unfortunately, the bill did not come up for legislative consideration last year, but we hope that at the next session it will. The committee and the Council have no pride of authorship in this measure and invite suggestions.

The committee and the Council, however, are firm in their conviction that something should and must be done with as little delay as possible to reduce, even if it is not possible to eliminate, homeless predatory dogs. They are a real problem.

To Improve the Dog Law

by George Weiffenbach
Justice of the Peace

THERE is without a doubt a distinct relationship between proper licensing and enforcement of the dog licensing law on the one hand, and destruction of wildlife as well as domestic stock on the other.

For that reason the Association of Towns through its executive committee welcomed the opportunity to co-operate on Commissioner Durvea's Special Dog Committee, especially since it had previously set up a committee of its own to undertake study and revision of the so-called "dog law" and was already pretty far along in its work. The membership of our special committee shows good representation from various types of town officials and good geographic representation.

Chairman: George Weiffenbach, Justice of the Peace, Town of Nassau, Rensselaer County; W. Leone Browne, Justice of the Peace, Town of Albion, Cattaraugus County; Charles W. Potter, Special Counsel, Department of Audit and Control; Walter E. Lansing, Town Clerk, Town of Dewitt, Onondaga County; Earl S. MacFadden, Town Clerk, Town of Canton, St. Lawrence County; Fritz Campbell, Supervisor, Town of Elbridge, Onondaga County; Edward F. N. Uthe, Supervisor, Town of Coeymans, Albany County. Although not a member of the committee, Mr. Rodney W. Pease, Director of the Dog Licensing Bureau of the Department of Agriculture and Markets, was a constant source of help and information.

The object of the committee was to attempt to find ways and means of improving the existing law, which local officials had found through practical experience to be either inadequate or ineffective in certain respects. It was felt that not all dogs which should have been enumerated were enumerated, and it was known that even of the number enumerated there were some thirty-nine thousand which remained unlicensed. In one town alone there were 1,450 cases involving unlicensed dogs, which had to be heard, docketed and reported to the Department of Agriculture and Markets, the Department of Audit and Control, and to the County Treasurer.

The result of the work of the committee was the drafting of a bill submitted last year to the Legislature. The bill is 24 pages long and of course cannot be analyzed in detail in a short article of this kind. In fact, the amendments were so extensive that by agreement with the 1949 Legislature action was deferred on it until 1950 in order to give legislators and all those interested a full opportunity to study it.

The bill seeks to amend existing law to accomplish these specific objectives:

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(1) To provide for more positive and orderly enumeration. (2) To provide financial incentives for prompt licensing by dog owners and, conversely, to provide automatic penalties for those who delay or are delinquent. (3) To reduce the number of cases which actually have to come to the courts and to provide for a quicker and more effective disposition of the number of cases which do finally come to the court.

•

More complete enumeration and licensing are encouraged by defining, for the first time, the duties of dog enumerators and dog wardens and by setting up a definite time schedule for the submission of enumeration lists, delinquent licensees, et cetera.

Dog owners are encouraged to license their dogs promptly by setting up a sliding scale of fees which increase up to a certain point for each month of delinquency. Thus, dog owners will pay the present fees if the license is procured during the months of January and February ($2.00 for males or spayed females; $5.00 for females). If still delinquent as of March 1, one dollar is added to the present fees and an additional dollar on April 1 if the license still has not been procured. Over this period the license then would be increased to $4.00 for a male or spayed female, and $7.00 for a female, in each case, plus 25¢ tag fee.

A very important feature of the proposed law then may be invoked, i. e., if the owner is still delinquent on May 1 it becomes the dog warden's duty to seize the dog unless it is redeemed by procuring proper license, and payment of all fees and penalties. If it is not so redeemed and must be sold, it cannot be sold for less than $4.25 for a male or spayed female, or $7.25 for a female—plus the appropriate license fee. This would obviate the practice of having a friend or neighbor buy the dog back for little or nothing and, in that way, circumvent the law.

If, on or after May 1, the dog owner prevents a warden from seizing an unlicensed dog, the warden is empowered to bring an action in a court of competent jurisdiction in a city, town or village in the name of the people of the State, and the penalty which may be invoked has been increased from $10 to a maximum of $25.

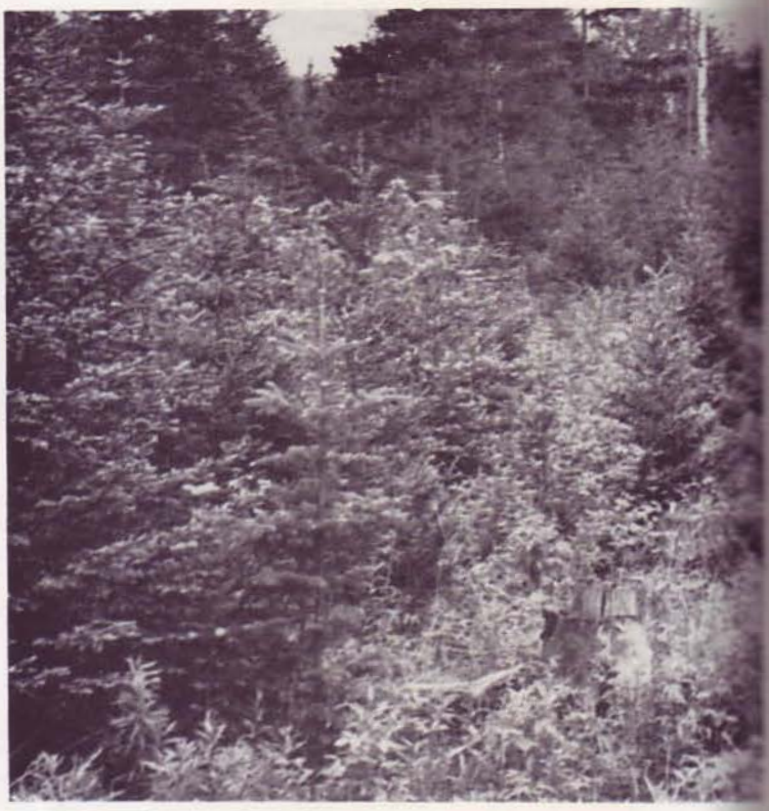
Other provisions of the law deal with the matter of court costs, claims for damages by dogs, etc. There are a number of exceptions which apply to certain counties where special procedures have been set up in the law previously.

While, as indicated earlier, this cannot be a complete analysis of the bill, it suggests the principal features.

ALERT conservationists, farmers, and hunters of our State—as well as all those who love dogs—should take an active interest in this new bill. It will surely operate to reduce the number of stray "killer" dogs of both domestic and wild animals and fowl. The committee does not claim that this is a perfect bill and we may not be able to have all of it passed or approved. It is our hope, of course, that it will be approved in its entirety and passed by the next Legislature—but if not, whatever ground is gained will be a step in the right direction.

IMMEDIATELY AFTER CUTTING: not a pretty picture, but note that seed trees have been left at top of slope, and young trees spared, with forest cover opened up for their development. Soil has been stirred and is receptive to seeding. Note low stumps and full use of felled trees.

10 YEARS AFTER CUTTING: young trees showing considerable stature. Competition in the ground cover begins to show dominating influence of softwood, (due in part to browsing of hardwood saplings by deer). Slash nearly gone; briars (good food and cover for game) at their peak; stump rotting.

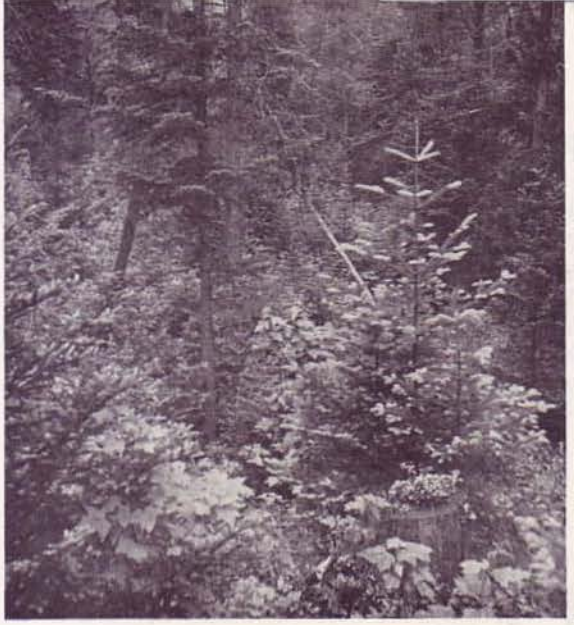


pulp country

Story on page 6

5 YEARS AFTER CUTTING: with forest opened up, young trees have registered rapid growth. Slash is disappearing. Small trees and other plant life provide a complete ground cover. Note young spruce in foreground, released for growth by harvesting mature tree (stump). Briars appearing.

15 YEARS AFTER CUTTING: a new forest in the making. Hardwoods in this section have lost out to spruce and balsam; slash is gone, and a clump of bunchberry is growing out of stump in foreground.



30 YEARS AFTER CUTTING, and a second harvest has been started (fresh stump in foreground).

20 YEARS AFTER CUTTING: many trees reaching maturity and individual trees, through natural selection, have emerged from heavy ground cover shown in preceding photograph. Stump could be kicked apart.

pulp country . . .

[The photographs on the two preceding pages were taken on the lands of Finch, Pruyn and Company, which has its central offices and pulp mill in Glens Falls. The photographs, we think, tell a story in themselves—the story of how land reacts to managed cutting.

But there is another story, involving the principles of management and operation on which this cutting is based. To Finch, Pruyn (which recently became a co-operator under the Forest Practice Act), conservation is a hard cash proposition; it pays off, or the company goes out of business. Following is a brief statement of how the company stays in business.—Editor]

by Lyman Beman, *President*
Finch, Pruyn and Company, Inc.

OVER the past 100 years many companies have cut timber in the Adirondacks both for saw logs and pulpwood. Some of them have pursued the old-fashioned policy of cut out and get out, while a few have practiced forestry management for the purpose of perpetuating their wood supply. One of the companies which has pursued the management practice is Finch, Pruyn; it owns and manages 183,000 acres in the central Adirondacks, located almost entirely on the headwaters of the Hudson River.

Conservation of forest resources and utilization of the growing capacity of forest lands has become more and more important to New York State as the years have passed and the requirements for lumber and paper have increased. Thus conservation through management is doubly effective because it both preserves the forest and utilizes it. In other words, we can have our cake and—from time to time—eat it too.

The company's methods and principles of management have been developed and perfected by observation and trial over a period of many years, and it now seems clear to us that a cutting cycle of about 30 years is appropriate for most of our Adirondack lands. This conclusion is based on a forest survey that was made with three specific objectives: (1) an inventory of species of trees and types of timber lands, (2) a mapping of the area showing contour and terrain, and (3), gathering of data concerning yield of mature trees per acre under various conditions. This forest survey and the general knowledge available at the time were the basis for drawing up our first management program, which has been changed very little in its fundamentals since it was originally laid down.

The mature trees are cut for utilization and to make way for the healthy development of the younger trees. In the areas to be cut, experienced timber markers working under definite instructions mark the trees to be felled. These trees are healthy spruce and balsam ten inches or more in diameter breast high, and diseased or undesirable trees six inches or more in diameter breast high. When the woodsmen move in to cut the timber, an inspector is maintained on the job to see that only marked trees are cut and that stumps are cut low and all merchantable parts of the tree utilized.

Perhaps the most important part of the management is to encourage the type of young growth most suitable for the soil and climate and most desirable for utilization—in this instance, spruce and balsam. Accordingly, following the cut of pulpwood, marketable hardwood trees are removed and then in many locations undesirable species and individual trees, such as wolf trees, are killed by girdling. (This involves a deep circular cut completely around the trunk).

Much can still be done to improve management methods and better adapt them to the peculiarities and special needs of this central Adirondack area. In order to carry out experiments and modify our methods to suit particular conditions, this Company operates a series of test plots in various locations. These are the plots laid out in the original forest survey, a quarter of an acre in size, spaced at intervals of 660 feet. The forest growth, including everything from seedlings to mature timber, is measured every five years, and data has now been accumulated on these plots for periods up to 25 years.

All this planning and work goes for naught, of course, if our greatest enemy fire is allowed to take hold. In addition to the fine network of fire towers, fire fighting equipment and fire wardens maintained by the Conservation Department, the Company has organized its own fire fighting department headed by a full-time fire warden. It integrates its activities completely with the State agencies and has personnel and equipment on hand at all times for use at a moment's notice.

Although the management of our lands has been for the purpose of producing pulpwood, one of the interesting by-products is the improvement of environment for game, both small and large. It is definitely true that these managed areas are producing more game than unmanaged lands, whether the latter be heavily forested or denuded. This is due to the opening up of the forest to sunlight and the resulting production of browse for deer, food and cover for small game.

CHITTENANGO CREEK

Memo to Editor, Conservationist

From C. W. Greene, Senior Aquatic Biologist

Re: History of pollution of Upper Chittenango Creek by the Nelson Creamery, Inc., Nelson, Madison County, New York.

The various significant entries in our file on this plant are as follows:

1. **July 22, 1939.** A report on this situation by M. H. Bidwell, Department Bacteriologist, stated that this plant was seriously polluting the stream and was putting in chemical precipitation tanks and hauling away whey (waste product of creamery) and first and second rinses.
2. **June 11, 1942.** Stream pollution report by George Burdick and Morris Lipschuctz, the Pollution Unit. Detailed biological and chemical studies were made. Summary stated in part: "Due to entrance of whey from the washing of equipment and from floor washing, somewhat over two miles of stream have been rendered unfit for fish life and for the existence of food organisms other than those able to exist anacrobically. A fish kill occurred in this area and numerous dead fish were observed along the stream. For a distance of approximately two miles the oxygen is almost completely depleted in the stream (.06 to .3 parts per million)."

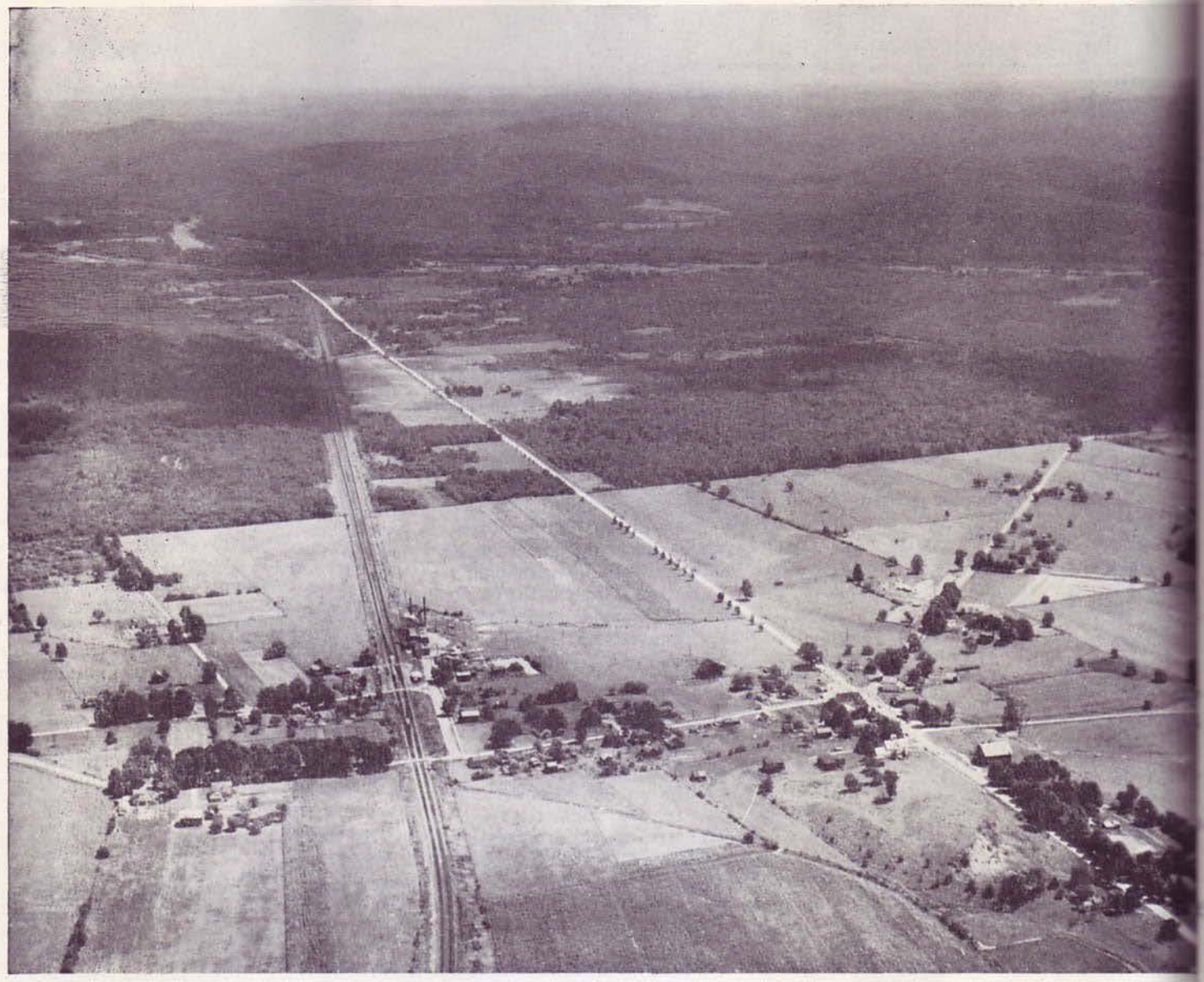
The operator, Mr. Charles Braveman, stated that construction to prevent entrance of any wastes had been held up by inability to obtain materials. Materials were on hand at time of the investigation and completion of "withholding ponds" was promised within 24 hours. Therefore, no penalty action was undertaken.

3. **August 17, 1942,** (Developments during the summer of 1942 indicated the inadequacy of these "withholding ponds"). Report of Burdick and Lipschuetz after inspection: "Ponds are of such a nature as to constitute a hazard due to danger of their washing out and allowing the entire empounded wastes to flow to the creek. It appears necessary that some treatment plant be installed. Recirculating filters and concreted withholding ponds are suggested. The Mallory Process might also be used."

The operator raised several objections to the installation of such a disposal system: Lack of materials, no qualified engineer, no adequate plans. He was shown three different plans which had worked in similar situations and was repeatedly warned that the present set-up was dangerous.

4. **February 9, 1943.** Letter from Burdick and Lipschuetz to Mr. Braveman. Inquiry as to progress of disposal plans. Reply "crawled" and said withholding ponds (demonstrated to be inadequate in principle) would be deepened and extended.
5. **February 19, 1943.** Pollution Unit recommended action be taken by Bureau of Law Enforcement on violation of June 11, 1942.
6. **May 18, 1943.** Inspection by Pollution Unit showed no evidence of any attempt to extend withholding ponds.
7. **June 21, 1943.** Casual check by Pollution Unit indicated polluting matter still finding its way into stream.
8. **June 17, 1945.** Letter from Protector C. E. Hunter to District Game Protector Callaghan stated conditions below Nelson plant were substantially the same as at first complaint, June 11, 1942.
9. **July 23, 1945.** Investigation by Pollution Unit after heavy rain, which somewhat masked conditions. Final paragraph of report stated: "There is no doubt the presence of conditions inimical to fish life at one point in the stream constitutes a violation of the Conservation Law."
10. **August 22, 23 and 24, 1945.** Extensive study made on this stream by Pollution Unit. Report stated in part: "1½ miles of this stream so affected by milk wastes and settled sludges that it is unfit to support trout. Thus it is found that the entrance of these wastes constitute a violation of Section 213 of the Conservation Law."
11. **June 12, 1946.** District Game Protector Callaghan reports conditions similar to previous years.
12. **August 3, 1946.** Inspection of stream by Pollution Unit. Stream in relatively good condition.
13. **October 7, 1946.** Casual check by Pollution Unit indicated stream in excellent condition. Question raised whether plant operated in 1946.
14. **June 30 and July 1, 1947.** Investigation by Pollution Unit. Definite evidence of violation (the fourth established in a period of five years). Report stated in summary: "It is recommended that the Department take whatever steps necessary to collect the maximum penalty and whatever further measures may be required to insure that no recurrence will take place in the future."
15. **July 29, 1947.** Letter from Callaghan to Senning (then Chief Aquatic Biologist) indicates Mr. Braveman of Nelson Creamery refuses to settle out of court and penalty action should be started.
16. **June 7, 1948.** Memo to Senning reports further complaints on conditions in stream.
17. **June 14, 1948.** Investigation by Pollution Unit. Conditions poor, but no violation.
18. **July 6, 7, 8, 9, 1948.** Investigation by Pollution Unit demonstrated violation over about ⅜ mile of stream.
19. **May 29, 30 and June 2, 1949.** Investigation by Pollution Unit demonstrated violation of the Pollution Law. Recommendations were made as follows: "In view of the past record of this plant, it is recommended the Department initiate action for recovery of the maximum penalties."

As of this date (August 3, 1949), the Conservation Department, through the office of the Attorney-General in the Department of Law, has (1) Instituted a penalty action in the name of the People of the State of New York against the Nelson Creamery, Inc. The amount stipulated is $11,000—$1,000 for violations, $10,000 for fish killed. (2) Injunction proceedings to prevent any recurrence of violations of the Pollution Law are in the process of being drawn up by Assistant Attorney-General William Bresinhan. (3) No decision has yet been reached as to the advisability of criminal indictment by the Grand Jury of Madison County.



The boundary between the Allegany Indian Reservation and the White Man's land

LONG HOUSE CONSERVATION

by Oscar R. Lindberg

ACCORDING to the Indians, reservations totaling about 50,000,000 acres in the United States are all they have left out of the 1,900,000,000 acres they possessed before they started dealing with the whites about 450 years ago. The country's population of Indians at that time has been estimated at about 900,000 persons; today it is about one-third that number. The decrease has been due not so much to extermination by the whites or by disease as to their gradual absorption by the whites. Particularly in New York State the "white" blood in the Indians nearly balances the "red," and one ancient Seneca is fond of remarking that the reason we do not have the old-fashioned Indian Summers any more is because there are no more full-blooded Indians.

In New York State there are ten reservations with a total area of 88,076 acres and a population of about 5,000 Indians. The two largest of these, the Allegany with 30,469 acres and 1,000 Indians, and the Cattaraugus with 21,680 acres and a population of about 1,400, are occupied by the Senecas and are governed jointly by a Council of 16 members—eight from each reservation—and a staff of officials ranging from president down to game warden. These officials are elected for two year terms, and only the males may vote. The Senecas were ruled by women up to the year 1848, when through some sort of bloodless revolution or political strategy learned from the whites, the reservation government-by-women was overthrown and women disenfranchised. The Senecas claim to be an independent nation, and as such in 1917 they declared war on Germany. As they never got around to signing a peace treaty, they were still at war with that nation at the start of World War II.

In this article we will discuss only the Allegany Reservation, partly because it is the largest in the State but mainly because it is the one with which we are best acquainted. However, it is assumed that the reservations are pretty much alike as far as government, people, customs and attitude toward conservation are concerned.

This reservation is located along both

sides of the Allegany River where it bends up into Cattaraugus County, and it extends about 40 miles from the State line to Vandalia, a few miles west of Olean. The greater part of the reservation land is flat river bottom, and when developed is some of the finest agricultural land in the State. The western third of the reservation is almost primitive. The Indians there are mostly followers of the religion of Handsome Lake, and are called "Long House Indians." In the eastern part there are many well developed and productive farms. In this section the Indians have their own Baptist and Presbyterian churches, while some attend various white churches. Soil conservation is practised by the majority of Indian farmers (though not by all as we shall see). The children attend their own schools through the first eight grades, after which they are sent to a high school in Randolph or Salamanca. Many of them go on from there to college, favoring, of course, the State College of Agriculture.

REGARDING conservation, the old timers say that if the white men had hunted and fished as the Indians did, there would be no need for game laws today. Of course they blandly ignore the fact that before the white man came every Indian had approximately a thousand acres in which to hunt and fish. They never took more than they needed, but their needs were great.

Among the rights guaranteed the Indians by treaty with the white government was exclusive control over fish and game, or the right to hunt and fish at will, and also the right to make their own rules for the governing of hunting and fishing on their lands by the whites. On the grounds that the whites were over-running the Reservation and killing off all their wildlife, the Indians some time ago adopted a license system similar to the State's. They follow, as closely as possible, the State's scale of prices, and the revenue derived from the licenses goes into the Tribal Fund. Their licensing regulations create a peculiar situation which is quite confusing to the New York State sportsmen. They enable a Pennsylvania hunter, for example, to hunt legally in New York State without a New York license; he can enter the reservation at the State line near Onoville and hunt along the river nearly to Olean, and, as the game is legally taken, he can transport it off the reservation back into Pennsylvania.

The Indians have agreed with the Conservation Department to follow the State bag limits and seasons in their regulations, and the majority of hunters, both whites and Indians, do. As a result of limited hunting, there is on the reservation a game population comparable to that in adjoining Allegany State Park. Contrary to popular opinion, outlawry or poaching by the Indians off the reservation is practically unknown.

Some of the most accomplished trappers in the State are to be found on the Indian reservations. Many professional white trappers have picked up a lot of pointers pertaining to the trade from the Indians—sometimes to their sorrow. They have learned how to set traps, what to use for bait, and how to flesh out skins. Also how to flesh a 40-inch beaver pelt into a blanket on which you can count the hairs.

The Indians are impartial in applying their peculiar brand of enforcement The story is told about two cousins operating separate trap lines. One morning each had the same thought—to make an early trap inspection, and also to visit his cousin's line before going to his own. After these inspections they met on a third Indian's line, and were forced by the evidence of tracks in the fresh snow to confess to eachother. They parted amicably after exchanging furs and dividing up those they found in the third man's traps.

Although there are a number of well-stocked trout streams which cross the reservation, they are fished very little by the Indians who prefer the more tranquil sport of fishing the river by boat or from the shore. They are not too particular about the species they catch; they'll eat anything that can be eaten by man, and their numerous dogs will take care of the others.

Such lands of the reservation as are not owned by individuals are called Tribal Lands, that is, owned jointly by the whole Seneca Nation, and they may be used by any individual within certain prescribed limitations.

AMONG the older Indians, a series of forest fires on the river flats is good conservation. They theorize that fires are necessary to a good huckleberry crop, will drive out the rattlesnakes, and will help to clear a spot for a garden—if they should happen to feel like making one. Unless urged (or hired) by the white fire wardens, many of them will not lift a hand to fight a fire until it reaches the foundations of their houses. Consequently there are thousands of acres of the finest agricultural land, lying along the Allegany River, covered over with scrub oak (too tough to kill), huckleberries, June pinks and sassafras bushes. (See photograph).

One admirable characteristic of the Indian is his willingness to welcome and adopt any homeless orphan, human or canine. It is nut unusual to visit an Indian home consisting of a one-room frame house, unfurnished except for bare necessities, and find a very happy family of parents, in-laws, a half-dozen or more children, some of which are their own, and anywhere up to a dozen dogs of various breeds—which will eventually blend into a special breed known to the whites of adjoining areas as a "Reservation dog."

Paradoxically, this kindness to animals is the cause of considerable destruction of deer and other animals by dogs. On the reservation no dog license is required; the dog is not confined and is fed only when his master has the food to spare; normally the dog is expected to forage for himself in the woods.

INCREASED interest in Indian affairs in Washington and in Albany, and the trend of bills passed during recent legislative sessions, indicate that the Indian reservations are changing complexion and may even be on their way out of existence—or so the Indians believe. Reservation Indians, who up to last year were subject only to Federal laws or their own reservation laws, have been placed under the control of New York State laws as far as criminal action is concerned. It is believed that new laws will be passed soon making them subject to the State civil laws. Sentiment of the Indians on these changes is sharply divided; many of the older ones wish to keep the reservation as it is and has been for a hundred years, unchanged. The younger majority feels that so long as they remain wards of Uncle Sam, they will never attain actual citizenship and the rights and privileges that go with it.

If and when the Indian Reservation is ever abolished, the most striking change will be the transformation of thousands of acres of scrub oak and huckleberries into fields of hay, grain and pasture, and of little, unpainted, one-room houses into modern farm homes or summer cottages. A golf club, or a modern grange hall—maybe a tavern—will replace the historic long house where the Indians have held their religious dances and festivals for years.

The wildlife which populates the reservation hills will be in much greater danger of extinction from the efficient equipment of the modern hunter than from the single barrel shotgun of the happy-go-lucky Indian hunter, and the white man's game control will replace the Indian philosophy which is pretty well summed up in the remark—and there's food for thought in this—"If white man hunt and fish like Indian, he don't need it—that game laws."

CAYUGA LAKE

Longest (but not the deepest) of the Finger Lakes, and a fertile field for study by Cornell

by Dwight A. Webster
Department of Conservation, Cornell University

CAYUGA LAKE perhaps has more widespread recognition than it might otherwise enjoy by the mention of her name in the Cornell University song, "Far Above Cayuga's Waters." Lake and university have been linked in many ways—from crew races, through biological and even engineering studies. The latter, concerned with the hydrography of the lake, were begun by the College of Civil Engineering in 1874, and constitute the most extensive early work of this nature in the United States.

Some of the vital statistics on Cayuga Lake to be gleaned from these surveys read as follows: area, 66 square miles; length, 38.3 miles; maximum depth, 435 feet. The mean depth is about 175 feet. Excluding the Great Lakes, Cayuga is the second deepest lake east of the Rockies: her sister lake to the west, Seneca, holds top honors in this field with a known maximum depth of 618 feet.

The lake is fed by six major tributaries which enter at the southern end. These are Cascadilla, Fall, and Six Mile creeks, Cayuga Inlet, and Salmon and Taughannock creeks. The first four make their way through the City of Ithaca immediately before entering the lake and provide, on occasion, good fishing within the city limits, but all of the tributaries except the Inlet have falls a short distance from the lake which form effective blocks to fish migration. The lake is part of the Barge Canal system, Ithaca being a terminal port.

While most of the shoreline drops off rather abruptly into deep water, the northern and southern ends are set apart by their conspicuous shoals. In former years, fishing on the flats at the Ithaca end of the lake was excellent. However, due to extensive environmental changes which have profoundly influenced the fish populations, present-day fishing is a far cry from its reputation of former days. The great cattail marshes, the former breeding grounds of the northern pike, bullhead, and yellow perch, have been filled in and replaced by an airport and a municipal golf course. The rank growth of pondweeds, wild celery, and other aquatics that grew in profusion in the shallows, has largely disappeared in the past few years, and with this disappearance the ducks—redhead, canvasback, and bluebill that used to winter here by the thousands—have also largely deserted the area. Four million gallons of sewage, (treated to be sure, but still sewage), from the City of Ithaca and Cornell University, falling into the Inlet each day, also has a profound effect on the immediate environs.

The northern shoals, bordered by the famous Montezuma and Canoga marshes, remain somewhat less changed. The bottom here is carpeted with musk grass (Chara) and a host of other submerged aquatics down to about the 30-foot contour, which extends south to Union Springs. Fishing for warm water species is more consistent at the northern end of the lake and duck hunting there in the fall provides fair sport.

While the major portion of the lake is best suited for lake trout production, only during the past few years has the catch of this species been appreciable. The fishing success since 1947 has been the best in the memory of the old timers. The trout fishing in some years past must have been good, however, for local legend has it that in the old days the barges used to be able to catch enough lake trout between Ithaca and Taughannock to keep the outfit in fresh fish all the way to Buffalo. Some idea of the tremendous increase in the lake trout population may be had from experimental netting records of Cornell University. Repeated netting of a spawning area in 1938 and 1939 yielded a half dozen trout, while seven sets during the 1948 season took some 150 trout for tag-

ging. These weighed a total of nearly a thousand pounds.

The principal summer fishing grounds are along the west shore at Varick and the east shore from King Ferry to Willets. Most of the trout are taken on standard type spoons fished on a wire line at depths of 50 to 100 feet. In the spring, the fish may be taken in close to shore in very shallow water on light trolling or bait casting tackle. The distribution of these trout in the winter and spring is more general, and they are caught over many suitable shoals or bars throughout the lake. The most recent innovation for catching lake trout in Cayuga Lake consists of six to eight large white leghorn rooster hackles, tied feather duster fashion, on a large ringed-eyed hook. The fly is trolled in connection with a small spinner. The inventor of this contraption is "Scotty" Little, Cornell swimming coach and inveterate angler of Tompkins County.

FISHING for smallmouth bass, and even for most other warm water species, is likely to be very spotty and unpredictable. The most consistent smallmouth fishing is at the north end, the channel of the Barge Canal and the waters around Union Springs being favorite locales. Flat Rock is a wintering area for this species and has been the site of Cornell University studies since 1941.

Investigations on the smallmouth bass, as well as on the lake and rainbow trout, are being carried out by the University in co-operation with the New York State Conservation Department, the U.S. Fish and Wildlife Service, and sportsmen in the area. These studies are concerned with the biology of the species as well as an evaluation of management practices. Through the spring of 1949, nearly 165,000 hatchery fish have been marked by fin clipping and planted in the lake. Since it takes several years for the fish in these hatchery plantings to reach legal size and another several years to follow them through the fishery, it is apparent that these studies are necessarily of a long term nature.

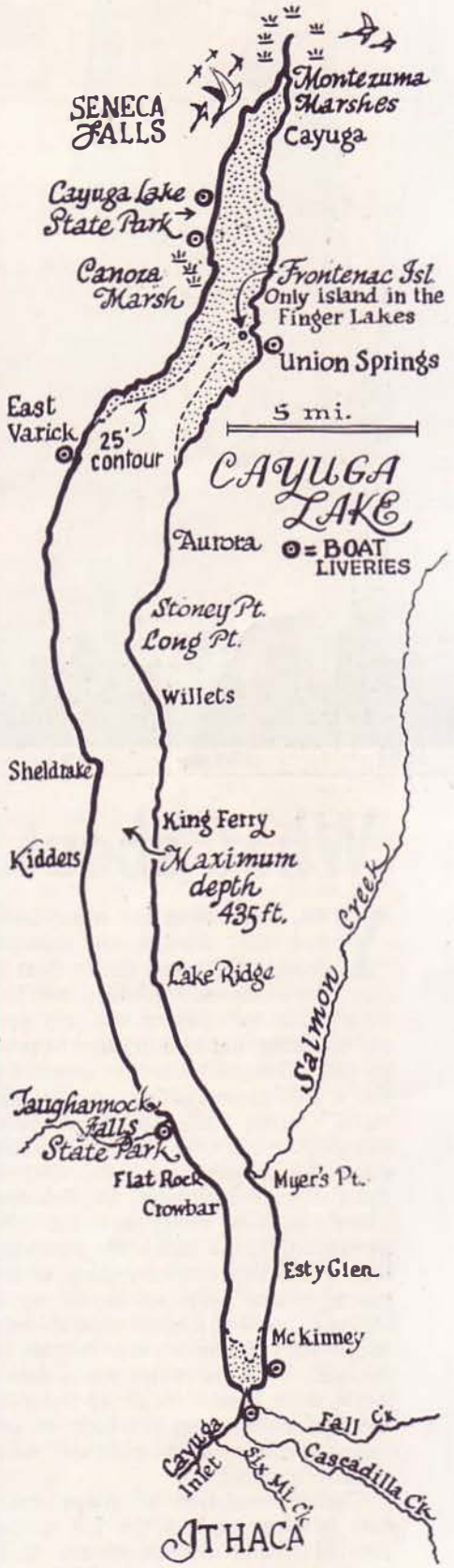
Two of the lesser fishes in the lake deserve mention. These are the smelt and the sawbelly, or alewife. The smelt has shown a phenomenal increase in production, starting with the spring of 1947. Smelt have been known from Cayuga Lake since the late '20s, but in comparatively small numbers. They are taken by dipping in the tributary streams at night during the spawning run in the early spring, and in recent years the total catch undoubtedly would be measured in tons. No single other fish in the lake, and perhaps not even all species in the aggregate, gives sport to as large a number of persons nor offers so close to a guarantee of fish in the basket.

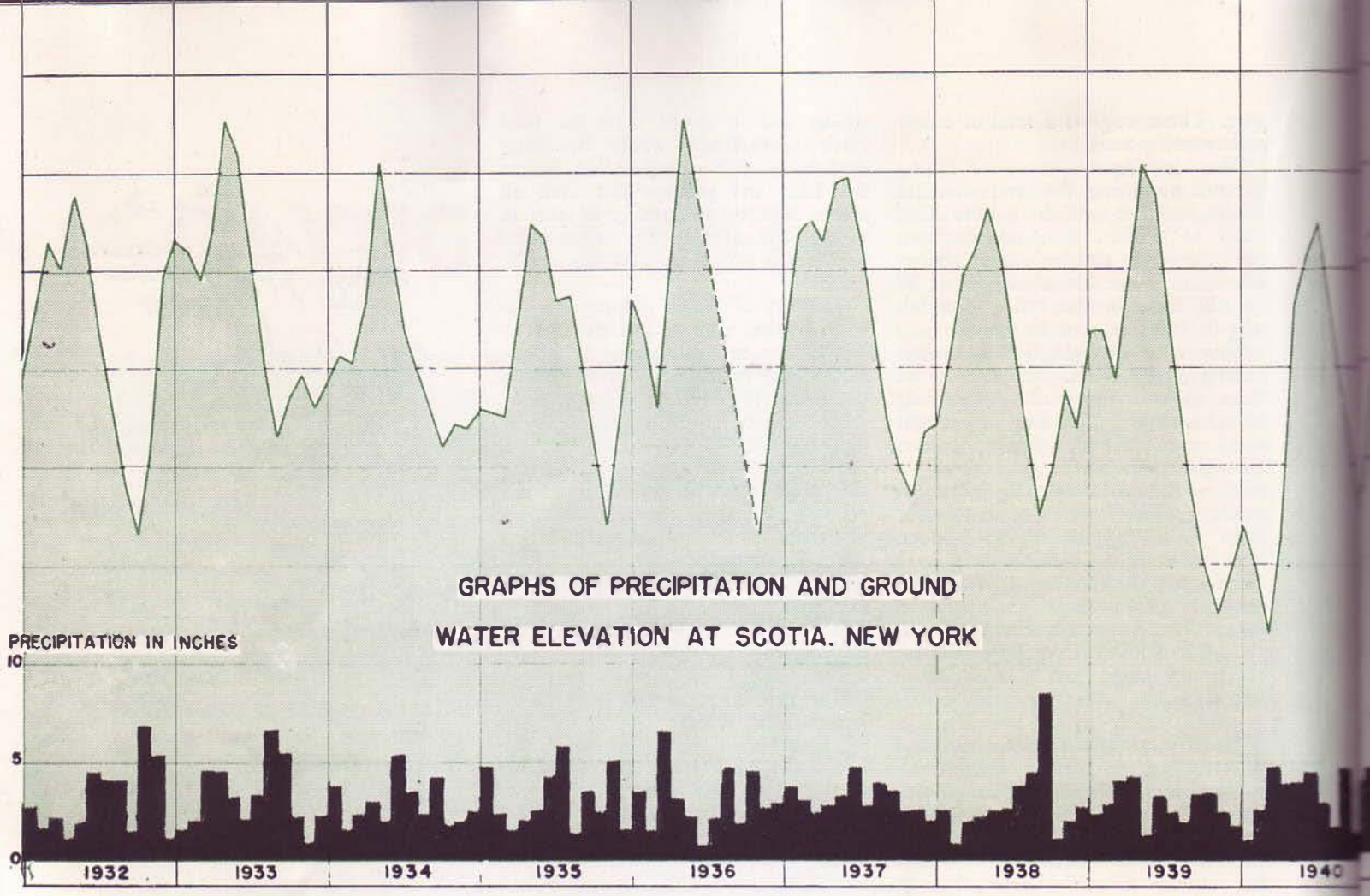
The art of smelt dipping has attracted man, woman, and child. Practice of the art, in Cayuga tributaries at least, varies according to the school to which the smelter belongs. The schools are two in number, the blind-dippers and the stalkers. Methods used by each are not compatible, for the success of the blind-dipper depends on the absence of light and that of the stalker on its presence. This results in amusing situations and frequently in what amounts to "socialized" smelting.

The alewife is the "key industry" fish of the lake, and in the writer's opinion the most important species in the association. It occurs in countless millions, rarely reaching a length of more than five inches, and is the principal food of every carnivorous fish in the lake. This species is the same as the one running in the Hudson and other east coast streams, but confinement in fresh water has produced a dwarfed form. The alewife is best known to anglers and cottagers alike for its appearance in shoal waters in late spring and early summer. Large numbers may die at this time, piling up in windrows on windward beaches, sometimes causing considerable nuisance.

THE ice fisherman rarely has an opportunity to traverse more than the ice which forms over the shoals at either end. Cayuga, like Seneca, rarely freezes over entirely. In fact, there are only some 10 records of complete freeze-ups since 1796. The open water serves as an attraction for waterfowl, and hunting for bluebills and whistlers is in order along much of the shoreline. No mention of the waterfowl would be complete without reference to the Canada geese. These visit the area during their annual migrations and are particularly fond of the fields near King Ferry.

To round out the lake's recreational potentialities, two State parks offer camping and picnicking facilities. Taughannock Falls State Park is located about ten miles from Ithaca on the west shore; also on the west shore, at the northern end, is Cayuga Lake State Park. Both are currently doing a thriving business, as people come from far and near to have a look at, or dabble in, Cayuga Lake.





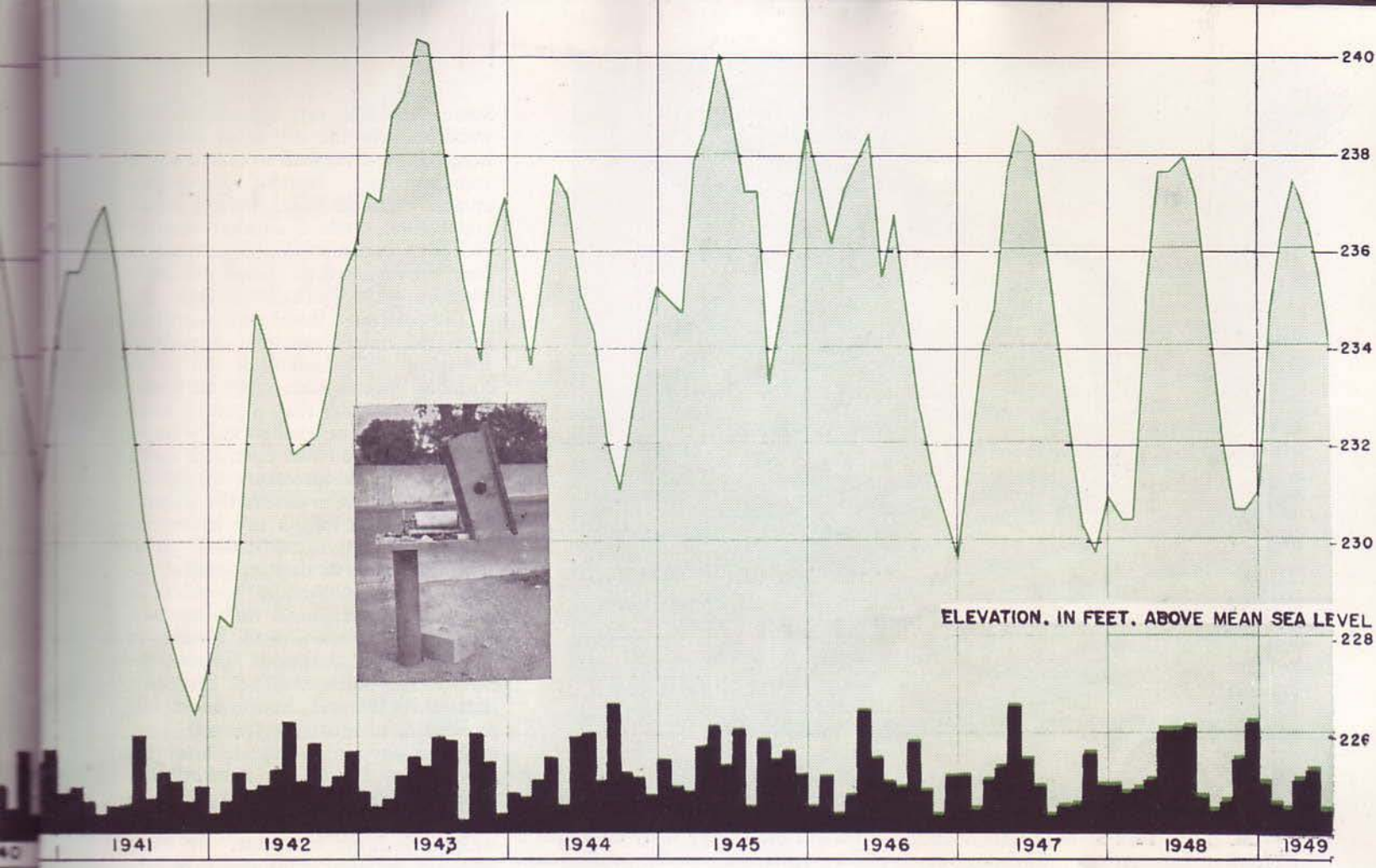
What about the WATER TABLE?

YES, what about the water table, now that this summer's record drought has put a sizable dent in many of our surface water supplies? The water table and ground water in general are somewhat of a mystery to most people. Ground water is something that's hidden away deep within the "solid" earth, and like most other things that can't be seen, it has become the subject of a good deal of speculation, romanticism, and folklore. There's nothing wrong with the folklore as long as the well keeps pumping. But when that "never-ending underground stream" drys up, or the water begins to smell as if there were a dozen rotten eggs sitting at the bottom of the well, or if the water witch didn't locate more than a trickle of water in the first place, then it's time to get some scientific data and see what actually is going on.

The accumulation of ground-water data in New York is the job of the Ground Water Branch of the U.S. Geological Survey. Operations have been underway on Long Island since 1932 and in upstate New York since 1945. (In 1945 the Conservation Department joined with the Commerce Department in securing a similar survey for up-state New York.—Ed.) These areas present two distinct and different sets of conditions. Long Island is mantled by a series of glacial and Cretaceous sands, gravels, and clays which overlie much older crystalline rock. The thickness of the unconsolidated deposits is variable but is generally substantial, and on the southeastern end of the Island they are over 1,500 feet thick. Some of the individual beds of sand and gravel range up to 250 feet in thickness, and being persistent in lateral extent and very permeable, form extensive artesian reservoirs. The bedrock on Long Island is deeply buried and is comparatively impermeable and consequently is of little importance as a ground-water reservoir.

In upstate New York, however, the situation is far different. There the unconsolidated mantle in most places is much thinner, spottier, and more limited in extent than it is on Long Island and, consequently, provides a much less important reservoir than is available on Long Island. Because of the thinness or absence of the unconsolidated deposits, bedrock is of marked importance as a source of well water. Unfortunately, however, bedrock is for the most part relatively impermeable, and contains water only in the disconnected fractures and narrow openings which traverse the upper few hundred feet of bedrock. The storage capacity of the rock formations, therefore, is small when compared to that of unconsolidated deposits of similar extent.

Now, what about the water table? So far as New York is concerned the source of all ground water in a given area is the rain and snow that fall in the vicinity; for example, all ground water in Long Island originates from precipitation on Long Island. Each year a portion of the precipitation percolates downward through the soil to join the main body of ground water in the zone of saturation. The upper surface of the zone of saturation is called the water table. Each year a portion of the ground water is discharged by seepage into streams, through pumpage from wells, and through use by plants. If a year's re-



charge to ground water from precipitation is greater than the year's discharge, then there will be a net gain in ground-water storage and the water table will rise. If recharge is less than discharge, there will be a net loss and the water table will fall. As precipitation varies from year to year, the water table each year shows either a small net gain or a small net loss, and thus it is the long time trend that is the only significant index.

NOW, do these trends show basis for belief that each year the water table is getting lower and that we are in danger of depleting our over-all reserves of ground water? In upstate New York the answer to this question is definitely "no." The U.S. Geological Survey maintains approximately 40 observation wells where water-level fluctuations are measured periodically or continuously. These records are of too recent origin to permit any long-range interpretation, but the data on hand gives no indication of a definite downward trend. A hydrograph (above) is available from a well maintained since 1931 by the Department of Water at Scotia. This graph fails to show any indication of a long-range swing either up or down. Water reserves in this area are, therefore, remaining approximately stable.

There are, of course, a few places in upstate New York where heavy withdrawals have lowered the water table considerably. These areas will bear close observation. The most critical area in the State, however, is on Long Island, where heavy pumpage from industrial wells and public water-supply wells over a period of many years has resulted in the lowering of water levels in Brooklyn, and consequently an influx of salt water which has contaminated some wells and threatens to contaminate many more. The U.S. Geological Survey now maintains over 200 observation wells on Long Island. Strict control by the State Water Power and Control Commission is maintained over new drilling and total pumpage. This control is based on the Geological Survey records, and has served to decrease the rate of influx of salt water.

The recent record drought has emphasized sharply the contrast in ground-water conditions between Long Island and upstate New York. Owing to abnormally high precipitation on Long Island during the last year and a half, the stage of the water table on the whole, before the drought began, was the highest observed since 1939. The storage capacity of the water-bearing beds is so large that heavy pumpage, particularly for irrigation, during the drought period caused on the average only a slight lowering of the water table. Observations at Baiting Hollow, in the center of the potato farmland in Suffolk County, showed a drop of less than half a foot during the first 28 days of the drought.

In upstate New York, however, because of the lack of adequate underground storage capacity, the effects of the drought were more strongly felt. Records at key observation wells at Brasher Center, St. Johnsville, and Geneseo showed drops of about one and one-half feet during the first month of the drought. Similar declines were observed at other wells scattered throughout the State. Shallower wells in many areas went completely dry, and people had to resort to hauling water from neighboring wells that tapped deeper strata. In the Latham area, where levels already were low as a result of heavy pumping from limited sources, the drought was felt very strongly.

As pointed out, it is the long time trend of the stage of the water table that is significant. Although drought conditions may cause temporary hardship, in the long run they appear to have no permanent bearing on the height of the water table.

chipmunk

by W. J. Hamilton, Jr.
Department of Conservation, Cornell University

THE little woodland striper is a familiar sight to all residents of New York State. Its abundance, fearless behavior and confiding ways make it one of our most interesting mammals. Like so many of our common species, the chipmunk is a fruitful source of study for the naturalist, yet its ways are known to only a few.

The first February thaws bring forth this little animal, for chipmunks are not as profound winter sleepers as many suppose. Indeed, zero temperatures are not sufficient to keep some of the tribe in their winter quarters, and it is not unusual to see them about even on the coldest days of winter. First thought of these little beasts in the new year is the propagation of their race. After mating, a month passes before the blind, naked young are brought forth in an underground chamber lined with dead leaves. Ten days will pass before the young may be recognized as little chipmunks, the stripes making their first ill-defined appearance at this early age. The youngsters are a month old before the eyes open, at which time they are quite active. Full growth is attained at two months, at which stage it is difficult to distinguish young from adults.

Chipmunks customarily have two litters annually, the second arriving in early July or August.

This little ground squirrel is a profligate feeder, accepting almost any food at hand. The seeds of maple, elm and other hardwoods are favorites, but various fruits and berries are all enjoyed in season. While its teeth stamp it as a rodent, the chippy is by no means a strict vegetarian; insects, snails, even small snakes and mice contribute to the menu. Ground nesting birds must reckon it as an enemy, and even those which select the canopy of branches overhead must guard against intrusion, for the chipmunk, while not as adept a climber as either the red or gray squirrel, can and does climb freely.

The internal check pouches serve a useful function. These capacious pockets will hold several dozen beechnuts or a couple of hickory nuts in each pouch. (The sharp points of the latter are neatly bitten off to prevent injury to the delicate lining of the checks). Stuffed with seeds, beechnuts and other foods, the pouches act as a market basket to transport the bounty of the harvest season into underground caches, where the larder is carefully stored against the season of famine. This harvest may exceed a bushel or more of delicacies. In the fastness of winter the drowsy chipmunk may repair to these subterranean stores 'till it is surfeited with the rewards of earlier effort.

Like its relative the woodchuck, chippy retires to the soil with the approach of cold weather. Here the similarity ends. The groundhog, rolled into a stiff ball, all but ceases to breathe, while its circulation is greatly retarded. The comatose sleep of true hibernation gives the animal a death-like appearance. Not so the chippy. Some individuals may approximate the woodchuck in the degree of hibernation, but most respond to even a slight stimulus and become thoroughly aroused in short order. Indeed, as we said before, if one is an alert observer and often in the woods it is possible to see the tracks or even glimpse the little beast on some of the coldest days.

The cool earth shields the chipmunk from the heat of summer as well as from the ice and snow of winter. A tortuous gallery, often many feet long and scarcely wider than a garden hose, circles the sunken boulders and stumps. Here, under the forest floor, is a haven from the fierce predators which are ever on the alert to devour the stripers. Indeed it must have a safe haven, for weasels, skunks, foxes, various snakes and many birds of prey are vigilant enemies always on the alert to gobble it down. If one examines these burrows, he is always struck with the absence of any dirt—so noticeable about the woodchuck burrow. The chipmunk scatters his pile well, leaving no tell-tale mound to advertise his presence.

Like many birds, our small mammals have homes and territories which they defend against other species and even against those of their own kind. The chipmunk is no exception. By using specially designed traps one may take an animal uninjured and then mark the captive so that it will later be recognized in the field. Such a procedure permits one to investigate how far the animal travels from its burrow and how much territory it defends against intruders; thus one may learn something of its mode of life that would otherwise be impossible to fathom.

COMMON animals like the chipmunk are often ignored; scientists continue to search the far corners of the world for exotic creatures that are often difficult and expensive to secure and eventually add little to our knowledge of wildlife. But backyard biology is frequently of the most productive sort, since we can deal with our common native animals in numbers and as our spare moments afford. New concepts and principles in conservation and wildlife management can best be recognized by quantitative studies. Little matter if we use a chipmunk, pheasant or deer; sound management principles evolve from basic research on our commonest species, however far they may be removed from the game list. The chipmunk provides an excellent experimental animal for wildlife research, since it may be studied in great numbers under natural environments.

HOW TO DO IT (4):

The Care of FEEDER STREAMS

NEARLY all our trout streams are of humble origin. The Beaverkill, the Esopus, the Ausable, the Kinderhook, Chittenango Creek, the Salmon—most of our well known trout streams and probably also your favorite, little known stream—they have very modest beginnings. A hillside spring, or perhaps just a swamp in a cow pasture. But from the spring there comes more water than the spring can hold, and from the swamp more water than the land can absorb. And so begins a trout stream.

What happens to a trout stream in these, its formative stages, vitally affects its character in the lower reaches where you do your fishing. In these lower reaches the volume of water, its temperature, its purity, its ability to provide natural food for fish, and also the number of fish present, all these things depend a great deal on the character of the feeder streams above. This Department is rarely in a position to work on these feeder streams; we have to concentrate on the bigger ones. So the job falls on private landowners, on sportsmen's clubs, on interested individuals and organizations, and perhaps on you. Now is the time of year to do the job—while the water is low.

The ideal feeder stream is one in which there is the maximum possible amount of water, in which that water is kept at the lowest possible temperature, and one in which the water —no matter what the quantity—is properly channeled rather than spread out in flats. All of the stream improvement methods suggested below have this ideal in mind.

First, how do you get more water into the stream? Very often, much of the water available to such a stream is lost through evaporation or seepage in flat swampy areas. This situation can be corrected by ditching. Water which is scattered over a large area of swamp can be concentrated and fed into the stream by digging shallow drainage ditches. Springs adjacent to a stream may also be very profitably drained into the stream in the same manner. By concentrating the water in such a fashion not only is there smaller loss through evaporation and seepage, but less opportunity for the water temperature to be raised by sunlight and surface exposure.

Ordinarily, no tools other than a pick and shovel are required for such an operation, but those experienced in the use of dynamite could use this material to advantage in ditching.

DURING high water and flood, feeder streams have a tendency to become blocked with debris, which often forces the stream out of its channel and spreads the available amount of water over a wide area. This has the effect of exposing the water to greater temperature rises and to increased evaporation, but even more serious it often makes the stream in such stretches uninhabitable and even impassable for trout. The remedy, for which no tools other than an axe or a crow bar are required, is to clean the channel and concentrate the water in its normal bed.

In a previous article in this magazine (Aug.-Sept. '47) we outlined the principles of constructing straight log dams. (Reprints of this article are available). Such dams form a valuable addition in our small feeder streams in that they provide both cover, feeding areas and spawning places for trout. They are extremely easy to construct, since usually a single log placed directly across the stream, set as low as possible in the stream bed and firmly embedded in both banks, will do the trick very nicely.

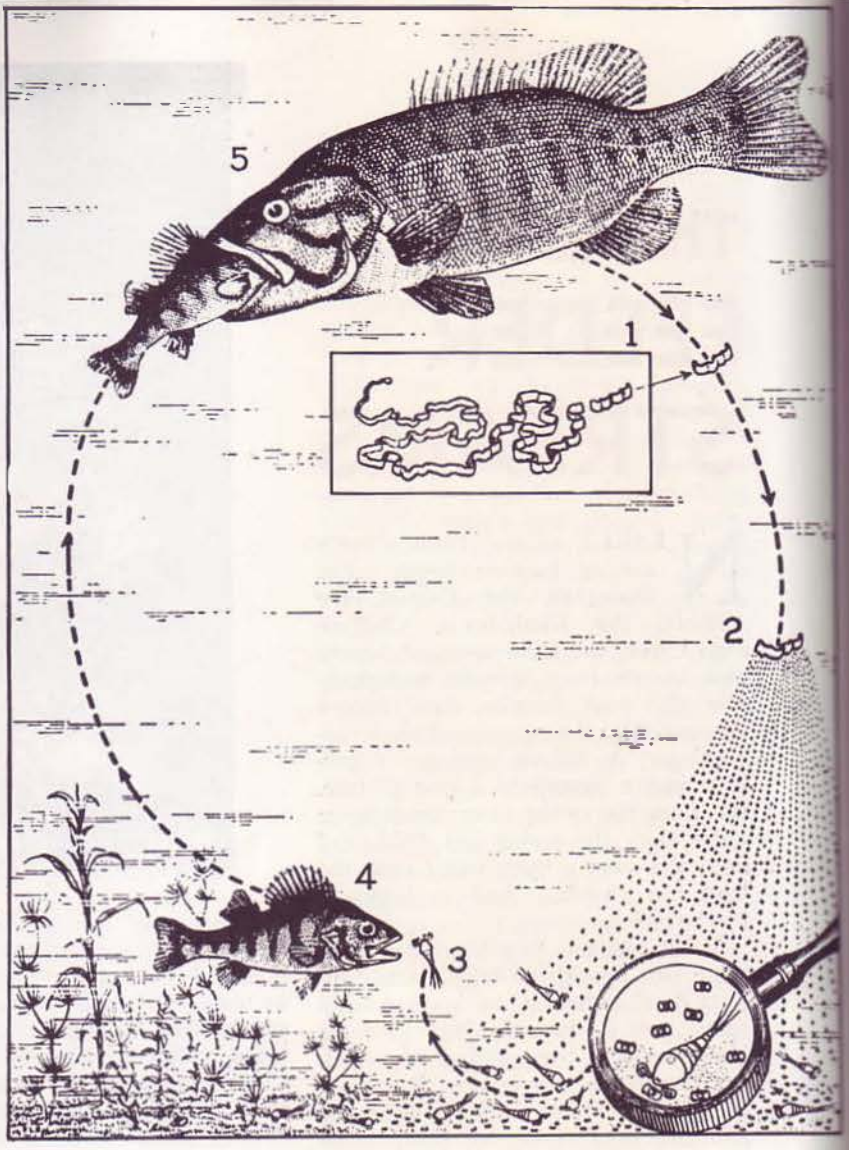
Another extremely important consideration in feeder stream improvement is shade. Well planted banks provide cover for fish and also tend to keep the sun off the water. Furthermore, such stream bank growth harbors a variety of insect life upon which trout normally feed, especially in times of low water. In addition, root formations contribute immensely to the protection of stream banks from erosion in times of high water. In the event that a section of stream has been denuded of shade it could very profitably be planted with willows; if you already have the willows, keep them.

One other thing. We may have given the impression that our small feeder streams are important only in the contribution they make to more sizeable waters below. This is not the case. Properly cared for, these small streams make ideal spawning grounds and afford a year 'round home for fry and fingerlings. In addition, (and again, only if properly developed), they often shelter many a wild, legal, and superbly tasty brook trout for the creep-and-crawl angler who knows how to stalk them.

The care of feeder streams is so simple as to require almost no explanation or instruction. It is very rewarding. Yet how many of us bother with it?

—EMERSON JAMES,
Supervisor of Fish Management

fish parasites



Life Cycle of the Bass Tapeworm

(1) Adult bass tapeworm *(P. amblo**p**litis)* from intestine. The mature proglottids (segments) occur at the posterior end. These break off and are passed with the feces. (Drawing natural size.)

(2) Mature segments falling to the bottom, liberating thousands of eggs upon contact with the water.

(3) FIRST INTERMEDIATE HOSTS. Five (?) species of Cyclops and *Hyalella knickerbockeri* eat the eggs from the bottom. The eggs disintegrate after being in the water 36 to 48 hours. The jaws and digestive juices of the copepods liberate the larva of the tapeworm which bores through into the body cavity. (Drawing of copepods magnified disproportionately to bring out details.)

(4) SECOND INTERMEDIATE HOSTS. Young large-mouthed and small-mouthed black bass, rock bass, punkinseed sunfish, yellow perch, pickerel and the top minnow *(Fundulus diaphanus)* feed on the first intermediate hosts. The larval tapeworm bores through the digestive tract and into the body cavity; it encysts.

(5) DEFINITIVE HOSTS. Large-mouthed and small-mouthed black bass and rock bass harbor the adult tapeworm which is secured by eating the second intermediate host, thus bringing the larval tapeworm back to the digestive tract where proglottid formation takes place, and the cycle is repeated.

FISH, like fishermen, are subject to a vast variety of aches, pains, ills, infections, and visitations. These range from anemia through malnutrition to zincalism (which my dictionary defines as chronic zinc poisoning). But in this article we shall ignore most of the catastrophies which may befall fish, and discuss just one aspect of their precarious existence—parasitism.

Impressive figures can be quoted to illustrate the abundance of fish parasites. In studies made in one of our neighboring states 87.1 per cent of common sunfish were found to be infected, and 17 species of parasites were identified. Smallmouth bass proved to be a little worse off, for 95.3 per cent were infected by 13 species of parasites. In four states lakes have been studied to determine the percentage of all fish infected, and the figures range between 58.3 and 72.5 per cent. Our own Oneida Lake has been a happy hunting ground for students of fish parasites, and the investigations made by H. J. Van Cleave and J. F. Mueller have added many new species to the lists.

But there is a great disparity between the picture created by such figures and what the fisherman sees in his catch. Many fishermen, especially those who go only after trout, never see a parasite. Bass fishermen, however, are often all too famailiar with "grubby" specimens, although most parasites are either too small to be seen by the angler or they inhabit an internal organ which is removed in cleaning the fish, and so are never noticed. The occasional inquisitive devotee who makes a practice of opening the stomach and intestines of his catch to see what he has been eating may be rewarded by the sight of tapeworms, but he will probably not notice the smaller spiny-headed worms often present.

In the following paragraphs some of the common parasites of fish will be described. Those selected are among the larger and more conspicuous examples, and those about which sportsmen most often inquire. Many fish parasites have interesting and complicated life histories which involve a number of different hosts. Some of these life histories were well illustrated in the various Biological Survey volumes which were published by the Conservation Department between 1927 and 1939. These volumes are now unavailable to sportsmen generally, so that this opportunity is being taken to put two of the illustrations once more before the public.

With bass fishing at its peak at this time of year, one of the parasites most likely to be encountered is the bass tapeworm. Tapeworms are quite common in many species of fish, and generally appear to do little damage unless they become so numerous as to interfere with the nourishment of the host. One of the commonest of these worms, however, is exceptionally injurious because it has a tissue-invading larval form. The life history of this worm is illustrated here. The chief damage is done to the "second intermediate host". When a small fish eats an infected scud, or cyclops, the larval tapeworm bores through the wall of the digestive tract of the fish and migrates into the viscera, finally coming to rest in the mesenteries, liver, spleen, or reproductive organs. In cases of severe infestation of the gonads, sterility results. The boring

of the larval worm produces adhesions and great proliferation of connective tissue in the mesenteries, so that all the internal structures of an infected fish appear to be bound together, and it becomes difficult to distinguish the individual organs.

Another parasite frequently seen by bass fishermen, the black grub, appears as a black spot conspicuous on the skin and fins of fish. The victim is often peppered all over with these spots. The grub itself is not black, the blackness being caused by a deposit of pigment in and around the wall of the cyst. The worm is the encysted larva of a fluke or trematode. There are probably many species of these flukes infecting different species of fish, and most of their life histories have not been worked out in detail. It is thought, however, that all follow approximately the pattern (our second illustration) for the black grub of bass.

A similar parasite is the yellow grub so frequently seen in bass and yellow perch. It appears as a yellowish-white spot, not only just under the skin, but also deeply embedded in the flesh. In dressing a fish the cyst wall is often broken, and the grub can be seen moving about on the flesh of its host.

Not so frequently seen as the two flukes which have been described, but nevertheless quite common, is the white grub of the liver. This grub encysts in the liver of fish of the bass family, and is often so numerous that the grubs outweigh the liver tissue.

Blindness in fish is sometimes caused by a grub which finds the lens of the eye a congenial place to pass part of its larval life. This grub (*Diplostomum* sp.) has been encountered in a number of species of fish, and some years ago caused much trouble in rainbow trout in the state fish hatchery at Hackettstown, N. J. The life history of the grub is similar to those illustrated here, but it is not known which birds are its chief final host.

The symptom which fishermen may notice is a whiteness or opacity of the lens. Fish are made completely blind by a heavy infestation, and then become dark colored and emaciated.

COMMON locally is a parasatic crustacean which attaches itself to the gills of trout aud bass. Fishermen often see these "lice", and specimens are sent in every year for identification. These parasites have a free-swimming larval stage which moves about in the water until it can attach itself to the gills of a fish, whereupon it degenerates into a parasitic form no longer capable of independent locomotion.

Those found on trout are a different species from those on bass, but very similar in appearance. They have two projections which hang down from the body of the louse. These are egg sacs, well filled with eggs. Two arm-like projections extending from the head are attached to a small plug which is embedded in the gill tissue of the host, the rest of the body hanging free.

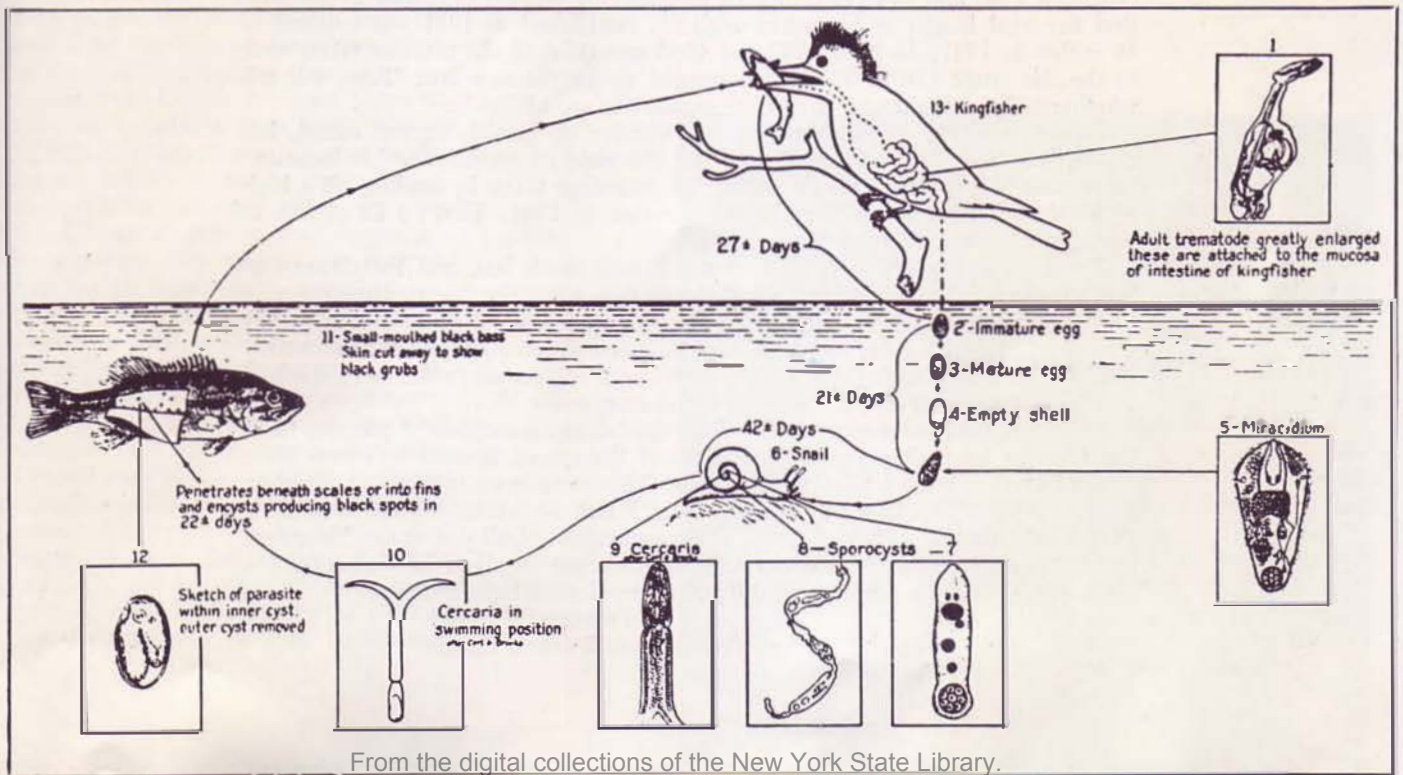
Many more fish parasites are known. Some are a serious menace to the life of the fish, others are chiefly a nuisance. Some render the fish unfit for consumption and so destroy the fishing value of a stream or pond—as in the case of the yellow grub. But none of the fish parasites known to inhabit the waters of New York are directly injurious to man, or capable of causing any human infection.

Sportsmen frequently inquire whether the Conservation Department can do something about the parasites. Unfortunately not. Theoretically most of the flukes could be controlled by eliminating the snails, but while this is perfectly possible in a fish-hatchery pond it is not feasible in any natural body of water. Furthermore, snails are a very important item in the food supply of many fish; to destroy them might badly upset the biological balance of a pond. One remedy often suggested is to introduce new, uninfected stock. But it is quite certain that new stock would soon become parasitized to the same degree as the native fish.

There appears to be no relief in sight for the fish. The biteless fisherman who reads this article, however, may be able to derive a certain melancholy satisfaction from knowing what is biting his quarry.—Louis E. Wolf,
Senior Fish Pathologist

Life Cycle of the Black Grub of Bass

1. Adult trematodes lie attached to the muscoso of the intestines of the kingfisher, *Stretoceryle alcyon* (Linnaeus), 2-4, Eggs must reach water whore they develop and later hatch, liberating a ciliated miracidium; 5-9. The miracidium penetrates two species of fresh-water snails, *Helisoma trivalvis* (Soy) or *H. campanulatum* (Say); the miracidium metamorphoses into o mother sporocyst. This produces long, slender, daughter sporocysts, which in turn produce cercariae; 10-12, The cercoriae actively penetrate the common, green and banded sunfish, rock bass, small and large-mouthed bass, and encyst upon the fins and in the myotomes (flesh); 13, The kingfisher receives the parasite by eoting infected fish.



Forty-three Tons of Muskalonge

DO you want to catch a musky? Last year a lot of them were taken in New York State, and your chances of meeting with the tiger of fresh-water game fish are improving year by year.

Down in Chautauqua and Cattaraugus counties in the southwestern corner of the State (a region which seems to be muskalonge headquarters) special licenses are issued to fishermen who want to try their luck for this member of the pike family. At the end of the season these licenses are supposed to be mailed in to Albany bearing a report of the number of muskies caught, where they were caught, and the number of hours fished. By analyzing these data the Department can keep its finger on the pulse of this important sport fishery.

Back in 1941 a special management program was inaugurated to restore the muskalonge fishery of Chautauqua Lake and adjoining waters, which was being seriously depleted. The remarkable manner in which the musky has staged a comeback is indicated by the following table in which the angling statistics, provided through special license returns, have been summarized:

	1941	1942	1943	1944	1945	1946	1947	1948
Number licenses issued	5,057	5,004	4,384	7,269	8,309	10,974	13,156	14,721
Number muskalonge caught	817	1,512	1,938	3,488	3,265	5,104	5,538	9,213
Average length muskalonge caught (inches)	35.3	35.5	35.3	35.2	35.8	35.4	33.8	33.0
Average weight muskalonge caught (pounds)	12.0	11.8	11.8	11.8	12.7	12.2	10.2	9.3
Where caught (by percentage):								
Chautauqua Lake	89.2	90.4	87.9	90.0	90.2	89.6	85.8	92.7
Cassadaga Lakes	4.7	2.8	2.0	1.6	2.7	2.2	2.4	1.4
Findley Lake	1.8	2.6	3.4	4.0	2.8	3.1	3.7	0.7
Conewango Creek	3.1	1.7	2.9	2.8	2.1	3.1	4.9	3.1
All other waters	1.2	2.5	3.8	1.6	2.2	2.0	3.2	2.1
Average number of hours required to catch a legal muskalonge	168	108	76	68	84	98	97	61
Percentage of successful anglers	11.6	19.4	23.9	26.9	24.4	25.3	24.6	31.3

The decrease of approximately two inches in the average length of muskies caught in 1947 and 1948 as compared to preceding years is explained by the fact that the legal length of 32 inches originally established in 1941 was reduced to 30 inches in 1947. In both 1947 and 1948 one third of the muskies taken were in the size range (30 to 32 inches) opened up by the new law. Time will tell whether additional changes in existing regulations are advisable.

Fishing pressure, as measured by the number of special licenses issued, has nearly trebled in the past eight years, but the yield of muskalonge has increased far beyond this proportion. The estimated poundage taken by angling hit a high of 43 tons in 1948 as against a low of five tons in 1941. That's a lot of fish to come over the side of a boat.

The time it requires to catch a musky is now much less, and the chances of being a successful angler are much better now than when the management program first got underway. Still, if you have serious intentions of getting your musky don't forget that it's going to take a lot of time and patience unless you're unusually skilled or lucky. Considering only the reports from anglers who actually took fish in 1948, the average for hours-of-fishing-per-fish-caught was 33.

In spite of the encouraging results of the muskalonge management program there has been an increasing neglect by holders of the special licenses to return these licenses at the close of the fishing season. This constitutes not only a violation of the Conservation Law but also indicates a lack of interest in the very thing that is helping provide better sport. The co-operation of all you musky fishermen in sending in your special licenses with the information asked for—whether you catch a musky or not—in the end will pay off with more tight lines.

—DONALD G. PASKO,
Aquatic Biologist, Western District

FULTON FISH MARKET

They say it can provide you with a different kind of fish for every day in the year, and that goes for Leap Year too. Our saltwater resources are great

IF you like seafood (really like it, that is), if you have courage and sublime confidence in your digestive enzymes, then you might put to the test one of the claims made for the Fulton Fish Market—that it can supply you with a different kind of seafood for every day in the year. Most people have more humble aspirations; they eat an average of 13 pounds of fish and shellfish a year. At this rate the Fulton Market could take care of 15 million average consumers, because considerably more than 200 million pounds of seafood are brought into it every year. It follows that this market is one of the biggest things of its kind in the world.

The history of the Fulton Market goes back to the year 1807, when the Beekman Estate conveyed to the City of New York a plot of ground on the East River bounded by Beekman, Fulton, Front and South Streets. The deed specified that this property should remain with the City of New York as long as it was used exclusively as a public market place. It has been used exclusively for that purpose.

Buildings on the property have come and gone. The last transition of this type occurred rather abruptly on the night of August 11, 1936, when at one o'clock in the morning the entire building between Beekman Street and Peck Slip collapsed and slid quietly into the East River. There have been other structural failures, fires, condemnation proceedings, collapses and assorted catastrophes in the swarm of privately-owned buildings in the vicinity, but the market and the business that booms through it have proceeded without faltering.

It should perhaps be explained at this point that the two principal buildings in the market, shown at the left in the large picture on the following page, are owned by the City of New York. One of the buildings houses what is known as the Fulton Fish Mongers' Association; the other, the New York Wholesale Dealers' Association. Dealers in the market belong to one or the other of these outfits and pay rental for the stands they operate to their respective associations. The associations in turn pass on the proceeds to the City.

Supervision of conditions and procedure in the market area is rigorous. The City Health Department enforces strict sanitary laws and also exercises control over the manner of handling seafood. In addition, the Conservation Department has a Shellfish Protector especially assigned to the Fulton Market whose primary duty is to see that size limits on both fish and shellfish are enforced, and also that all shellfish are properly tagged. The Sanitation Unit of the Department's Bureau of Marine

Tuna

Mackerel

Shrimp

Fisheries likewise assigns one of its personnel to visit the market repeatedly.

At 6 a.m. on Monday and Friday, at 7 a.m. on Tuesday, Wednesday and Thursday, (it's closed weekends), The Fulton Market opens with a bang. The bang is from a gong. The market, into which tons of fish have poured during the early morning hours, is now open for business, and there ensues a scene of almost indescribable chaos. Salesmen, using a code so that their competitors in adjacent stands won't know what prices are being quoted, shout their orders to clerks recording the transactions. Journeymen pushing their handtrucks scuttle in and out between mountains of fish and screaming customers and dealers. Trucks rattle in and out of the market area; shipping on the river toots and blasts.

Yet concealed by this confusion is an organization for the procurement and marketing of fish which functions with extraordinary efficiency, albeit in a strange fashion of its own. The space within the two City-owned buildings is divided into a total of 34 stalls or stands, each one operated by the dealer who leases it. Working for the dealer are his salesmen and journeymen, the latter being the intrepid characters who undertake to convey by handtruck, from the dealer's stand to the buyer's waiting vehicle, all merchandise sold. And in addition to personnel employed at the market proper, all the major dealers have field representatives who keep them supplied with seafood and who also generally manage the shipping problems. These representatives are to be found at most of the important seafood ports from Canada to the Gulf of Mexico, and even on the West Coast.

In the old days most of the fish were received by rail and ship. The Clyde Line operating from Florida, the Old Dominion Line which serviced the Virginia ports, and the Fall River Line that arrived daily from New England, were the principal conveyors to the market. The City still maintains a dock on the East River immediately adjacent to the market, but now the bulk of the seafood comes in by trailer-truck, many of them of 20-ton capacity,

If you decide to test the claim of a different kind of fish for each day in the year, here are some of the things that you are likely to run into:

The major year-round species of fish are cod, haddock, flounder, fluke, por-

Looking south. At top left, a ship on the East River. Large buildings at left are City-owned and house the

gies, squid, whiting and yellowtail. Some of the more seasonable fish are tuna, weakfish, shad, Boston mackerel, Spanish mackerel and king mackerel. Clams are on hand throughout the year and oysters when they R in season. Other items received in quantity throughout the year are shrimp from the Southern States and Mexico, lobster mostly from Maine or Canada, and rainbow and brook trout from Denmark. (The latter must carry tags supplied by this Department, usually affixed in Denmark before the fish are shipped). Soft crabs are received from early spring to the end of summer from Maryland, Virginia and North Carolina, and crab meat during the same period from the Middle, South Atlantic and Gulf States. The principal fresh water species, to be found around Peck Slip in the north end of the market, are carp, lake trout, whitefish, yellow pike and sturgeon.

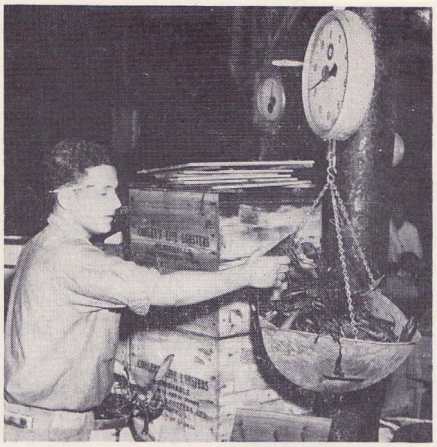
Perhaps you want to spend a lot of money. In that case the higher priced items are such species as pompano, swordfish, crab meat, soft crabs, scallops, lobsters and lobster meat. Rock lobster tails come in frozen from South Africa, Australia and New Zealand.

An interesting new business in the market has to do with surf clams. These clams are widely used for clam chowder and are taken mainly in the ocean off the south shore of Long Island. Before the war there was no such industry, but due largely to the increased consumption of seafood during the meat shortage a fleet of about 60 vessels was engaged in the surf clam business during the latter part of the war. The fleet has now stabilized at about 25 vessels.

In order to assist in the merchandising of seafood and to promote its consumption by the general public, almost all of the dealers in the Fulton Fish Market belong to what amounts to their own chamber of commerce, known as the Fishery Council, Inc. The Council operates strictly on a dues basis and has no outside income. It uses all the known mediums for its publicity, including leaflets, radio, television and newspapers, but probably the best known of its advertising forms is a seafood cook book, entitled "Fish'n'Tips," which the Council distributes free.

The big idea behind all this publicity is that people ought to eat more seafood. The Fulton Market will provide it.

—Alfred Tucker,
Superintendent of Marine Fisheries



Lobsters

Crabs and Clams

the dealers' stands. Old buildings at right are privately owned, but most are operated by wholesale or retail fish dealers.

gray birch

birches

white birch

OF ALL the trees native to New York State, the birches are outstanding for their graceful form and unusual bark texture. Summer or winter, they exhibit a sort of feminine delicacy which has long made them a favorite subject of poetic description, but it is well to remember that the birches are an economically useful as well as an ornamental group of trees.

There are five well-recognized kinds of birch in New York: paper birch, gray birch, yellow birch, black (or sweet) birch, and red (or river) birch. Paper birch and gray birch are both "white" birches to the uninitiated, but there is a world of difference between them. The first-named, (*Betula popyrifera*) is the true white birch, an aristocrat among trees, with a trunk which becomes clear of branches, and creamy-white bark which is easily peeled off in thin layers (but don't do it, please). The gray birch (*B. populifolia*) is a more plebeian-looking affair, with bark of a dull white broken by small black fissures and dark triangular markings; furthermore, the bark is wrapped tightly to the trunk and so doesn't peel easily, nor does the white rub off on the hands or clothing as it does with paper birch.

The gray birch usually grows in clumps and the side branches persist, giving it a scrubby appearance. It is a pioneer on the poorest and most abused types of land—especially light sandy soils depleted by agricultural use, and burned areas. Like most pioneer tree species it is short-lived, and trees more than 40 feet high or over 12 inches in trunk diameter are exceptional. The paper birch is also a pioneer after fires, but grows into a real timber tree. It is particularly abundant in the Adirondack region, and its white, even-textured wood is in strong demand for dowels and other products of the turning-mill.

White and gray birch are easily told apart in the growing season by the very differently shaped leaves. (See illustration).

Less glamorous than the white birch, but even more useful, is the yellow birch. One of the giants of the original northern forest, it still grows to a huge size in some of the old-growth stands of the Adirondacks. Yellow birch is found on the "medium" soils —not too dry, and not too wet—and the seedlings like to have plenty of "humus" to grow in, often coming up in great numbers on old rotten logs or stumps. More than any other hardwood tree, perhaps, yellow birch is associated with spruce, and stays with it up the mountainside long after the maple and beech have dropped out. The name of "yellow" birch is derived from the appearance of the bark on medium-sized trees, say from three or four inches up to a foot in trunk diameter. This is a sort of metallic lustre, somewhere between silver and brass (the tree is sometimes called "silver" birch) and with the proper light effects can be very striking. It is a curious fact that when the species gets out of its "optimum" range in the cold northern uplands the bark loses its lustre and becomes a dull, uninteresting grayish-brown.

When you hear about "birch" in the lumber trade, it's yellow birch they're talking about. The wood is heavy, strong, and hard, with a handsome grain, and makes some of the world's best veneer—whether used for airplanes, drawing-room panels, or the best bedroom suite.

Two other birches, of little economic importance, occur principally in the southern half of the State. The more common of the two is the sweet birch, also called "black" birch by the lumberman, and "cherry" birch from the resemblance of its bark to the black cherry. Except for the pleasant wintergreen taste of the bark on the new twigs, this species doesn't contribute a great deal to the march of civilization, and usually ends its days on the cordwood pile.

The other birch of southern New York is known variously as river birch and red birch. Both names are applicable, as the tree grows along watercourses and the bark, especially on the branches and young stems, has a distinctly reddish cast. The trunks of young trees have a peculiar pinkish tinge caused by the thin outer bark becoming loose, to expose the inner bark tissues.

Seeds, buds and twigs of the birches provide winter food for grouse, deer and rabbits.

IT seems impossible to describe any tree today without getting onto the subject of bugs and birch is no exception. Suburban home owners who have gray birch on the lawn are already familiar with the work of the leaf-miner, which turns the leaves brown early in the summer. More serious by far is the bronze birch borer and an associated disease condition which for some years have been decimating the birch forests of New England and more recently have been making trouble in the Adirondacks. The damage is greatly increased by logging or any other disturbance of the natural forest conditions. —Ed Littlefield

The Adirondack

OPEN CAMP

THE Adirondack open camp or lean-to, transplanted to many lands and climes, is indigenous to the region from which it takes its name. Like many another "York State" invention or contrivance its mother was necessity. The open camp sprang from the need of Adirondack guides to have a reasonably snug shelter "back of beyond" and one that could be made of materials present on the ground with only the guide's ever-present companion, his axe, for tools. The need for the shelter arose primarily not from the guide's lack of hardiness, but the lack of that quality in many of the city "sports" who engaged his services. (The old time Adirondack guide was a rugged character who would think nothing of crawling under a good thick balsam for the night).

The early lean-tos were somewhat different from those that dot our trails and waterways today. Logs were used only up to the elevation of the back of the camp and the remainder of the structure was fashioned of bark on a pole framework. Bark, usually spruce, was also used for the roof, the natural curl of the bark permitting the laying of the strips somewhat in the manner of some types of roofing tile. The proportions of the early lean-tos were also different from the modern ones. Although not as pleasing to the eye they were undoubtedly much easier to heat since they were lower and had proportionately greater depth for width than the modern one. The old timers' chinking material—sphagnum moss—is still in use today.

Spruce is the preferred wood for open camp construction because it is easy to work and is of comparatively slow taper so that the logs it produces lay close and keep the amount of chinking needed to a minimum. Of course, lean-tos have been built from nearly every kind of wood that grows, from stone, and from sawed lumber, (and I once heard a rumor that some devotee of durability had built one of reinforced concrete!).

Many famous men have slept in lean-tos and loved it. Perhaps the most famous of all was Theodore Roosevelt, who left a lean-to near the summit of Mt. Marcy to become President of the United States. (The vigorous advocate of the soft word and the big stick was in the Marcy region when McKinley was assassinated). And who has not heard of the lean-to known as Philosophers' Camp made famous by Ralph Waldo Emerson and his companions?

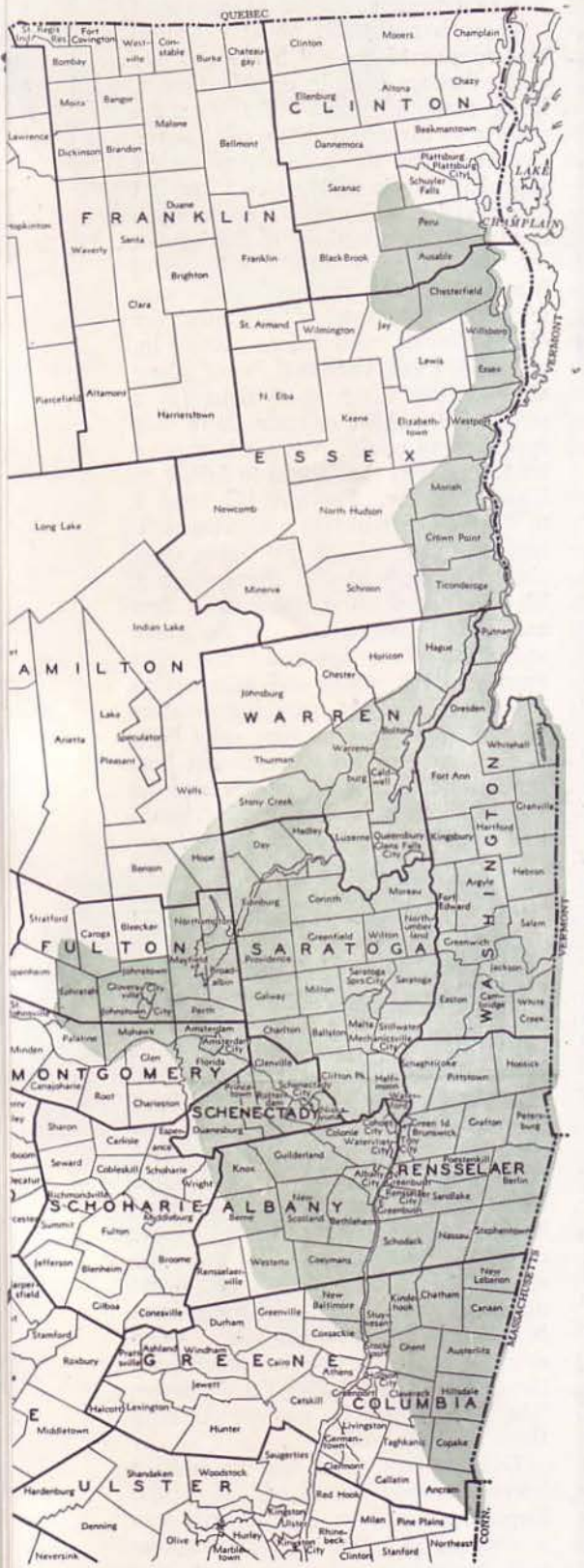
There is something about a lean-to that appeals to the red blood in every man. Perhaps it's the combination of being practically under the stars appealing to his adventurous side on the one hand, and the certainty of shelter appealing to his cautious and comfort loving side on the other. Then again it may be recollections of having sat on the "deacon seat" with good friends after the pots and pans were scrubbed and watched an open fire die to glowing coals before turning in, and the good talk that went along with it. But much as a night (or a series of them) in an open camp may appeal to an adult "boy", it is in service to real boys that a lean-to fulfills its highest destiny. For any lad from 6 to 16 his first night in a lean-to spells high adventure of the first order, especially if it be in storied country where his adult companion has hunted deer and perhaps seen a bear. Wide awake and bug-eyed he listens to the night sounds of the woods and imagination makes the smallest scurrying creature into nothing less than that same bear. Come the dawn he is a different boy. He has slept close to Nature and he is filled with a feeling of self-reliance that wasn't there the day before.

AT present there are close to 175 open camps on State land in the Adirondacks and Catskills serving hikers, hunters, fishermen and other categories of woods visitors To the initiated there are certain unwritten rules of lean-to use that are never violated. First is the rule of hospitality—don't hog the shelter but make room for new comers up to its capacity. Always leave some dry wood inside when you go. Never cut firewood or boughs for a bed in sight of the camp. Burn all of the refuse that you can and dispose of the remainder so that it will create no nuisance. And above all be careful not to pollute the water supply. Boiled down these rules can be covered by the best rule of conduct yet devised—"do unto others as you would have them do unto you".

Did you say you'd like to build a lean-to on your own land? If so the Department will be glad to send you a copy of its standard plan together with some mimeographed sheets giving suggestions for selection of site and other relevant matters.

—W. D. MULHOLLAND,
Sup't., Bureau of Camps and Trails

ATTACK by AIR



Gypsy Moth Control Area

ON June 20th of this year, the Conservation Department wound up its 1949 assault on the gypsy moth, with the completion of spray treatment on 134,000 acres of infested woodlands in eastern New York. From Clinton County south to Columbia and west to Fulton, Hamilton and Montgomery, 13 counties were covered in varying degrees, depending on the amount of infestation present. Over 90 per cent of this spraying was done from the air with a fleet consisting of four bi-planes and one converted Army C-47. Seldom has there been any better example of co-operation between different branches of government than was evidenced in this campaign, in which our Bureaus of Forest Pest Control, Forest Fire Control, and the Federal Bureau of Entomology and Plant Quarantine, all participated. Such co-operation made possible a control program of unusual effectiveness.

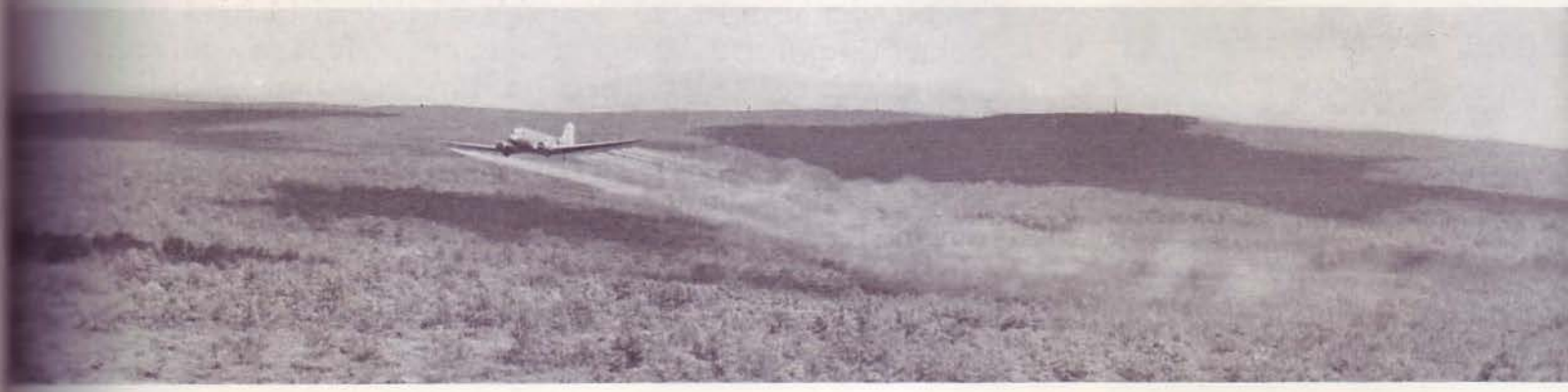
This year's drive against one of the most deadly enemies of the forest climaxed the campaign begun in 1946, when airplanes were used for the first time in gypsy moth spraying operations. In these four years, nearly 300,000 acres of infested area have been treated, with the result that a territory of about 2,000 square miles has now been "liberated" from occupation by this insect.

In case you don't know about the gypsy moth, it's a bug which was brought into the United States back in 1869 near Boston, with the idea that the caterpillars might be used for the production of silk in the same way as their Japanese counterpart. The silk business never materialized, but some of the bugs escaped from the laboratory and within a few decades built up into a massive epidemic in eastern New England, where the moth still causes widespread damage nearly every year.

The infestation gradually moved westward until, in 1923, New York State became concerned, and set up a barrier zone between the Hudson River and the state line. By diligent surveys and unremitting control measures with the means then available, consisting of spraying lead arsenate from mobile pressure tanks, the westward advance of the gypsy moth was held in check until about 1939, when a "break-through" occurred. Fortunately, the development of airplane spraying and the use of DDT during the past decade has given the defense more resources to work with, and we are at least holding our own, although a map of the infested area between Canada and Long Island still looks like the Battle of the Bulge.

The 1949 campaign was carried out along military lines. The job was divided into four general areas of operation, having for their centers the airports at Albany, Schenectady, Glens Falls and Plattsburg. From these headquarters the aircraft fanned out to the boundary of the known infested area, laying down a DDT barrage on the "hot spots" which had been located previously by scouting.

AIRCRAFT spraying has been greatly developed during the past two years, mainly through the use of short wave radios and the smoke pistol device for guiding aircraft in the course of spraying operations. Radio communication is maintained between the airport headquarters, the plane and the ground crew, the latter being equipped with "walkie-talkie". These ground crews operate in the area upon which the plane is spraying, and make frequent checks of glass plates on which the spraying particles are deposited. If the spraying is not coming down properly due to wind shift, or other factors, these crews



GYPSY MOTH

report back to the airport which, in turn, gives the necessary instructions to the plane.

Since all these radios are on short wave there are many times when the field crews are blocked off from the air by intervening hills. Here is where the Forest Fire Observer, in his tower high above the surrounding countryside, is of tremendous help. He has a powerful two-way radio by which he can relay the messages between the airport and the ground crews, and besides this, he can often spot the presence of fog in the valley, so that the planes can be held at the airport until conditions clear up. It is a great tribute to these men and to the fire-fighting organization that these extra-curricular duties are performed uncomplainingly, in addition to the exacting work of spotting fires.

This aircraft spraying incidentally is early morning stuff, since it has to be done while the air is comparatively still. Radio reports in regard to fog, light and wind conditions start going to the airport headquarters around 4:30 A.M. At 5:00 A.M., or a few minutes later, the planes are off on their first mission. This flight is followed by others so long as the air remains fairly quiet and suitable for "tree-top" flying—conditions which sometimes continue for only one or two hours, at other times 'til noon.

A good illustration of how the Fire Observer can help out on communications developed early in May. An airplane was spraying in the southern part of Albany County, some 12 miles from the airport. The ground crew was behind a range of hills which prevented direct radio communication, and there are no fire towers in this area. The problem was solved when the Observer on the tower at Spruce Mountain near the Village of Corinth, 60 miles away, relayed the messages "around the corner"—120 miles—for units which were only 12 miles apart on the ground.

Now about the smoke shell. This is used on the long strips flown by the C-47, to make it possible for the pilot to retrace his course on succeeding strips without veering off one way or the other. This is especially needful on large, flat areas where there are few natural landmarks. The smoke flare is a well known device in the U.S. armed services and at the suggestion of the Bureau of Forest Pest Control, one manufacturer of such equipment developed a smoke shell which was particularly adapted to aircraft spraying. It is a modification of a rocket shell used by the U.S. Army and is discharged from a 37 MM pistol through the forest canopy, leaving a bright orange smoke trail to a maximum altitude of about 250 feet. This has turned out to be a highly successful method of marking the exact course for the C-47, and tests have failed to indicate any fire hazard when used in a normally moist hardwood forest. The Pest Control boys are keeping out of spruce and pine forests with this gadget until further tests have been made, and of course, would not use it anywhere in a drought such as we had early this summer.

For the benefit of nature lovers, we want to point out that DDT as used in gypsy moth control operations, at the rate of one-half pound of DDT mixed in a gallon of spray per acre, is not injurious to wildlife, whether fu ed, feathered or scaled. Any reports of wholesale slaughter of birds or fish by gypsy moth spraying operations are strictly hokum.

—Bureau of Forest Pest Control

Those who have tasted "sea squab" (blowfish) fried to a golden brown usually agree it is about tops in seafood. But what is not generally known is the fact that these fish are about the easiest of all to dress for the frying pan. Watch a commercial fisherman go through a bushel in eight minutes. Then try it yourself. Practice with a half-dozen fish is all you need to do one fish in 15 seconds.

the Sea Squab

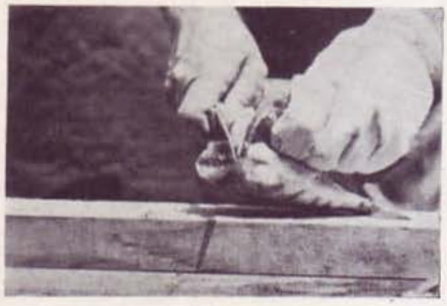
Next time you're fishing, think twice before throwing away blowfish and shouting for all hands to weigh anchor. You can use these "sea squabs."

—James R Westman, Sr. Aquatic Biologist (Marine)
—Cornelius B. Kelly, Sr. Sanitary Chemist

1. Place blowfish on hard, smooth surface

2. Using glove, grasp fish by head and squeeze slightly on each side

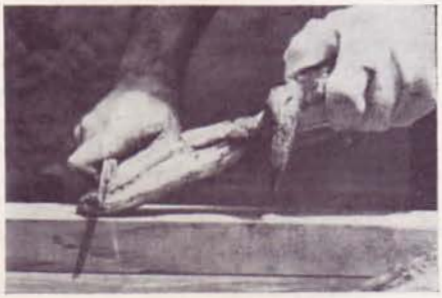
3. Cut down through backbone, just behind head



4. Without changing grip, turn fish on back

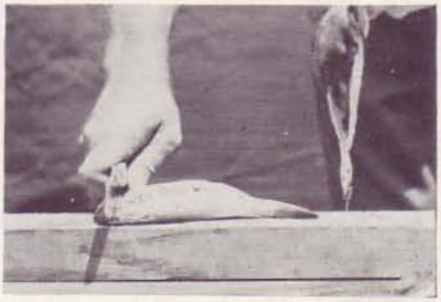
5. Pin down by pressing butt of blade on backbone

6. Start pulling with left hand

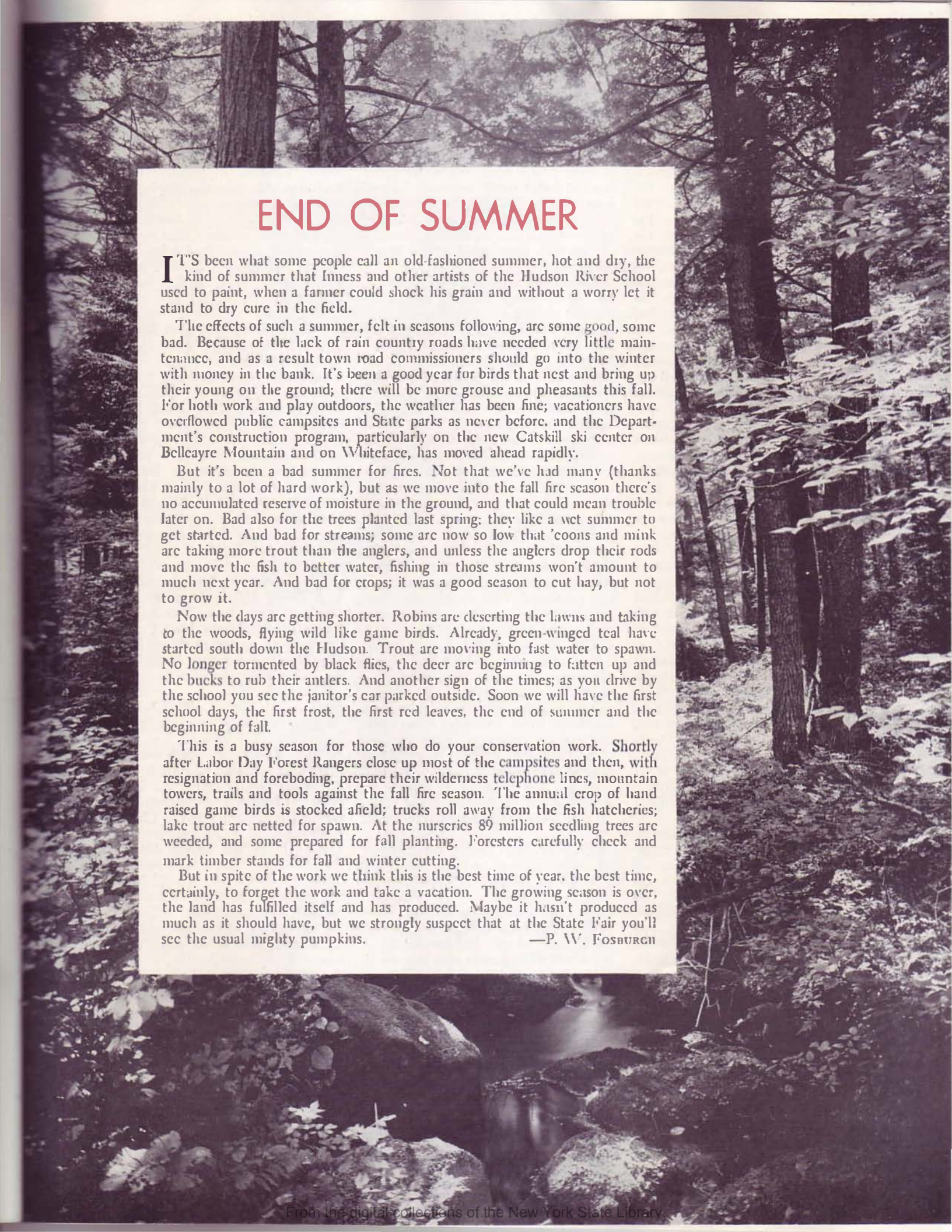


7. Keep pulling until—

8. Skin and entrails have pulled off like a glove



9. Fish is now ready for rinsing and dipping in flour or meal before frying



END OF SUMMER

IT'S been what some people call an old-fashioned summer, hot and dry, the kind of summer that Inness and other artists of the Hudson River School used to paint, when a farmer could shock his grain and without a worry let it stand to dry cure in the field.

The effects of such a summer, felt in seasons following, are some good, some bad. Because of the lack of rain country roads have needed very little maintenance, and as a result town road commissioners should go into the winter with money in the bank. It's been a good year for birds that nest and bring up their young on the ground; there will be more grouse and pheasants this fall. For both work and play outdoors, the weather has been fine; vacationers have overflowed public campsites and State parks as never before, and the Department's construction program, particularly on the new Catskill ski center on Belleayre Mountain and on Whiteface, has moved ahead rapidly.

But it's been a bad summer for fires. Not that we've had many (thanks mainly to a lot of hard work), but as we move into the fall fire season there's no accumulated reserve of moisture in the ground, and that could mean trouble later on. Bad also for the trees planted last spring; they like a wet summer to get started. And bad for streams; some are now so low that 'coons and mink are taking more trout than the anglers, and unless the anglers drop their rods and move the fish to better water, fishing in those streams won't amount to much next year. And bad for crops; it was a good season to cut hay, but not to grow it.

Now the days are getting shorter. Robins are deserting the lawns and taking to the woods, flying wild like game birds. Already, green-winged teal have started south down the Hudson. Trout are moving into fast water to spawn. No longer tormented by black flies, the deer are beginning to fatten up and the bucks to rub their antlers. And another sign of the times; as you drive by the school you see the janitor's car parked outside. Soon we will have the first school days, the first frost, the first red leaves, the end of summer and the beginning of fall.

This is a busy season for those who do your conservation work. Shortly after Labor Day Forest Rangers close up most of the campsites and then, with resignation and foreboding, prepare their wilderness telephone lines, mountain towers, trails and tools against the fall fire season. The annual crop of hand raised game birds is stocked afield; trucks roll away from the fish hatcheries; lake trout are netted for spawn. At the nurseries 89 million seedling trees are weeded, and some prepared for fall planting. Foresters carefully check and mark timber stands for fall and winter cutting.

But in spite of the work we think this is the best time of year, the best time, certainly, to forget the work and take a vacation. The growing season is over, the land has fulfilled itself and has produced. Maybe it hasn't produced as much as it should have, but we strongly suspect that at the State Fair you'll see the usual mighty pumpkins.

—P. W. Fosburgh

ChenangoCounty

CHENANGO COUNTY was settled, quite definitely, to the tinkle of a cow bell. County historians disagree as to whether the pioneers began their trek into the region because of the lack of hostilities between Red Man and White, or whether they waited until the bloody Indian wars which raged through the Mohawk and Susquehanna valleys had subsided. But in any case, when the pioneers *did* move in they brought along their cows. And down through the years the sound of the cow bell has been a dominant refrain in pastoral Chenango.

Once settled, Chenango progressed as tenaciously as the big bull thistle (called "Ochenango" by the Indians) after which it was named. (Others claim it was named after the river which flows through it; perhaps this disagreement among the recorders accounts for the relatively small number of roadside historical markers.) But it is agreed that the climate was found to be salubrious, the soil fertile, the water pure. Pastoral life dominated for nearly a century; in fact, it still does today in spite of 50 years of gradually increasing industrial activity. What with 56,916 cattle accounted for in 1835 and butter and cheese manufacturing begun as early as 1844, the county always has had a rural flavor. Gail Borden was a native son, and his influence is still felt. Dairying was and still is the main industry, but the county now has factories which produce fish lines, fireplaces and flexscreens, tile, baskets and light metal specialties.

We don't want to give the impression, however, that Chenango—established March 15, 1789 from parts of Herkimer and Tioga counties—is entirely farms and factories. Of its 908 square miles, the State owns 12 per cent or about 109 square miles, and 35 per cent of the county is in forests. It's in Forestry District 2, which includes some of the earliest plantations in the State; in fact the second area bought by this Department for reforestation, in 1929, was in the Town of McDonough.

Since the start of the postwar program in the county up to this June 15th, 76 miles of fire lines have been built, 5.7 miles reconstructed, 179 miles maintained; 3 new water holes made, 38 rehabilitated; 19.7 miles of truck trails maintained, 19.2 miles mowed; 839.3 acres reforested; 6,890 acres of forest stand improved, 1,724.6 acres thinned, 1,235 acres pruned; 900 fence posts were harvested and 17 miles of fence built and repaired; 50 bushels of tree seed were added to the State's collection.

Chenango has more co-operators under the Forest Practice Act than Broome or Madison, neighboring counties also in District 2. Chenango has been a Soil Conservation District since May 14, 1946, participating in all three phases of the program: soil conservation, forestry practices and wildlife restoration projects. Even before the district was established, there was a study project extending from Norwich to Greene. Some of the first land use studies for land classification purposes made by Cornell took place in the Towns of Smyrna and Pharsalia. About 45 per cent of the county is Class I and Class II land (best adapted to reforestation or for reereational use).

The State's first game farm, Rogers State, was set up at Sherburne and has continued with outstanding success ever since, representing not only the second state game farm in the United States but the longest established; (the first (1908), the Illinois game fann, has since been dissolved). Sherburne marked the beginning of scientific game bird propagation by the State. From the outset it has operated on the natural or range method as contrasted to artificial propagation. Another development begun at this farm was the breeding of black and mallard ducks to develop brood stock for distribution throughout the State.

THE Pharsalia Game Management Area covers 4,136 acres, of of which 20 per cent or 840 acres is in refuge. Originally set up with five refuges of about 100 acres each, since 1947 it has been combined into one big central refuge. But two-thirds of the whole management area is open to public hunting. The Southern Game Management District co-operates with the Norwich Y. M. C. A. in operating a conservation day camp at Pharsalia as a continuing project. This area, which contributed much to the grouse survey, will be scene of the Grand National Field Trials (October 28-31).

Pharsalia's heavy reforestation is ideal for varying hares, the supply of which is on the upswing there as elsewhere in the county. There are now beaver colonies in practically every township, the animals having made a steady comeback since 1935 when they even rode out the flood. There's been an ideal nesting season for pheasants and the Chenango County Federation of Sportsmen's Clubs expects its bird rearing project, now in its fourth year, to produce substantial results this coming season.

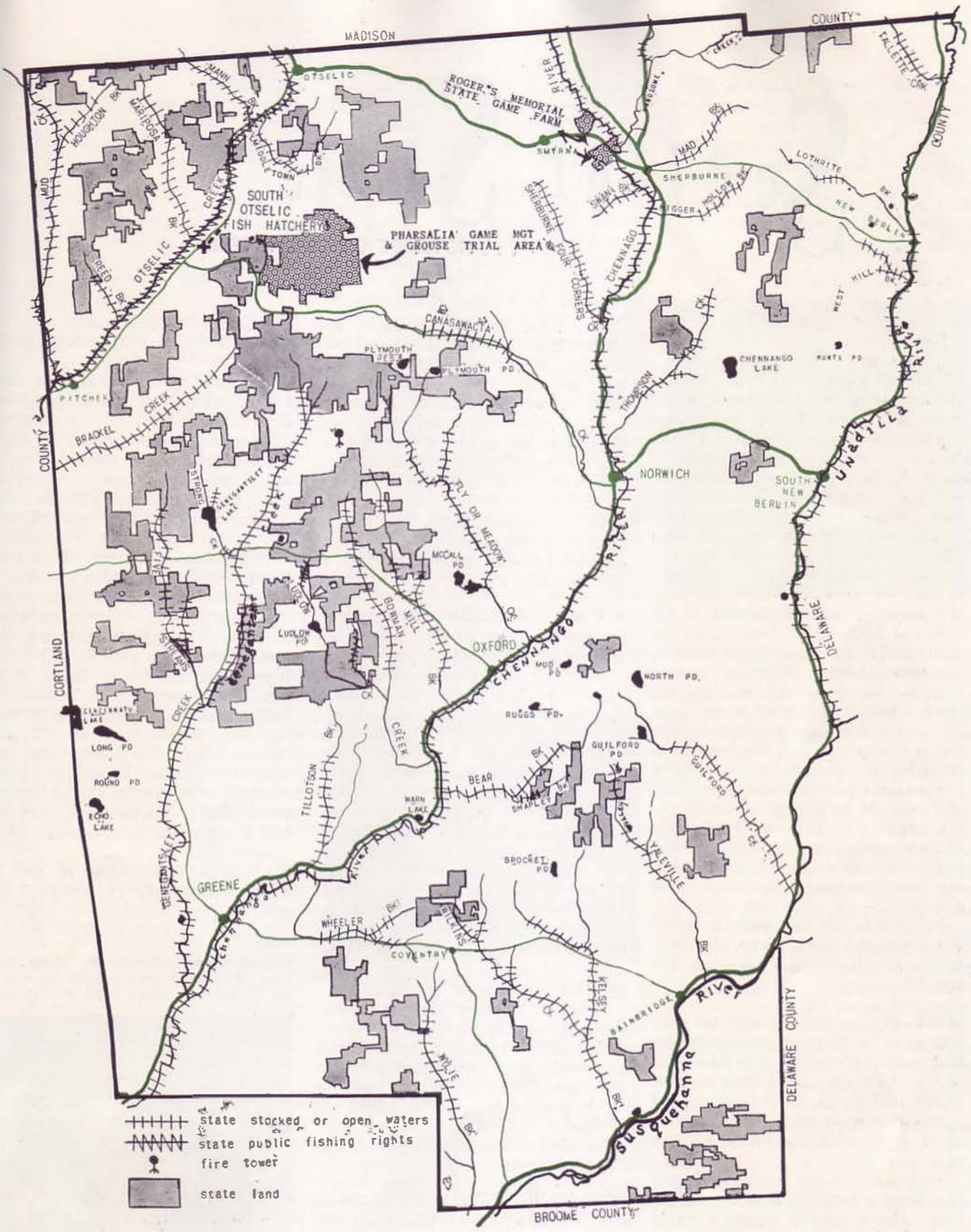
Another State facility in Chenango is the South Otselic Fish Hatchery, which each year produces 100,000 smallmouth bass fingerlings for Statewide distribution. In addition, the hatchery winters 65,000 brook trout in its pools for stocking at legal size.

The South Otselic hatchery was built in 1933. It has 48 daphnia ponds in which food is grown for the young bass, and 18 rearing ponds where the bass are kept until their cannibalistic habits make it necessary to ship the fish out for stocking. Water comes from a dam in the Otselic River.

OF the State's 600 miles of public fishing rights, 24 miles are on Otselic Creek, best known for its brown trout although brooks, pickerel and bass are sometimes taken from it. The Otselic open area is fairly solid from Otselic to Cincinnatus.

Thousands of browns, rainbows and brooks are stocked in Chenango's streams by the County Sportsmen's Federation. Smallmouths are planted in the Chenango, largemouths in Brackett Lake and pike-perch in the Chenango, Susquehanna and Unadilla rivers. Thousands of bullheads (salvage fish) were put in the Chenango River and Hoboken, Upper Hunts, Lower Hunts and Beaver ponds last year. About a dozen lakes and ponds in the county are private or club-owned but on only a few is permission needed to fish.

For browns (and some rainbows) try Canasawacta Creek and the Chenango River from North Norwich to the Madison County line. The Chenango below Sherburne to its mouth is good for pike-perch, pickerel, bass, perch, sunfish, bullheads, browns and rainbows—with the latter two species more frequently found above Sherburne. Genegantslet Creek has brown, brook and rainbow trout, as well as pickerel. The Susquehanna River has pike-perch, black and rock bass, perch, pickerel, bullheads and carp. The Unadilla gives up pike-perch, bass,



pickerel, perch, sunfish and bullheads. Pickerel, perch, bullheads and sunfish are found in Bracketts, Chenango, Cincinnatus and Guilford lakes.

Those who like to find their way around by books and maps will discover that Chenango County is in the Delaware and Susquehanna watersheds of the Biological Surveys published by this Department. With regard to the topographic maps published by The U. S. Geological Survey, a small part of the west of the county is in the Pitcher and Greene quadrangles; the heart of the county is in the Norwich and Oxford quadrangles; a small eastern section is in the New Berlin and Unadilla sheets; and bits of the south in the Nineveh and Deposit quads.

But if you're a visitor rather than an explorer, you won't have to worry about maps. You will find good main highways and plenty of hard-surfaced connecting roads winding over wonderful country. And friendly people to tell you the way.

—Roland B. Miller

Scatter Shots

... NOTES OF GENERAL INTEREST

BUZZARDS ARE PROTECTED—In the letters column of our last issue, we made the statement that the buzzard (American Vulture) is not protected in New York. We based this statement on the assumption that as far as Conservation Law is concerned buzzards would be grouped in the hawk family, and the law (section 203) protects only those hawks specifically mentioned. The buzzard is not on the list.

Many of our subscribers quite properly protested this interpretation of the law. But Mr. W. J. Schoonmaker, formerly Assistant State Zoologist and now Museum Exhibits Planner for the University of the State of New York, was the one who really put us in our place. "The only relationship that exists between the vultures and the hawks," he wrote us. "is that they have been placed in the same Order (Falconiformes. Birds of Prey). As to Suborder, Family and Species, they are different. One of the characteristics of hawks is the hooked beak. Vultures do have hooked beaks, but then so do parrots. A vulture is not a hawk."

We bow to Mr. Schoonmaker and to the others who picked us up. The buzzard *is not* a hawk. It is protected. We are sorry.

SCAT—Pigeons and starlings are poor tenants in or on public buildings—for all too obvious reasons. The May issue of the University of the State of New York's Bulletin to the Schools tells of a new electronic device which serves these birds with a forceful eviction notice.

Such a device has been installed on the State Education Building in Albany. Heavy parallel copper wires in sets of three, spaced a few inches apart, are strung along the projecting ledges and around the ornate capitals on the front and ends of the building. One of the three wires is charged, the flanking wires being grounded. The electric impulse in the charged wire creates an area or field of static type electricity which extends to a radius of about two inches.

The basic difference between this electronic method and the stuffed owls and cats, looped or spiked wires, wax, balloons and other makeshift repellents, according to the article, is that the bird encounters a condition that is physically disagreeable each time it enters the treated area; it learns that the wire it sees is not an empty threat, and moves on.

Our own observations, however, indicate that the pigeons haven't moved on very far—just across the street to the State Capitol.

WE SAY IT AGAIN—After you read this you can understand why our game men sometimes get pretty peeved.

It's the story of a mother wood duck and her brood of seven. She was walking her family from their birthplace, a tree on a hill in back of Menands, on their maiden trip to the Hudson River. En route the family had to cross Broadway. Although there was a momentary traffic tie-up all would have been well had the brood been left alone. But no; a 'teen-age youngster had to step into the picture and gather up the ducklings. He turned them over to his teacher, who eventually got in touch with the District Game Manager, but by that time the damage had been done. Wood ducks just won't eat any old thing, and three died almost immediately.

Taken to the game farm at Delmar, the four remaining ducklings were put with a mother pintail in the hope that she would raise them along with her own brood. But the ducklings had gone too long without their natural food and all finally died.

Moral: Leave Baby Wildlife Alone! We say it again.

THE WIDE WORLD OVER—Build a better mousetrap—or Adirondack trail—and the world will beat a path to your door. At least Trail Ranger David W. Edmund's camp, three miles up the trail to Marcy, registered a man from Turkey, Friday morning, July 22, and then a women from Oslo, Norway, that afternoon. That's not too unusual though, for hikers from all over the world use the famous Adirondack and Catskill trails maintained by this Department.

NIAGARA RIVER—Clean up the city and dump the garbage in the gorge!

Niagara Falls is now slipping about ten tons of garbage into the gorge each day. The splash will soon rival the Whirlpool as a scenic attraction. Warm weather will revive memories of the old Tonawanda piggery. Word has gone out to rats and flies that their next world congress will take place on the eastern bank of the Niagara River from the foot of Ontario Street down. Just follow the city garbage trucks.

Lewiston pays about $4 a ton to burn its garbage. It is overwhelmed by ours. Youngstown fishermen complain that fish are overfed and getting bigger than the fishing boats. People owning cottages on the lake front can look forward to a garbage puree washing their banks away. It will be a beautiful sight. Let us hope that some national magazine doesn't get pictures of this. Why operate the sewage disposal plant? Maybe the county will take it over.—R. H. Sherwooo, M.D., *Niagara Falls*

(A letter to the editor of The Niagara Falls Gazette, reprinted here with his permission).

Anglo-American solidarity at Delmar Game Farm: An English sparrow builds its nest on top of American eagle's cage; no "incidents"

ACCIDENTS—Fewer hunting accidents—that's the objective of an intensive safety campaign which has been launched by the Conservation Department this year.

In a five-pronged offensive, the Department is seeking to further reduce the hunting accident toll which last year was the second lowest of the past 12 years. There was a total of 113 hunting accidents in 1948—20 fatal and 93 non-fatal.

Every licensed hunter in the State is having a message on the importance of gun safety brought sharply to his attention. This is being done by special covers on the 1949 Fish and Small Game Syllabus, and the 1949 Big Game Syllabus. Ten rules which everyone should observe in the handling of guns are listed on the cover, and if hunters observe these rules, they will save lives. If they disregard them, lives will be lost, possibly their own.

The Division of Conservation Education also has prepared a pamphlet on safe gun handling and conduct afield for the instruction of persons 17 years of age and under who are now required by law to get their first hunting license from a regular Game Protector. The Protectors are making sure that these young people have an understanding of the right way to handle firearms before issuing them a license. A new movie on safe gun handling is in preparation. Special packets containing safety leaflets are being distributed to school teachers, and safety posters will be displayed widely.

This is the most ambitious effort ever made by the Department to reduce hunting accidents. It should—it must be—the most successful.

A TREE GROWS IN THE BRONX—We all know about the tree that grew in Brooklyn, the same being none other than *Ailanthus glandulosa*, better known as "Tree of Heaven." It now appears that the Bronx is equally favored by this species as witness a communication recently received by the Department:

"I live in the Bronx, I have a small front yard which is about 8 by 6, wire enclosed and has waste pipes underneath. Last fall thinking it was the best time, I cut a Sumac tree down, it was very high, now I have a big butt, about one foot high and it is sprouting growths already. . . . I wish you would tell me the quickest and best way to dispense with this lousy tree before it cuts my waste pipe and causes me loads of expense."

For the benefit of others who may be up against similar trouble with trees such as the *Ailanthus*, which have an aggressive sprouting habit, the Department's reply is printed herewith:

"If your main objective is merely to prevent the stump from further sprouting I would suggest spraying the stump, and any new sprouts which develop, with a solution of any of the commercial weed killers containing '2-4D'. There are a number of these on the market."

WVW FOUND—Mr. V. A. Hicks, one of our subscribers and currently secretary of the Sayre (Pa.) Sportsmen's Club, has come through with the identity of the mysterious fish-tagger—WVW—mentioned in our June-July issue.

Hicks writes that on July 8 a black bass was taken from local waters bearing a tag WVW 603; he ran a report of this in his column, "Sportsmen's Sphere" in the Evening Times (Sayre, Athens, South Waverly, Pa. and Waverly, N. Y.) and next day had the answer: William Van Wort of Madison Avenue, Elmira, has been doing some tagging both in New York and Pennsylvania.

Thanks Mr. Hicks. We'll take over from there.

Orphan at Delmar (1); gray squirrel

LATEST ON MINNIE—Here's the latest on Minnie Methuselah, Queen of Them All in Chautauqua Lake.

John C. Cheney, of Bemus Point, says that he "recently had a glimpse of Minnie, still Queen of Chautauqua Lake Muskalonge, still in perfect form this season. I think she has grown about six inches in length since late in August, 1947, when I had close communion with her; not quite so brown or tanned on the back this season, probably due to having remained submerged so much of the time to dodge the speedboats. She seems very sensitive to the pulsations of the motors, so if you wish to enjoy the pleasure of close contact with her you must row the boat. From personal observation she resembles her ancestor pictured in the State Biological Survey. (See back cover). She is a whale. . . ."

SOME FROG!—Up Indian Lake way, frogs reverse the usual order. Johnny Chapman, son of Paul E. Chapman, caught an enormous frog (the legs weighed five and one-half ounces) and upon opening the amphibian was amazed to find it had eaten a snake just over 20 inches in length. The snake was whole and could be measured accurately.

Orphan at Delmar (2); cottontail

CARETAKER—On July 3, 1949, William James Sullivan of 160 Hamilton St., Albany, was lighting an improvised gas stove. While attempting to make the stove light he tossed a match on the gasoline in a can, which blew up, covering the upper part of his body with the burning gasoline.

He thereupon started to run, fanning the flames as he did so. I saw him and tackled him, knocking him to the ground, where I rolled him around until the fire ceased. Wrapping him in a blanket I then took him to the Saranac Lake General Hospital, where a room was obtained and he was cared for. He is in a serious but not necessarily critical condition. —GEORGE CHABBOTT,
Meadowbrook Campsite Caretaker

LAKEWOOD CLUB—The Lakewood Rod and Gun Club sent THE CONSERVATIONIST a request for 500 subscription blanks.

"We are awarding an equal number of points to members competing in a membership drive for the sale of a year's membership or a year's subscription to the magazine," said Mr. Wayne Anderson, one of the directors.

"The idea of combining subscription sales with the membership drive did not originate with me. Dick Hyde, District Game Manager, suggested such an arrangement to me and the members of the committee and the club reacted with such enthusiasm that we decided to give equal credit for sale of the magazine as for a membership."

Our profound thanks.

PHEASANTS—Recent Pittman-Robertson game research projects, conducted by our Bureau of Fish and Wildlife Investigations, have turned up some interesting information about pheasants. Crowing cock census data for the spring of 1949 indicate an increase in pheasant abundance of between 10 to 15 per cent on both the Seneca County and the Ontario-Yates counties study area used in the fox control experiment. This is in keeping with an increase generally throughout our pheasant range.

In an effort to learn more about the results to be expected from the release of adult pheasants in the spring, 200 birds (one male to three females) were liberated in early April on each of two study areas, one in Albany County and one in Monroe County. These birds were all banded and also had their tails bobbed and their wings dyed green. A pre-liberation census indicated a density among the wild population of approximately 11 per 100 acres on the Monroe County area, but less than one per 100 acres in Albany County. Correlated with this, field observations indicated that the released cocks were having difficulty setting up territories on the more heavily populated area, but not on the other. On both areas many game farm females soon joined native harems.

NON-RESIDENT—The Department's field men run across some odd things in their work. To wit:

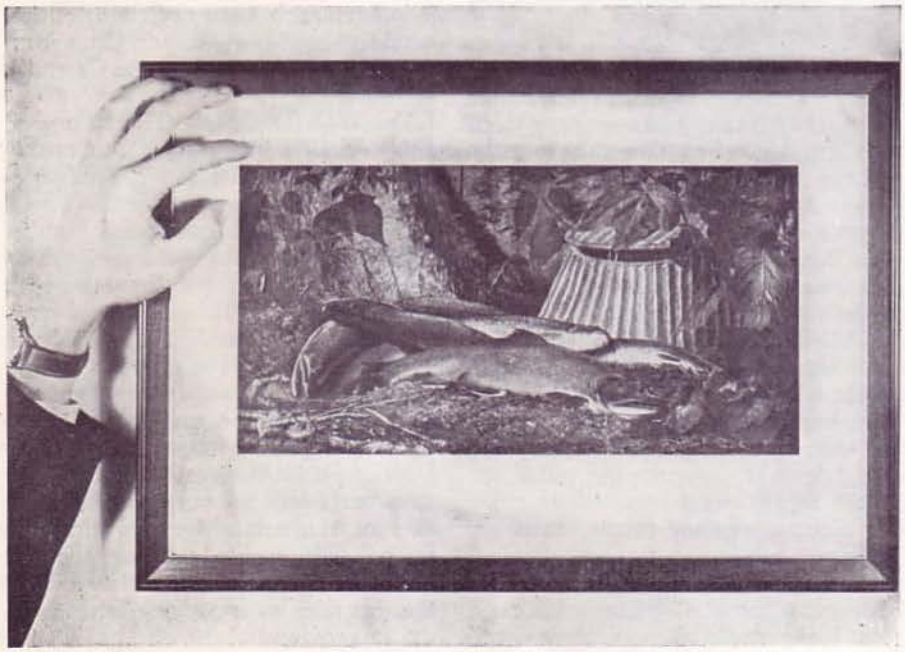
Game Protector George W. Gibbs and State Trapper William Mosensteen were examining a spring hole along Panther Lake when a dark object darted across the shallow hole. Captured, it turned out to be a 19-inch alligator.

"Ali" is now a resident at the Delmar Game Farm where whoever dropped him in the lake might just as well have sent him in the first place.

Orphan at Delmar (3): 'coon with lollypop

THE RUSH IS ON—Al Duane, caretaker at the Forked Lake Dam, has reported a new headache that is giving him great concern. He says there are so many canoes going through the lake this year that the water level is up a foot or more. But that's the least of his troubles. "There's serious shore erosion," he says, "due to the tidal waves that come along when the paddlers get in and out of their canoes."

Trout by Eliphelet Terry: as promised, reproductions of last issue's center spread are now available in full color at our office; price 50 cents. This photograph shows what can be done with framing.



GROUSE TRIALS—The Grand National Grouse Championship—the Kentucky Derby for grouse dogs—will bring the Nation's outstanding setters and pointers to New York State from the 28th through the 31st of October. This is the first time this top flight event ever has been held in this State. It will be run off on the Conservation Department's new Pharsalia grouse trial area near Norwich.

The Chenango Hotel in Norwich will be the headquarters for the championship. The officials of the Grand National advise that the following schedule is in prospect:

Thursday night, Oct. 27, at 8 p.m., the drawing; Friday, six one-hour braces; Friday evening at 8 o'clock, annual meeting of the Grand National Championship; Saturday, six one-hour braces; Saturday evening at 8 o'clock, annual Directors' meeting; Sunday, six one-hour braces; Monday, second series of two-hour braces.

FROM VICKERS—Protector Crannell phoned me this day and stated that Deputy Sheriff Carl McCoy received a 'phone call from Mr. Fish of the Schroon River Road, Warren County, complaining that last evening after dark he heard a commotion in the pasture. Upon investigating, he found a black bear attacking his horse, which is a work horse. The horse finally got away from the bear, but the bear did cut his eye up pretty badly before he managed to get away from him.—R. J. Vickers, Dist. Game Protector

MORE WOODCOCK—One of the principal accomplishments to date of the Department's new P-R project—woodcock management research—has been the completion of a spring census of abundance similar to the one made by the Department in 1948. Data which were comparable for the two years were obtained for 13 areas in nine counties and indicated an increase of about 7 per cent in the breeding population this year.

RECORD SEASON—The July 4 weekend found 89,831 individuals camping or picnicking on the Department's public campsites for a total of 116,918 man-days—a 30 per cent increase over the same period a year ago. We regret to report that the pressure was so great that 12,076 persons had to be content with sub-standard accommodations, or be turned away. Up to July 10, 326,674 individuals enjoyed these campsites, an increase of 80,465 over 1948.

Looks like an all-time record season for campers.

For your Information

GOOSE STOCKS DUCKS—The Department's amphibian plane, the Goose, recently took on a new role in the experimental release of 200 mallard ducks on upper Lake Champlain. The project had a two-fold purpose, and when the results are known we hope to have the answers to better stocking methods.

For many years it has been known that young ducks must be stocked in isolated areas where they could dig out natural foods in the marshes. It has been known too that hand feeding by well-meaning persons has defeated the purpose of the stocking program. And it has been necessary in the past to release ducks in marshes that could not readily be reached by road.

Our first purpose was to find out how to stock ducks in the thousands of inaccessible ponds and pot holes in the State. A practical test was decided upon involving the substitution of the plane for the regular truck and boat combination. Our second purpose has a more scientific aspect, and has a direct bearing on the location in which ducks should be stocked.

There is some evidence from returns on banded ducks that migrating birds which move into northern Lake Champlain leave New York State at about that point and travel down through the Connecticut River flyway to the coast. It was because of a desire to clinch this theory that releases were made in the northern section—not that New York begrudges Connecticut some of its ducks, but we'd like to see New York hunters get a better break. So Operation Duck Release got under way.

The plane was loaded at Schenectady airport with 50 young ducklings three weeks of age and 170 adult birds. The latter were still in production, and it was expected that all or most of them would nest and that many would bring off broods.

Within the hour the plane was cruising up the west shore of Lake Champlain with Fred McLane, chief pilot of the Department, at the controls, and a one-man crew serving as marsh surveyor, duck releaser and photographer. First landing was in Kings Bay. The releases that were subsequently made on the trip southward represented a series of quick take-offs and landings—Catfish Bay, Kings Bay, Monty's Bay, Armands Bay, Ausable marshes, Bulwagga Bay and Ticonderoga. Previous surveys by a research crew had shown all these sites contained adequate feed for the ducks.

This first test showed definitely that a profitable pay load of ducks could be handled by the plane and it has opened up new possibilities for stocking the navigable marshy ponds in the State. But success of the studies to determine the migration routes of ducks released in northern Lake Champlain will be dependent on the co-operation of the duck hunters in reporting the banded ducks which are shot during the fall hunting season.

—Earl R. Holm,
Superintendent of Game Farms

MILLIONS FOR WILDLIFE—California's fish and wildlife resources received a financial shot in the arm recently when the State Wildlife Conservation Board authorized expending $4,470,361 for conservation projects, the largest amount ever appropriated for fish and game restoration by any state.

Adopting consultant Seth Gordon's (internationally known conservationist) recommendations, the board earmarked $2,380,436 of its three-year capitalization of $9,000,000 derived from the state's pari-mutuel horse racing receipts, for acquisition and development of waterfowl management areas. An appropriation of $1,363,700 was made for building and maintaining fish hatcheries and $726,225 authorized for maintenance, development and construction of fish ladders and screens and for game farms and related projects.

WHITEFACE EROSION—The new ski trails on Whiteface Mountain were open to the elements last winter and spring. Water springs which developed along the sides ran water into the trails and turned into ice fields that skiers found mighty hazardous when coming down the steep slopes at high speed. When the snow melted off the trails they were barren, so that the heavy spring rains, washing down the precipitous slopes, cut deep gullies across the trails. The result was a very serious erosion problem.

The Department's Bureau of Soil Conservation tackled the job in co-operation with the employees of the Whiteface Mountain Authority. The first job was to work out control measures which would prevent further gullying and hold the remaining soil in place. "Thank-you-moms", which are small ditches with a berm on the lower side, were placed on a low gradient every 20 to 50 feet across the trails. These small ditches caught all the water coming into the trails and took it off gradually before it had a chance to cut gullies.

After the "thank-you-moms" were constructed the slopes were limed, fertilized and seeded with a grass mixture. When the seeding was completed a straw mulch was placed over the seed to hold the moisture and prevent washing. Approximately 25 acres were treated in this manner.

A recent inspection trip indicates that the serious erosion problem has been licked. (See photographs.) In spite of the exceedingly dry month of June the grass seedings are doing exceptionally well.

In addition, plans have been made to prevent water from coming onto the trails and building up ice fields during the winter; the water will be tiled off the side of the slopes where possible, and across the slopes where necessary.

Whiteface trail—before

and after

Cranberry Lake Fishing Threatened

FOR a number of years now, Cranberry Lake has been the largest and best brook trout lake remaining in New York. As in all waters, the fishing has had its ups and down, but over the years Cranberry Lake has provided fishermen with brook trout in such large numbers and of such size and quality as to gain for the lake an unparalleled reputation.

In keeping with the lake's importance, it bas received more attention in the form of protection and study than any of our other brook trout waters. Special regulations closing the tributaries to fishing, prohibiting fishing from 9 p.m. to 4 a.m., and prominently displayed warnings not to dump bait fish in the lake have been in effect for a long time. More recently the use of any bait fish, dead or alive, has been prohibited.

Yet, today Cranberry Lake brook trout fishing stands on the threshold of disaster. And all because of the recent appearance of the yellow perch, a fine fish in its place, but definitely a harbinger of trouble in a brook trout water. Where the perch came from is not known. On the basis of similar experiences in other waters, the perch were probably introduced either by the carelessness of a bait fisherman or by the well intentioned but uninformed action of some person attempting to add to the natural fauna of the lake.

The first record of a perch in Cranberry Lake known to the Conservation Department was one caught by a fisherman in Dead Creek Flow in April, 1948. As a result of an intensive check, 31 perch are known to have been caught during the 1948 trout season. Undoubtedly, other perch were caught and not reported. Netting during the perch spawning season in the spring of 1949 showed the perch to be well established mainly in the southern end of the lake but still scarce according to the usual standards of perch abundance.

But it is too late in the case of Cranberry Lake to be concerned about how the perch got in the lake. The question of the moment is—can the lake be maintained as an unexcelled brook trout water or is it to become just another perch pond?

One point in regard to the future of the perch is certain. The present perch population is a young one and will increase. Beyond that the perch may follow one of two courses. They may not find conditions in the lake entirely suitable and so will stabilize at a level of abundance which will permit the maintenance of trout fishing. This has happened in a few trout waters, but altogether too few. Or the perch may follow their usual course and expand in numbers to the point that the brook trout are virtually eliminated. In the latter case, nothing short of extermination of the perch will bring brook trout back. Stocking even with large numbers of brook trout of good size in similar situations has proved ineffective.

The perch pose not only a serious but an exceedingly difficult problem. Control of perch when they are few in number and scattered over a large area of water is impossible. In fact, to date perch have not been eliminated or controlled in any water approximating the size of Cranberry Lake. But perch control must be considered in this situation and possible methods readied for action in the event the worst comes to be. Such control methods are under intensive study by the Department at the moment. In the meantime, fishermen can help by making certain that no perch caught are returned to the water alive.

It may seem redundant to point out the lesson to be learned from Cranberry Lake's experience. Conservation agencies and intelligent sportsmen have made an all out attempt for a number of years to inform the public of the dire results that follow the unauthorized and promiscuous introduction of fish. Yet each year such introductions continue to take their toll of our best fishing waters. Laws are not enough, for they have been on the books a long time. What is needed is 100 per cent co-operation from all. —W. M. LAWRENCE

DOWNSVILLE DAM—The aerial photograph (above) was taken looking up the East Branch of the Delaware River near Downsville, N. Y. The viaduct on the left tunnels through the hill to connect with the main reservoir behind the retaining walls seen in the background. This viaduct will regulate the flow of water from the reservoir to the stream.

The Downsville Reservoir will supply New York City with an estimated 370 m.g.d. (million gallons daily) which will be piped through a tunnel 22 miles long to connect up with the Neversink River. The tunnel will come in from the right. Estimated cost of the dam is $62,000,000 pre-war dollars. The water will flood about 20 miles of the river and will reach to just below Margaretsville. The average width of the lake created will be about a half mile. The highway at top left, still under construction, replaces the one in the foreground.

PROTECTORS' SCHOOL—As the initial step in their indoctrination and probationary period 22 new permanent Game Protectors, recently appointed from civil service eligible lists, attended a week-long training school held at the Department's Conservation Education camp at DeBruce from July 4 through July 9.

These new men, none of whom have had any previous service with the Department, received a course of instruction specifically designed to acquaint them with the conditions of their employment, their powers and duties as Protectors, the organization and functions of the Department, the Fish and Game Law, court procedure, records and reports. Particular emphasis was placed on the protection and law enforcement aspects of their jobs. The various subjects on the curriculum of the school were presented by classroom lectures and discussions and actual work in the field.

This period of schooling is the beginning of a six-month probationary period during which the men will be trained and evaluated to determine their fitness for the positions to which they have been appointed. A second school period will be held late in August for other Game Protectors who were also recently appointed permanently but who have had previous temporary service as Protectors. This second session will cover subjects of a more advanced character than the session recently completed, and is an integral part of the probationary period for these men.

The conducting of a training school and closely supervised probationary training period is the first of its kind and from it the Department will be able to place in the field men who have been thoroughly trained in their work and who will be able to fully discharge their many duties in a much shorter time than has been the case.

The training school was directed by William E. Tinney, Personnel Officer of the Department, assisted by Earl A. Westervelt, with a faculty composed of Justin T. Mahoney, Director of Fish and Game; William C. Senning, Assistant Director of Fish and Game; William H. Winters, Assistant Superintendent of Law Enforcement; J. Victor Skiff, Deputy Commissioner; George Burdick, Senior Aquatic Biologist; Sidney Bascom, District Forester; Ed. West, Forest Surveyor, and William Bresinhan, Assistant Attorney-General.

HARES AND COTTONTAILS—Field observations conducted by the Bureau of Fish and Wildlife Investigations during the past winter in Labrador Swamp (Cortland and Onondaga counties) and in Chenango Swamp (Cortland County) gave evidence that small populations of varying hares have become established there. These apparently are the result of the release of wild hares trapped and transferred from areas of high abundance elsewhere in the State. In this experimental stocking, special emphasis was placed on the transfer of females which had already been bred. The method appears to be effective.

The objective of this work is to explore the possibilities of establishing the varying hare in localities in which it does not now occur but where there is suitable habitat. Results indicate that the sort of cover preferred is typified by thickets of spruce 10 to 25 feet high offering a dense growth of ground-sweeping branches, interspersed with small openings containing popple, apple or red maple trees. Conifer plantations made up of at least 50 per cent spruce seem to furnish excellent habitat for the varying hare.

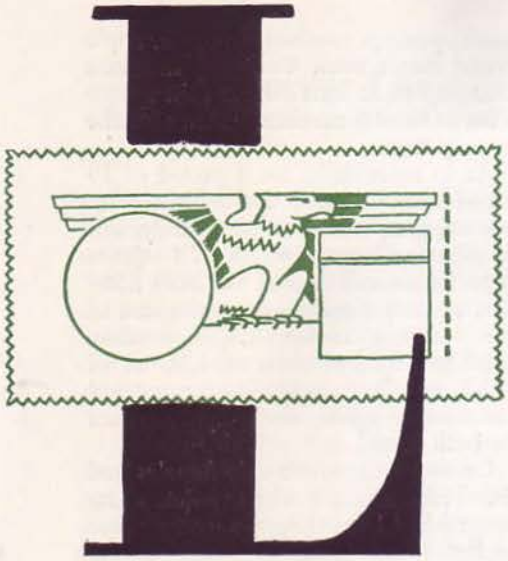
As to cottontails, for a period of 19 days between April 5 and 28, intensive box trapping was done on a study area in Albany County, where 228 rabbits imported from Missouri had been liberated in early February after the end of the hunting season. Approximately eight per cent of these rabbits, all of which had been banded, were trapped and released again. Recovery was equal for both sexes.

On one unit, where only females had been released, all eight animals recovered had bred at least once and four for the second time. Ten native females taken had also bred. Thus it would appear that the breeding season in this locality began in early March.

IT'S A TRAILER!—Conservation Education moved forward this summer with a brand new travel show on wheels which is currently touring New York State's public campsites. When the wheels stop rolling, wings are spread out (above) advertising the need for a wiser use of our natural resources.

Most of the mammals native to our State are represented in the exhibit, and all seem to like trailer life in degrees ranging from the raccoons that put on an act all their own to a bored opossum that sleeps through it all. Easily the most irrepressible attraction is a show-stealing doe fawn, already well on the way to becoming this Department's most-photographed animal.

No, that's not a roulette wheel in the center, although it does have a revolving pointer which stops at different conservation precepts. Motive power is furnished by a pair of obliging squirrels. Art Hubbs is in charge of the exhibit.



Letters to the editor

BEAVER

Dear Editor: I would like to know why the beaver is being trapped to the point of extinction again. Ten years ago the beaver dams graced many of our Adirondack streams with resulting good trout cover.

My opinions are based on recent observations in the Stony Creek quadrangle. At Wilcox Lake outlet, Wolfs Point on East Stony Creek to Bennett Lake outlet the beaver is gone. The dams are gone and so is a lot of good trout fishing. It is common knowledge that this situation exists throughout the State.

It seems the State should decide when the beaver population becomes too crowded in an area. Conservation Department men should trap them alive to be transported to lean areas.

Warren S. Knapp, Hagaman

● *Beaver are not being trapped to extinction! The surveys conducted by the District Game Managers indicate a higher population and wider distribution of the animals than anytime since 1900, when it was estimated there were only fifteen animals left in the entire State.*

During the past ten years it has been necessary to open periodic trapping seasons not only to harvest a valuable crop, but to manage the species that they might not become so numerous as to become liabilities to other enterprises or to themselves. The increased populations and geographic spread of these animals has been the cause of a majority of wildlife damage complaints, especially in the agricultural areas. Many places in the Adirondacks now have beaver colony failures caused by "cat outs" where, because of a lack of population control, the animals have entirely used up their food supply. Where food is deficient or of poor quality, the animals will move, whether harrassed by trappers or not.

Where legitimate damage complaints are registered, State Trappers live trap the offending animals and re-establish them in new locations or in trapped out areas, but only after a thorough evaluation of the new site to determine whether it will adequately support a colony and that any extension of the colony will not become a liability to adjoining landowners or interests.

The effects of beaver dams on trout streams tend to show the first year or so of establishment is beneficial to trout, but after the first year or so the drowning of surrounding vegetation with the subsequent warming up of the waters is quite detrimental to good trout stream management.

The continuing increase of populations and geographical distribution is very noticeable in the results of the periodic open seasons. Nearly every county in the State now has a periodic (every several years) open season as the management of the species directs. In 1942 over 4,000 animals were taken from 21 counties and in 1946 over 5,000 were taken in 33 counties and even in 1948, nearly 5,000 animals were taken in 18 counties and post-season inventories showed a very adequate seed stock remaining.—E. A. Westervelt, Coordinator, Game Mgt.

LETTER OF COMMENDATION

Dear Sir: Last Friday, while fishing in Minerva Brook at Olmsteadville, I was approached by a warden whose name I discovered later, was Burdell or Birdell. After a brief and pleasant conversation of a general trend I was asked in a gentlemanly manner to show my fishing license. It was inevitable, of course, on such an occasion, that I should have left it back at camp in another wallet.

In spite of my embarassment, I was deeply impressed by Mr. Birdell's evident belief in my statement and the completely courteous manner in which he accepted it. It was an all too rare experience and I congratulate you for having such a gentleman on your staff.

For your records, my license number is 340971.

Fred A. Staedeli, Salem

● *For your records, the Game Protector was Dwinal Kerst, of Schroon Lake.—Editor*

ADVERTISING?

Dear Editor: I notice the question of accepting sale of advertising space. As long as possible, please keep The Conservationist as is. Personally I would be happy to pay twice the subscription price rather than wade through advertisements such as clutter up so many other magazines.

Charles W. Carson, Tappan

FREAK WOODCHUCK

Dear Editor: Your picture of the freak woodchuck noticed (June-July issue). I am sending this picture of one like it, shot by Ralph Burnett, Lake Como, N. Y. on March 25, 1949. The skull was given to the N. Y. S. Teachers' College at Cortland, N. Y. Also wish to say we had a pet red squirrel that died the same way; the tooth curved into its brain.

F. C. White, Cortland

MOON-EYES

Dear Editor: I have been puzzled and curious about the annual run of "moon-eyes" or shad up the St. Lawrence River and Lake Ontario section. These fish are reputed to come from the ocean to spawn in fresh water and then apparently die. The shores of Lake Ontario are covered with dead fish during June and July. These fish average about 6 to 8 inches in length.

In your April-May issue you had an article about Hudson River shad. Are these shad a different species and why do only the St. Lawrence fish die?

R. H. Leonard, Oriskany

● *The Lake Ontario fish are not shad but are alewives (to use the preferred "book" name). They are landlocked in Lake Ontario and are greatly stunted as compared to normal, sea-run alewives. The cause of death is believed to be related to malnutrition.—Editor*

CHINOOK SALMON

Dear Editor: I have noticed in the Fish and Small Game Syllabus that Chinook Salmon is listed as having a season, minimum length, and a daily limit. If my memory serves me correct, Chinook Salmon live in the sea on the West Coast and ascend larger rivers to spawn. Now what I am curious to find out is where in the heck in New York State can there be suitable water for these salmon to grow.

Fox Conner, Ossining

● *Chinook Salmon were present in Kensico Reservoir as a result of planting, but are now thought to have completely disappeared. The only sources of eggs for propagation are on the West Coast, and even there it is doubtful if eggs can be obtained. No further planting in New York lakes is planned at present.—Editor*

THE POND IS "WORKING"

Dear Sir: I have a camp on 4th Lake of the Fulton Chain and for many years have heard the saying that there was no use fishing while the lake was "working."

I do quite a lot of fishing—deep trolling, fly, and for white fish and lake trout from buoys, and I would like to find out just what is meant by "working."

Maurice P. Alger, Old Forge

● *The term "working" means a heavy production or "bloom" of the microscopic vegetation called algae. Often this comes on quite suddenly and usually consists predominantly of one or two species. During the bloom or "working" the water looks green or brown, sometimes quite "soupy." Working is induced by a combination of weather conditions, of which sunlight is probably the most important.—Editor*

ZONE THE TROUT FISHERMAN?

Dear Editor: I have just read Art Flick's article, "Zone the Trout Fisherman?" in the April-May issue of The Conservationist. I would go much farther than Mr. Flick and restrict several of the well-known trout streams such as Beaverkill, Willowemoc, Neversink, Schoharie and the Esopus to fly fishing exclusively. Unless something of this sort is done in the very near future, many of us feel that trout fishing in New York State is doomed.

The State of Maine is much more progressive in this connection. By this means, Maine is preserving its fishing waters and consequently is a great attraction to sportsmen from all over the United States. Most of the other states in New England as well as New Jersey and Pennsylvania are falling in line in a similar manner.

Robert W. Abbett, New York City

Dear Editor: As an inveterate "Imp" slinger and hunter of large trout (total trout taken last season, five; none this year) I'm not entirely amused by your Mr. Flick's proposal to exclude the likes of me from 20% of New York's streams. Personally I have observed that an inconsiderate wader can disturb as much water as an inconsiderate spinner or plug caster. And on the specific question of conservation, I most violently urge that you publish facts on whether or not "fly-only" does not result in unbearable increases in chub, suckers, walleyes, carp, pickerel, etc. Also in shunting Protectors to fly streams away from the control of two limit men, etc. And Mr. Flick might not even like the extra bass he'd find in the Esopus or East Branch.

No matter in how many states the single-action reel advocates have been able to grab waters, the kindest view to take of Mr. Flick is that he is a calendar artist who wants to put us all in waders or canoes.

Is a plastic worm a "fly" etc., etc.?

Leonard S. Cross, New York City

Dear Sir: It seems to me that this is a very progressive idea and one that should be adopted with a minimum of delay, especially as it would not penalize other fellow sportsmen to any extent.

Samuel C. Wait, Schenectady

Dear Sir: It is a long time since I have read an article that makes as much sense as does the one by Arthur B. Flick, "Zone the Trout Fishermen?". I believe restricted fishing as advocated would work out to the advantage of both the fly fisherman and non-fly fisherman. The average fly fisherman should be satisfied with fewer trout, which would leave more for the others. By all means let us get the necessary legislation on the books and get started.

A. J. Accola, Pelham Manor

Dear Editor: I sincerely hope that some of the red-blooded sportsmen who read Flick's meanderings will get off their rumps and do a little democratic bellowing.

Something about the very title "Zone the Trout Fishermen?" struck a sour chord in me; it seems to me there is too much zoning in the world right now anyway. How can anyone be progressive if he is going to keep a bunch of worm-dunking kids away from a stream just so a pack of old fogeys with $100 fly-rods can beat a fly around?

I have been fishing intensively for a good many years and am willing to prove that fly-fishing is the most productive fish-getting method ever used. A good fly-fisherman can work circles around a "coffee-grinder" (spinning rod). So where does Flick come off saying that it will help conservation?

Fred Luks, Mt. Vernon

Dear Editor: The idea somehow seems to prevail that such legislation would be favoring the so-called purist who is sometimes reputed to represent a "caste" (no pun intended) which smacks of the well-heeled and expensively equipped "sport" who would have nothing but dry flies used on our trout waters and who would run every bait fisherman off every stream in the State. The fact is that the fly-fisherman represents not a class or a fraction of the fishing population, but a method of fishing.

I should like to go a little further by proposing that the fly-fisherman insure really first-class sport by paying for such sport. The idea is not of my origin and I first learned of it in a column written by Ray Trullinger in the New York World Telegram about a year ago. His plan was to set aside a sizable portion of one good trout stream like the Beaverkill in southern New York and perhaps the Au Sable in the northern sector, for fly-fishing only. Fishing such water would require the payment of a fee—say $1.00 for each day's fishing. The angler would check into one or more control points on the river, pay his fee to a Warden and receive a large numbered tag which he would be required to wear conspicuously on his person while astream in order to facilitate checking authorized fishermen on water by a patrolling Warden. A definite, predetermined number of such tags would be issued daily and surrendered at the end of the day so that the water would not be overcrowded. The legal limit would necessarily be very small—two (2) fish at most—the size, after three or four years would be unimportant since no man would keep eight or ten-inch fish when he knew his chances were very good of catching one or two eighteen to twenty-two inch fish.

The necessity for charging a fee for each day's fishing on such restricted water would be in the nature of paying for the special privilege of indulging in the catching of trout which are the common property of all citizen residents of New York—sport that costs more to produce and must be supported by additional revenue—a privilege over and above that which comes with the purchase of an ordinary fishing license.

The fee would, undoubtedly, make the program self-supporting in that additional revenue would surely defray the added cost of policing the water, administration and management of the stream, improvements thereon, as well as funds to permit heavy annual stocking of hatchery fish.

Allen F. Will, New York City

Dear Sir: In regard to the one-half creel limit stipulation, this has for some time been a golden rule of mine and of all the fishing partners my wife and I have. It pleased me no end to read recently of John Alden Knight's forming a "Half Limit Club", and then to read Art Flick's article. More power to them!

Walter E. Bailey, Niagara Falls

Gentlemen: Re: Art Flick's article, "Zone the Trout Fisherman?" This is the best and most practical idea that has been advanced for some time.

Arthur Ritter, The Angler's Club of New York

Editor: Most of us, meaning myself, sit around complaining about conditions but never do anything about it. Art Flick's splendid article in the last Conservationist put the words in my mouth. I sincerely hope the fly fishermen will snap out of their lethargy and back him up.

And five good fish should be enough.

H. S. Owens, Greene

Dear Editor: I'm all for it . . .

Ed Lobermann, New York City

Dear Editor: It is much easier to grab a fly box than it is to dig worms, especially in dry weather, and it takes a lot less time. Consequently the fly fisherman will get an hour's fishing in an evening while the bait fisherman will not have time to even go out.

Mr. Flick suggests a creel limit of ½ the regular limit. This would be all right except that it definitely would prohibit a fisherman who had caught say 5 trout in an "open stream" from trying a fly on the "restricted" waters. My opinion is that either the whole stream from source to mouth be restricted or that the restricted section be at either the lower 1/5th or the upper 1/5th, and not to have "open" water both above and below the "restricted" section.

Clayton D. Teter, Hudson

Dear Editor: Just want to say I am all for it (Art Flick's idea) and sincerely trust it can be arranged.

William P. Wright, New York City

Dear Editor: Art deserves a lot of credit for the effort he exerts in the interest of fishing in his vicinity. However, from recent chats with him he is just as much alarmed over the future trout supply as we less worthy individuals.

Perhaps you are also well aware of the fact that most of us up-Staters sure hate the sight of New Yorkers and Jerseyites when it comes to hunting and fishing. They sure lack stream

Dear Sirs: Enclosed are two shots of the Bear Cubs that were in your May issue. Fred Strossle, Superintendent of the Rochester Zoo, is pictured feeding them. D. Berry, Irvington

etiquette. Of course they are used to crowds and see it as natural under all conditions; we up-Staters see the reverse.

F. Ransom Collins, Scotia

Dear Editor: I am in hearty agreement. Just yesterday in one of the lesser Catskill streams I found a nine-inch "brownie" very dead with a large worm hook embedded in its throat. The heavy leader had become entangled around a stick and the fish had simply hung there, presumably out of the reach of the fisherman until it died.

It sure would be nice to fish a dry fly upstream occasionally without having a worm practically thrown over one's line.

Mrs. Dupy Creer, New York City

Gentlemen: I wish to compliment you for your fairness in sponsoring a discussion of the fly fisherman's problem. In this day and age, the sport is dependent upon your efforts and regulations.

A. E. Cooper, Ridgewood, New Jersey

BONE MARROW

Dear Editor: Herewith is one dollar for as many reprints of Dr. Cheatum's "Bone Marrow" as it will buy.

Drive home to your readers that here is one of the few ways that practical observers can determine the value of the dead deer, they find, to the pathologist. A great many of the deer killed by dog incidents are associated with starved deer. Many died before the dog arrived; often there was no dog anyway and too often the deer was unable to rise on its feet when somebody's lap dog discovered it and started barking. We do not use common sense here in Maine either.

Lawrie Holmes, Northeast Harbor, Maine

Dear Sir: This Service would appreciate receiving four copies of the very fine paper on deer bone marrow by Dr. E. L. Cheatum, which appeared in the April-May issue.

Roger A. Seamans, Project Leader, Vermont Fish and Game Commission

● *These reprints, with 4-color chart, sell for five cents each with special prices for large orders. To date we have received requests for almost 7,000.—Editor*

INLAND WATERS

Dear Editor: I wonder if you can tell me where I can obtain navigation charts of inland waters, such as Otsego Lake, or other lakes and waterways.

Roy G. Strever, Long Island City

● *Write to the U.S. Lakes Survey, Customs Building, Detroit, Michigan to obtain key chart from which you can select the particular map for the area which you are interested in.—Editor*

BLANKET INVITATION

Dear Sir: I must take issue with Mr. Everett Hort of Pennsylvania. He says the natives weren't very co-operative on his trip to New York State. Maybe he didn't fish in the right body of water. Anyway I wish to let everyone know that there are any number of good fish ponds right here in Crown Point and the immediate vicinity, and I would only be too glad to give information to anyone who asks for it about fish waters. In fact, I'll go fishing with anyone who wants to go.

Charles M. Garvey, Crown Point Center

WHO IS A STINKER?

Dear Editor: My first impulse upon reading "The Coyote--Unbidden Guest" in the April-May issue was to denounce the author as a rank enemy of wildlife. Imagine my dismay when I noticed that the article had been written by Director Seagears himself! Permit me to say that I feel Clayt Seagears erred more than a little when he called the coyote a "stinker".

Animals, and coyotes in particular, become pests only when man has despoiled the countryside to the extent where no natural means of subsistence are left in it. Coyotes are bound to attack cattle and chickens when their natural hunting grounds are covered with oil derricks, mile-long industrial plants, or dust bowls cultured by careless agriculturists.

A few weeks ago the New York Sunday Mirror ran an essay which stated coyotes help maintain nature's balance. Analysis of these beasts' stomachs showed fowl and lamb were rarely their staple foods. They eat fruit, squirrels, crickets, beetles, rabbits, carrion, garbage and cactus. Surely we can't begrudge the last three items.

Not even the mental attitude of the coyote should be criticized. J. Frank Dobie, an authority on the Southwest, tells in the April American Mercury of a coyote staying near an injured coyote as though taking care of him and attempting to lure away any hunter who approached. Mr. Dobie adds that coyotes usually kill only sick or disabled deer, so we need not worry that coyotes will slaughter our herds.

My theory is not that the coyote is a nuisance to civilization, but that civilization is a nuisance to the coyote.

Paul J. Kors, Brooklyn

● *Think we'll let the Director handle this one. —Editor*

CRUISING DOWN THE RIVER

Dear Editor: It has been my ambition ever since my youth to take a canoe trip down the scenic Hudson River from Albany to New York City. I would sincerely appreciate it if it would be possible for you to provide me with a list of eatable fish in the Hudson River and information concerning any perilous animals along the river.

Walter R. Smith, North Bergen, New Jersey

● *From Albany to New York: large and smallmouth bass; chain pickerel; shad; two species of river herring; carp; three species of sunfish; eels; yellow and white perch; bullheads; white catfish; two species of sturgeon; striped bass; tomcod; suckers; smelt; rock bass and crappies. Perilous animals pretty well under control at the present time.—Editor*

VIOLATIONS

Dear Editor: In connection with conservation game law violations, I have a suggestion that may or may not be worth making. There are many instances where one or more deer are taken illegally, but no one knows it officially. However, it may be known by some native of the particular area who could, but will not, make it known. But, if "A" took a deer illegally and the fine was $200, with one half going to the informer, whose identity would be kept secret, more cases would be reported. If the violator demanded to know the informer, then the fine would be much higher, say $500.

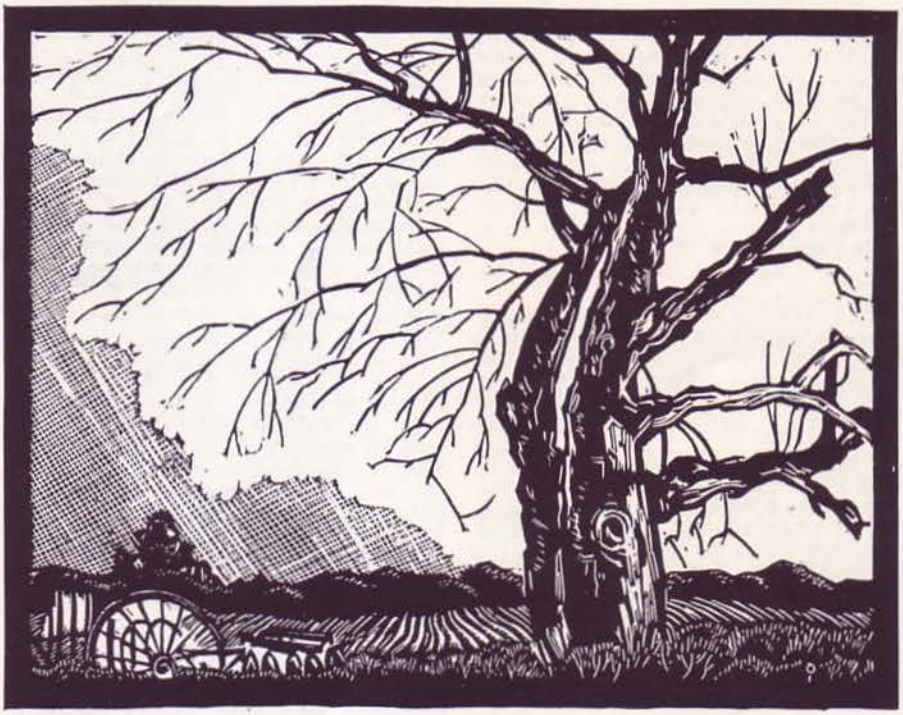
H. D. MacPherson, Staten Island

● *What you suggest is actually a return to the old "moiety system" abandoned by this and other states years ago—after it was found to produce numerous abuses. We appreciate your suggestion but on the basis of past experience we don't believe it would work.—Editor*

THE WORM TURNS

Dear Editor: I would like to add my congratulations on your editorial, "The Worm Turns" in the April-May edition. That fellow who isn't satisfied with the job the N. Y. S. Conservation Department is doing would be a lot better off fishing in Canada, or The North Pole.

Jack W. Pruyn, Binghamton



LINOLEUM CUT

Dear Editor: Here is a print from a linoleum cut I made and which was exhibited at the Library of Congress a couple of years ago at the Joseph Pennell Exhibition. If you think it suitable for your Aug-Sept or Oct-Nov issues you are welcome to it for what you think it worth. My main occupation is rural mail carrier. I have served out of the Mechanicville post office since 1924.

And for my pay, a couple of copies of the issue you use it in would be OK with me.

Robert Quinn, Mechanicville

● *Many thanks. Copies en route.—Editor*

BEE TREE

Dear Editor: Regarding you April-May issue article entitled "Bee Tree", one step not shown in the picture was, after catching several bees, place them in a paper bag containing some flour. Shake well before releasing one at a time and follow with little eye strain.

Charles J. Hoffman, Pocatello, Idaho

REACHING OUT

Dear Sir: I doubt whether anything of the same type is as well done as your "Conservationist". I would very much like to receive it regularly and will be making arrangements under separate cover.

W. T. Ward, Game Warden, Kamloops, British Columbia

TOO MUCH FOR TROUT?

Dear Editor: There seems to be a fast growing feeling that the common or scab fishermen, as the Trout Purists call them, are not getting a fair deal: they far outnumber the trout fishermen in license purchases, yet the greatest share of the money goes for trout propagation.

What is the percentage in this matter and how could it be improved? Wouldn't a special trout license help by placing some of the burden where it belongs, thereby allowing a few more of the common fishermen's dollars to be used for other pan and game fish propagation.

Harold M. Devol, Wanakena

● *Fifteen cents out of every license dollar goes for trout propagation. We agree that this represents a disproportionate emphasis on trout fishing as far as propagation is concerned as contrasted to warm water fishing. The historical reason for it apparently is that trout, more than any other fish, lend themselves to artificial propagation and, secondly, in many waters which support trout, conditions are not good for natural reproduction. Most of the warm water fishes are extremely difficult to rear in captivity but generally speaking have a better natural reproduction.*

Nevertheless, recognizing the need to do more for the improvement of warm water fishing and in that way to balance up the Department's program, the present administration several years ago instituted a new program of salvaging pan fish and game fish out of many reservoirs and closed waters in the State for transfer to waters open to fishing. This work has been very successful and has been built up to the point where 198,492 lbs. of warm water fishes were salvaged and re-stocked last year.

The question you raise about a special trout license has been raised a number of times. It has also been suggested that there be a special pheasant license, etc. The Department has generally been opposed to a multiplicity of special licenses in order to simplify matters for those who wish to hunt and fish in this State.

Incidentally, one of the largest costs of fish and game conservation is represented by law enforcement which, of course, benefits all species. —Editor

CATS

Dear Editor: I'd like to know more about the cat hunts carried on in Pennsylvania which were mentioned by Robert Struebel of Boston. You can count me in to co-operate 100% with any around here.

Last December while I was living at the University Trailer Camp I accidentally saw the same cat with three dead or wounded cock pheasants in only one month near my parked car. Due to the owner living only two trailers distant I decided to avoid trouble. But last night while some friends were in for bridge I really got thoroughly teed-off. They were telling about their cute cat; within the past few weeks the "cute" cat has brought home six baby rabbits, dead.

Wouldn't it be possible to have a law passed requiring all cats in the State to carry on a collar a license? Such a law would provide the State with added income and enable sportsmen to distinguish between children's pets and those cats for whom no one is sufficiently attached to pay a license fee. I think it high time that we sportsmen and the Conservation Department wage an organized war.

Vic Pike, Jr., Syracuse

CATTARAUGUS BACKGROUND

Dear Editor: Your article on Cattaraugus County was very interesting to me as I am an "original" inhabitant of the county, having been born at Randolph. My grandfather, Curtis Harding, was in the lumber business back in the '70's and cut logs in what is now Allegany State Park on Quaker Run, also on Saw Mill Run and Sunfish Run. He rafted his logs down the Allegany to Pittsburgh. Grandpa Harding told me that Steamburg got its name from the great number of saw mills around there.

My father's father deeded, free, to the old Atlantic and Great Western R.R. the right-of-way through his large farm at Steamburg. Of course this is now the "Old Reliable" Erie. My mother used to tell of Grandpa Harding catching a mess of trout in Quaker Run nearly every day, 25 or 30 at a time, they were so plentiful.

W. I. Jefferds, Lakewood, Ohio

WATER SNAKE

Dear Editor: Am enclosing a picture of a medium size water snake that I shot in the local trout stream last week. When I fished him out of the water I saw a bulge in the side of him. I cut the snake open and found an eight-inch brown trout in him.

L. Paul Wood, Jr., Hammondsport

GIMBEL'S WINDOW

Dear Editor: Your page is the nearest thing to Gimbel's window that I can get into, so please admit me long enough to perform a humiliating but salutary rite.

Several years ago, when I was shown the findings of the first year's work on the East Koy-Wiscoy project described in your last issue, I was guilty of making to Cecil Heacox some comments and criticisms so stupid and ignorant that I blushed to remember them when I read the report of the completed project. It seems to me now that this investigation is a splendid job for which everyone concerned is entitled to the greatest credit. And I am sure that the hard, practical facts discovered will repay the cost of the work many times over in coming years.

I am not making this confession of error publicly to placate Heacox—he doesn't give a damn—nor for my own sake, but in the hope that it may remind some of the other amateur know-it-alls that, in the words of the old story, you shouldn't chirp so loud when you're full of prune juice.

Sparse Grey Hackle

● *Heacox says thank you kindly. So do we.— Editor*

KINDERHOOK LAKE

Dear Editor: I have done a considerable amount of fishing in Kinderhook Lake with a friend who has a summer cottage there. One morning last summer while we were out in his boat, we noticed a very audible splashing noise seemingly coming from every direction. Rowing close to shore, we observed scores of big carp, many a full yard in length, rolling in the mud. We rowed a considerable section of this shoreline and saw the same phenomenon all along it.

I should like to know what the attitude of the Department is toward these undesirable fish. My friend said that he had written the Department several years previously and had been informed that the Department was satisfied that sufficient clearage of these fish had been done. Obviously this is no longer the case.

I realize that Kinderhook Lake is classified as a water which may be inhabited by trout.

Robert D. Conklin, Albany

● *Kinderhook Lake is not classed as trout water. However, carp are not considered desirable for this lake. Practical control methods are hard to work out and we may as well face the fact that partial control is the most that could be expected in a lake of this size. The question to be weighed is whether practical or temporary control is worth its cost.—Editor*

PARTS FOR PIEPERS

Dear Editor: On page 31, Volume 3 No. 5 you mention Hobe Casler's gun a possible Pieper rifle shotgun. I have one of these rifle shot guns and would appreciate any information you could give me concerning the purchasing of parts for same.

Kenneth Mullaney, Boonville

● *This was a Belgian make and parts may be hard to find. You might check the New York City classified telephone directory for gunsmiths. —Editor*

AGAIN, NO AUTOMATICS

Dear Editor: Is it legal to use my J. C. Higgins .22 cal. Automatic which fires 15 shots in a row? I would like to use it on varmint, such as woodchuck and crows during closed season.

John Allmaier, Bronx

● *Again, no automatics may be used in hunting either game or non-protected species.—Editor*

COYOTES

Dear Sir: Re your article on "Coyotes". You say that coyotes mate for life, yet repeatedly say they mate with dogs. How come? Don't think all your readers are fools.

A. L. Byron Curtiss, Utica

● *The article said: "Authorities agree that the coyote mates for life." This means merely that the critters apparently pair up for life. We do not know whether the coyotes which breed with dogs have lost their mates or lost sight of them. Not all coyotes are fools either.—Editor*

PHOTO CREDITS

Second cover, pages 19-21, 30, Doug Finch; 3, 23, Earl McGuirk; 4-6, P. W. Fosburgh, Finch; 8, Fred Chambers (John Schemp, pilot); 10, Bennetts Studio, Ithaca; 15, Fosburgh; 25, Federal Government; 26, Westman E. Kelly; 31, Barnett Fowler; 32, Fowler, Finch; 33, A. L. McDowell; 34, Nick Drahos (Schemp, pilot); 35, Clay Seagears; fourth cover, Ellen Edmonson.

SNAPPING TURTLE

YEARS ago we knew several Sullivan County farm families who kept a covered rain barrel out by the milk house. Buttermilk was poured in the barrel now and then. Maybe some pig swill. Periodically was added the scalded carcass of some long-spurred rooster, or a grizzled woodchuck. On still, hot summer nights the faint, fetid sweetness of the barrels, mixed with the heavy scent of night-blooming cereus standing by the rubber plants on the front porches, could be smelled all along the road.

All us kids knew that the barrels held snapping turtles being fattened like pigs for the stew pot.

We haven't seen a turtle barrel for a long time. But we suspect that in this State more people than we think still fatten snappers to the point where the bulging reptiles conldn't any more navigate on land than turn out a tuck of tatting for Aunt Suzy's Sunday guimpe. In this condition these obese beasts are really ready for the brew. Diamondback terrapins are no tastier.

Snapping turtles have been known to live 30 years and reach a weight of around 80 pounds. Records of older or heavier snappers aren't in our files. The alligator snapping turtle of the deep south may attain weights over 150.

Our turtle, in case you've never been in touch with one, is snap-happy. One with a top shell (carapace in turtle talk) 12 inches long in good shape would weigh 30 pounds. Such a turtle could amputate three fingers from a man's hand like they'd been socked with a meat cleaver. Once we watched a 45-pound snapper bite through a one-inch hickory pole. If we had jaws half as strong, the cube steak need never have been invented.

The snapper's general appearance is not good. It looks like it had crawled from the prehistoric ooze just long enough to harden into permanence. Its shell usually is mossy. Its hide is covered with warts, wrinkles, ridges and, quite often, leeches. Its forelegs are shing'ed with assorted pieces of armor plate (see picture) and its long fat tail is deeply notched like a dragon's.

The snapper's neck is unique. When it is withdrawn to the at-home position, the flabby folds of the skin roll up around the bulging jaw muscles like a turtle neck sweater. From this position the heavy head can be projected forward or sideways with a lightning Jack-in-the-box action. The striking range of a 20-pound turtle would cover a bushel basket.

Squashed down in the mud, this horny nightmare becomes almost invisible. The extended tail and legs are so messed up with the assorted bric-a-brac previously mentioned that it is difficult to make out the basic outline. Even the tiny eyes don't give the creature away for they are covered with a pattern of camouflaging spots like extra pupils (see picture). The strongly hooded jaws are painted with vertical grassy stripes.

All the snapper has to do is sit where unsuspecting creatures pass within range.

You'd think that Nature had done enough to help this mud monster snare its suckers. Not so. The South's big snapper actually can entice fish into its cavernous mouth simply by owning a mouth that comes fully equipped with worm. This is a fleshy muscular appendage in the lower jaw which the turtle is able to maneuver. It looks exactly like a whitish grub doing a square dance. The tongue of the northern snapper is a squirming and delicious bright pink and well may be another deliberate organ of enticement. We don't know for sure but we're gosh darned suspicious. Therefore, we're one-up on the feeding duck we once saw a snapper grab by the bill. Ducks, incidentally, are easy prey for the snapper which simply latches to a leg and pulls the bird under water.

Like most other turtles, the snapper seems unable to swallow its food—whether fresh flesh or foul—unless submerged. This is a help because if bitten after you've hauled the snapper into the boat you can get back your finger.

Despite the snapping turtle's reluctance to crawl out on land, the urge to regenerate periodically causes the females to make lengthy egg-laying junkets ashore. At this time Nature again comes to the rescue to keep the turtle's complicated eye-blinking apparatus from drying up. Such copious alligator tears are shed that the whole head often is beaded with moisture.

Usually in June, the turtle finds some loamy or sandy spot where she scoops a 10-inch hole, deposits several dozen round white eggs, covers them and leaves it to the sun to swell the germs of life. In about three months the little turtles break the thin, hard egg shells and begin the slow trek to water. Sometimes hatching occurs in early summer, in which case the eggs have waited over-winter for full development of the ugly little yokels within.

Snapping turtle control often becomes necessary, especially as a safeguard for ducks. Fortunately the procedure is simple. All that's needed is a meat-baited trap with a one-way entrance of poultry wire arranged like a flattened and inward pointing funnel. Pictured is the standard trap used in the duck-rearing ponds on New York State's game farms. The trap must be submerged and seems more efficient when baited with fresh meat or viscera and placed in shallow water so that the top is awash. In this position the trap also can be more readily inspected and weighted down with stones.

SNAPPER meat is far more savory and is easier to prepare than most folks suspect. Here's how to do it.

FIRST OPERATION: Treat the snapper the same as a chicken—cut off the head and hang the carcass to drain off blood.

PREPARING MEAT: Two methods; take your pick. (No. 1): Turn turtle on back. Cut meat from upper shell above neck, legs and tail. Pull skin off these members like a sock. Cut through soft bridges of lower shell (plastron) and lift off. Cut skinned neck, legs and tail from rest of turtle. Salvage heart, liver and eggs, if any. If turtle is large enough, cut out the tenderloin just under upper shell at rear. (No. 2): Drop whole blood-drained turtle in pot of boiling water for 10 or 15 minutes. By then the upper and lower shells will pull apart easily. Separate flesh (with skin attached) from upper shell. Pull out toenails as you'd remove pin feathers. Salvage other parts as noted above.

The latter method is simplest, least messy. Here's what's done next:

COOKING MEAT: Put meat and other parts in covered stew pot and simmer until (a) meat falls off the bones or (b) skin is soft and jelled. The skin is considered as much of a delicacy as the meat.

SOUP: Pour the pot liquor (obtained from cooking the meat) through a screen into another pot. Pick meat from bones and add to drained liquor. Add cooked vegetables same as in vegetable soup. Should be thickish so add diluted cornstarch (tablespoon per gal. of soup) if necessary.

STEW: Put pre-fried hunks of carrots and onions into drained liquor (as above) thickened with flour to make stock. Add cooked meat and boil whole works couple of minutes.

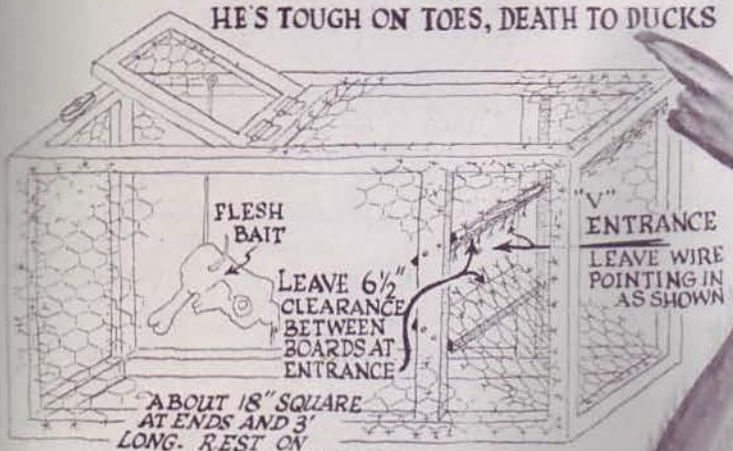
If you want to be nice and fancy (or maybe just fancy) get the snapper's head out of the garbage can, insert an apple between the open jaws and use as a garnish. This should result in quite a gag. —CLAYT SEAGEARS

By Clayt Seagears

The SNAPPING TURTLE..

MONSTER OF THE MUD

HE'S TOUGH ON TOES, DEATH TO DUCKS



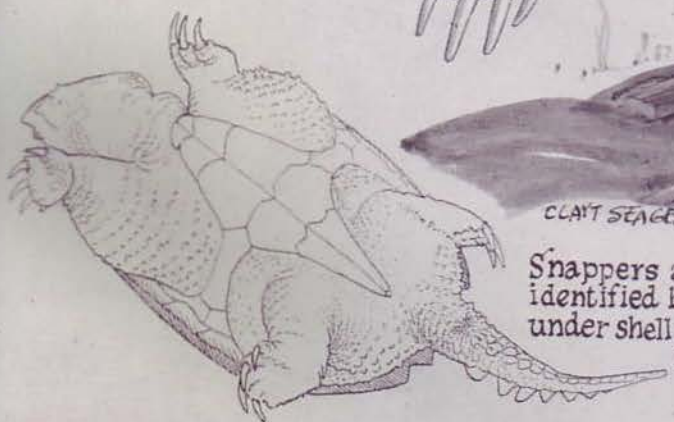
Here's a snapping turtle trap that definitely works

Drawn from female. Length of shell 9¾"; over all 21"; wt 9lbs.

DANGER

SNAPPERS OVER 80 LBS. HAVE BEEN TAKEN. MANY WEIGH OVER 30.

CLAYT SEAGEARS



Snappers are easily identified by small, soft under shell and bulging legs.

They really make swell eating

CHAUTAUQUA MUSKALONGE

Esox masquinongy ohioensis (Kirtland)
From male 38½ inches long

LONG-NOSED GAR

Lepisosteus osseus (Linnaeus)
From male 25 ¼ inches long