THE CONSERVATIONIST

State of New York Conservation Department February - March 1963

WITCH HOBBLE (*V. alnifolium*) Marsh
(Also called Hobble-Bush, Moosewood)

THE CONSERVATIONIST
State of New York Conservation Department

Myths about Sportsmen

"Most hunters and fishermen are lawbreakers. They are reckless, careless, destructive with other people's property, and dangerous to have around. And the ones from the city are the worst."

You will hear these thoughts hinted in various ways by many farmers, landowners, restaurant proprietors, bartenders and other responsible citizens. Present company, of course, is always excepted in such conversations.

This is pure twaddle. The same things are said about poker players, and as to them as a group, I know of no more cautious, conservative, considerate and safe people to have around.

In fact, New York State hunters and fishermen are six times more law abiding in the field than the general adult population is in daily life.

The basis for this conclusion is the Department's figures on prosecutions in 1961 for violations of the Conservation and related laws. These figures show that the number of persons prosecuted was less than one-half of one per cent of all licensed hunters and fishermen in the State.

On the other hand, the number of persons arrested for all crimes and offenses in the State in 1961 was well over three per cent of the general population over the age of 15. And that percentage does not include traffic "infractions."

As for those allegedly wild-eyed, reckless hunters from the big city, an informal, unofficial poll of a number of veteran game protectors and other field men in the Department reveals the unanimous opinion that the more serious and persistent violators of the Conservation Law are more often rural and small-town dwellers than visiting city sportsmen.

In the eastern part of the State last hunting season, several newspapers carried prominent articles asserting that an unknown hunter had shot a $7,000 trotting horse in the belief it was a deer. However, we learned later from the sheriff involved that the animal was shot in the head, in a fenced field, within a half mile of the village center. Furthermore, after shooting the horse, the person slit the abdomen, as if to skin it. No hunter did that: and the accusation was as baseless as most gossip about sportsmen.

Hunters and fishermen are just people. And there are no more bad ones amongst them than there are in any other group of a million people.—Editor

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contractors until the mining stopped, then for a short time, the area was logged by private contractors. The private operations came to an end and a series of camps were established about 1900. At about this time, the lands acquired a very descriptive name that caused me some embarrassment. Property lines were non-existent and timber stealing was a way of life locally. I was told to investigate one reported case when I first arrived. I knocked on the man's door and asked him where he had cut the pulpwood piled in his yard. The gentleman told me very straightforwardly that he had cut it on the "Hooker lot," so that is the way I reported it. Sometime later, I investigated another report miles away and my informant said that the man probably got it off the "Hooker lot." I remarked that this man Hooker seemed to own a lot of land because everyone was cutting on him. That was when I found that I was "Mr. Hooker's" representative.

I was appointed by Warden Thomas Murphy on February 4, 1935 as Guard-Instructor in Forestry. At about this same time three others were appointed with the dual title of Guard-Instructor; "Carpentry" was an architectural engineer from R.P.I.; "Masonry," an electrical engineer from N.Y.U.; "Agriculture," a Cornell graduate; and "Forestry," from Syracuse.

Tom Murphy was a Warden with advanced ideas, ideas resented by most of the old timers, as we were resented as something strange and menacing to the old order. This was at the beginning of the era of rehabilitation. One high official at that time stated that there was more rehabilitation in a night stick than in all the prison schools and his claim was well received at the time.

Mornings we held classes, in the afternoon we supervised our respective groups. The carpentry and masonry groups designed and built the Church of the Good Thief. The stonework for this beautiful building was salvaged from the old East Hall built in 1845. Agriculture worked on the farm, dairy and pigs. I reported at the sawmill and logging camp on the Chazy river. The class and camp crew were separate, the class supposedly a preparation for the much wanted camp assignment.

At the end of about six months, none of my class had been assigned to the mill. The only man who could release or assign these men outside "the wall" was the Principal Keeper, the "P.K." to us. William O'Brien was P.K. at the time and one of the most thoroughly respected prison officials in the State, respected by officers and men. Mr. O'Brien had his clerk pull the cards on my class for me. Two men would be eligible for parole, one in about eight months, another in about a year and a half. The rest were murderers, "junkies," rapists and worse—quite an adult education class. These men would pass through the front gate only in a box or at the expiration of their very long sentences.

With the consent of the P.K. and the Warden, my class was abolished and I attempted to establish on-the-job training for the men at the camp, felling and bucking logs, skidding, loading, sorting and stacking lumber, tail sawing, running the edger, firing the boiler and slopping the hogs. These were purely elemental things mostly for brute strength and ignorance and, surprisingly, the more sophisticated the man, the more he thrived on the diet. There were bankers and bums, city slickers and Hoosiers, a night club owner and a reputed minister. Most were young and healthy, but some were old and some were even cripples. Each was required to do his best and, we were the judge of that.

Our quarters in the original camp were primitive if one takes a little liberty with the truth. The building was a 20 by 30, two-story old house, our normal crew was three officers and 27 men. The men slept upstairs in double-decked bunks 26 inches wide, spaced just wide enough for a man to squeeze sideways in and out. Sanitation was impossible, but laundry and baths were strictly enforced. Water was carried by hand from the river, the tub was under the stairs in the dining room near the box stove; the floor was worn spruce plank with the knots protruding.

The three of us officers had it much more elaborate. There was a single bunk on each side of the dining table; the third man had to sit on a chair, his bed was against the wall opposite the table. At night the "livestock" gambolled on the table, eating the crumbs left from the evening snack and to get up and down they climbed the blankets onto our shoulder or head and jumped to the table. They were always a little heavier on the return trip. I still sleep covered.

At 9 P.M. all kerosene lights were out, guards and "cons" went to bed. Counts were at 7 A.M., 12 noon, 5 P.M. and 9 P.M. These counts became ritualistic and to this day, twelve years later, I find myself counting diners and theater patrons and other gatherings.

With three officers we worked five days and every third night and every third week end from 7 A.M. Friday to 5 P.M. Monday. Winter months we ran two camps, a softwood camp on the north side of Ellenburg Mountain and the base camp at the mill stayed open as a supply camp and cut hardwood sawlogs. Then we worked two out of three if we weren't snowed in, which was only during January, February, March and part of April.

My first instructions by Warden Murphy were to build a new camp, clean and sanitary, capable of housing 40 men and with officers' quarters. The job sounded easy with a crew of 27 men and a sawmill; it was challenging, and interesting, too, but not easy, more like pushing toothpaste back in the tube.

Three of us drew up separate floor plans. Since the danger of fire was great, two of us insisted on a one-story building; we modified our two plans, taking the best of each and gained the Warden's O.K., thereby unintentionally gaining a strategically placed enemy. Unfortunately, this gentleman was familiar with the laws governing the construction of this type of building and the formalities required; I was ignorant of them.

All State institutions are inspected annually by a Board of Visitors and an Inspector. The Inspector could summarily close a city or county jail, but only make recommendations in the case of State prisons. He and the Board had each year condemned the camp, recommending its repair or replacement. With this recommendation and the very explicit instructions of my boss, Warden Murphy, we built a camp—rather we repaired an existing structure.

In the February-March, 1954 and October-November, 1955 issues, THE CONSERVATIONIST *published articles titled, "Rebuilding Land and Men." These dealt with forest camps for rehabilitating young men. Within the past year, this concept has been expanded and new camps opened. The following article, written by a District Ranger, tells of an early and entirely different camp, one for mature criminals. In no sense a commentary on the present camps, it is offered for its vivid picture of one phase of earlier Adirondack life. At the same time, it evokes the flavor of any woodland camp, where men are on their own in the hardships of winter. Finally, we hope it will stimulate continuing thought on ways of conserving forests and men.—Editor*

The repaired structure was 40 by 80 feet and built of fieldstone picked from the river bank and lumber sawed at the mill. It was clean, light and sanitary. The men had 29-inch single bunks, flush toilets, hot and cold running water and a common radio. We had the services of the plumbing gang, a crew of carpenters under a guard boss, who also took care of the stone mason crews.

There is an amazing amount of talent in our prisons, among the "cons" and among the guards. My part was logistics and to take the rap for "goof ups," but thanks to the talents of the men there were very few. I did not cut red tape; like smoke from a filter I went over, around and through it; in fact, I did not know it existed. Tom Murphy knew and enjoyed every minute of it.

The camp and sawmill were justified because of the extensive timberland held by "Mr. Hooker." The camp and mill, if run and operated properly, could have been a profitable venture. Not that moneywise it would have shown a dollar and cents profit, but in the health and welfare of the properly selected "cons," and at the same time furnishing some of the lumber needs of the institutions of the State, to say nothing of the proper management of Adirondack forest land.

The prison officials are not to be censured for closing the camp; after all the primary and only job of the officials is the security of the convicts sent to them by the courts. What P.K. would take the chance of assigning 30 or 40 men year after year to an outside job without expecting a "beat" to be made. He is the man holding the bag in the case of a beat. A beat can be a very expensive thing; it can be dangerous to the public as well. Under the present rules and regulations, I believe there can be no prison camps.

The present day youth camp is different. It differs in the age group selected, it differs in the purposes to be served, but mostly it differs in the method of selection. In a youth camp, young offenders are selected by a group of several trained persons, the responsibility is divided and the public accepts the fact that the benefits outweigh the risks involved. The P.K's. I have known were some of the best, the most capable in the State, but I doubt that they would assume all of the responsibility entailed today.

I have no first hand knowledge of the youth camps and their problems. However, after my timber cruising days, I was a foreman at a C.C.C. camp for a short time. I enjoyed it and had the usual problems, but I preferred the prison camp. Very likely this was because of the stricter discipline and control. The mixing of first offenders and oldtimers had a leavening effect. The younger members had impulsive tendencies that were often discouraged by the oldtimers—but not always.

During the early days of the school expansion, convicts were used as teachers and, they were good ones. The class

in mathematics was taught by a "con" doing a long bit for safe cracking. The 20 some students were entirely visible to the guard on duty, but not the blackboard. The behavior of this class was excellent and their attention to the teacher was commendable. One relief guard evidently thought that the good behavior was a suspicious condition, so he walked in the door and looked at the blackboard. A diagram of a safe and the best places to drill were indicated. It was decided that this was carrying rehabilitation too far and the class was discontinued.

In camp, trouble was often indicated by the grouping of certain individuals and their avoidance by the rest. On one occasion, this seemed to revolve about the teamsters and their helpers. The 9 P.M. count was a bit more orderly than usual. A check of the supplies showed a shortage of staples and one whole barrel of salt pork (460 pounds) was missing—barrel and all. An officer, well acquainted locally, made inquiries and picked up a comical rumor. The suspected men were maneuvered together and the joke was told. It was meaningless to those not involved, but four men laughed; two others talked. They had been trading the supplies for high wine and other forbidden pleasures.

The mess hall was the center of most trouble. Meat and groceries were negotiable, so were blankets, but on one occasion, oats from the stable were used to advantage. One of the Hoosiers was acquainted in the area we were working on some repairs. How he made contact is still his secret. Everyone loves a lover but carrying a 50-pound sack of oats three miles on a dark night was going too far.

Organization is, of course, a basic impulse of humans, but then there are organizations and there are gangs. At one time, long ago and far away, a group of pigeon fanciers organized a city prison and control was seriously jeopardized. We received one of the lieutenants at the camp; apparently he was a muscle man, for that was his approach. Unfortunately, we lost the services of a very desirable young man on his first move; the lad "packed it in." His second move was the only open defiance I ever experienced and me with a peavy in my hand. Another case of almost equal childish stupidity occurred during a change in mess hall help.

One of the outgoing help took the coffee with him, then he traded it for smokes to an incoming new man. The first meal there was no coffee and the tea would eat the enamel off the mugs. It demanded comment. I found some of the new "cons" drinking coffee and some tea. I asked the cook how come. He said that some of the men bought coffee from one of the other men who had his own. This man produced about 20 pounds of our own coffee and in our own bag, yet. He willingly gave up "his" coffee and was sincerely scared, so I took no disciplinary action. I did try to catch up with the seller but it was too late; he had gone out on parole. This crew turned out to be very good.

Getting a good "con" cook was a major victory. Tony was a good butcher as well, but I lost him in a fist fight with an Alabaman over how to cook southern fried chicken. We got a cattle rustler in his place. He was good, too. During my 15 years we had at least 25 different cooks. There was the Pullman cook who lasted a few weeks, a jewel thief who was so good that the Warden wanted him. "Sloppy" was just that in his flour sack apron, but actually he was very clean personnally and in the kitchen; he just looked that way. "Boxcar" was a muscle builder, his cooking was uninspired but nourishing. A little guy, Jimmy, could make first class sole leather out of the best steak, but throw him a fish and he was the best cook this side of Maine, so he cooked only on Fridays. John, a mulatto, was good at everything ever asked of him but John would only cook in emergencies.

"Black" was a mystery, using his first alias with no previous record, doing a short bit; he refused parole to keep his mother from knowing where he was for three years. He had tensions since he wouldn't talk and to relieve himself he worked. Through his efforts, and the help of "Mac," now a very successful man, they set up a furniture shop. They built new and repaired old furniture for the camp. They had a 7-inch sawblade and a 35 H.P. stationary motor; everything else was homemade. The old camp became a shop and, with the presence of a couple of artists, it also became a studio. Canvas was expensive, so they painted on muslin, bracket fungi and boards.

The gang was always hungry; during the cutting and hauling we ate the usual three meals plus a healthy snack at about 8 P.M. Week ends the men cooked anything edible—burdock greens, dandelion, cowslips and beet greens with any red meat available. Once there was a doe that met a near-sighted hunter. She was old and strong, but they ate her. Two raccoons came out of hibernation much too early; the jewel thief cooked them. For me it was a waste of shoe grease. A 28-pound porkie was killed; it dressed out at 8½ pounds. It was soaked overnight in salt water, parboiled and stewed. It was tender and with the deliciously cooked and served vegetables and light gravy, it tasted like the Fels naphtha soap my mother used. Some of the men repeated the experience. I never will.

Softball seemed like a good idea and the restricted area of ten acres was big enough, so they roughed out a diamond. A grasshopper or mountain sheep would have felt at home. It was the only granite ball field in the nation. They played two games the first week end; they were violently fought and they were the last two games. The men couldn't play, perhaps because they couldn't stand losing, and yet in work they were good-natured or at least average.

The river was a rocky, gurgling misnomer; it was the type of stream that we as children enjoyed wetting our feet in to the despair of our mothers. Each spring it became an ugly torrent, then receding into a trickle, fitting its bank like a skinny bum in an oversized coat. A swimming hole had to be; so it was. With hand speaks, bare hands and shovels they moved the rocks into a dam faced with dirt from the banks, it was crude but effective. In the summers almost all of the men swam daily. Black, red, yellow, white—the swimming hole was indifferent to color, and there seemed little difference in the demand for cleanliness.

I have often (too often) talked with people about working with these men. Memories of the movie chain gangs give the impression that we were shotgun guards or that arms were necessary. We were not allowed to have guns at any time. The relationship was exactly that of a foreman and crew. The men assigned to camp had too much to lose to act up. A logging camp on the other hand is not a gentle place at any time. The men are in top shape physically and they handle heavy objects so accidents were bound to happen. On one occasion I was hit accidentally in the back of my head with a flying skidpole. I flew like a bird and landed head first in a six-foot snowbank. The men pulled me out at their leisure and in great glee.

Two other accidents were far from funny. The Ellenburg Mountain has the cold weather that other places brag about and it sometimes happens unbelievably fast, from 10 above to 20 below in a few hours. We were hurrying to load a sled with hard maple logs when my foot slipped and I found myself paralyzed from the waist down three miles from camp. When I regained consciousness the second time, I was on a plank and halfway to camp and covered with most of the men's jackets. There may be statistics on how long a man can live, half paralyzed at 26 degrees below zero, but I don't believe them. The second time, several years later, and with another crew, I was rushing things for the same reason and a cable snapped. The hook hit me in the eye. I woke up unconscious and blind. They saved my insurance company $2,500.

Any woods foreman has had personality clashes with his crew, with its threats of violence. We had very little, in fact, other than the organizer, I can only recall one. After one incident in the mess hall, I had to straighten out one of the waiters. "Minnie," to make himself important, had bragged of knifing three men. He was doing 20 for manslaughter, so maybe he had. When I bawled him out, he repeated the tale and said that the teamster and I were going to be number four, and five.

I sent him in, but for some reason, the man was back the next day. He was not young and partly crippled. He was intensely hated by most of the men. I was as much concerned about his safety as about ours. My scheduled vacation came up and I was relieved by an excellent officer and I gave him the story. When I returned, the officer handed me a homemade shiv, since as he said, it had been made for me. "Minnie" wasn't much of a man in any sense of the word, but then it doesn't take much of a man to stick a double-edged blade in your chest while you are asleep.

Tony was different; he was quiet and well liked. He went crazy while we were peeling posts in a swamp a mile and a half from the camp. He backed into a clump of cedar and stood glaring silently out. He had a bark spud in one hand and a double-bitted axe in the other. It was nearing lunch time anyway, so I moved to the trail opposite him and called the men for lunch. I counted the 17 men as they came out to the trail, but no Tony. I called again, "C'mon, Tony, let's eat." Tony came with his axe in one hand and spud in the other. I waited for him to get ahead of me but he stopped. I repeated the invitation, walked down the trail ten feet ahead of the axe and spud for a mile and a half. That was a long walk. I sent him in and that night he tried to commit suicide. A psychiatrist would have known he was harmless, but who's a psychiatrist.

Nate was a typical city slicker; he behaved himself and earned the right to finish his bit outside the wall. He was completely out of his element, but he adapted slowly to the axe and saw. He was frank about his dislike of hard, manual labor. He enjoyed talking politics, on which we differed; the philosophy of right and wrong, on which we differed so much that we often had half the outfit arguing up to the night count. I knew he was conning me into a late count and he knew I knew it. He was liked or tolerated by "cons" and guards alike.

When Nate first came to the camp, he was assigned to the upper camp in early winter. The road was one uphill mud-

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Issuing Party Permits

by Shirley R. Parker,
Senior Clerk, Bureau of Game

The author classifies an incoming batch of applications for permits

WHO got the party permits for deer in 1962?

The answer is — approximately one of every 3.7 big game license buyers. During the period September 17 through October 19 a total of 45,675 applications for these permits, representing a total of 171,528 deer hunters, were received by the Bureau of Game. Since there were only 35,900 permits to issue, the Bureau had to disappoint more than a few people in the 1962 season.

Many of the disappointed applicants have expressed the thought that the bulk of the permits went to non-resident licensees, but such was not the case. Actually only 5 per cent of the 136,376 party members were not New York residents. The greatest percentage of out-of-staters were included in the permits issued to Areas "H," (Orange County) 10.4 per cent; and the least to Area "K," (western New York) .3 per cent.

A theory shared by many of our suburban landowners and farmers was that all of the party permits were issued to "big city" hunters. Actually a great many of them did go to the urbanites, because they do constitute the vast majority of our State's population as well as the bulk of our resident license buyers.

For example, the 1960 census for the counties open for party permit hunting in southeastern New York (Albany, Greene, Columbia, Dutchess, Delaware, Otsego, Schoharie, Ulster, Orange and Sullivan, was 809,082 as compared with a whopping count of 10,557,830 residing in greater New York City, Long Island and Westchester. Likewise, the combined population of Buffalo and Rochester, 851,370, exceeds the total population of Area "J." (Allegany, Cattaraugus, Chautauqua and Steuben) by 484,146. Further we know that only 35.1 per cent of all the permits issued went to hunters residing within the geographical confines of their area. These ranged from a high of 94.8 per cent in Area "K" to a low of 20.5 per cent in Sullivan County, Area "G." However, previous studies made on dispersion of deer hunters during buck-only seasons indicated a similar pattern of "shift" by hunters within and without their home counties.

A few unsuccessful applicants requested intercession from legislators, local police chiefs, hunting safety instructors, and others, but to no avail. When the quota was filled there was absolutely no one who could help. This writer even rejected her brother's-in-law application for Area "D" and more than several rejected applications included the names of Department personnel.

Applications were filed in chronological order as they were received. First to be issued and mailed were the permits for the Northern Zone, because the season opened earlier there. At the same time, the clerical unit concentrated on the Southern Zone area with large quotas such as "C" with 4,600, "I" with 4,800, and "J" with 6,400—but always in the order received.

From the accompanying table one can gather the pressure under which personnel worked to open and examine 45,675 pieces of mail; prepare 10,081 rejected applications for mailing; process 35,594 successful applications, and prepare these for mailing. The unit also answered an average of 30 telephone calls per day for a 40-day period and prepared for reply roughly 3,950 pieces of correspondence relative to party permit hunting. (It was interesting to note that during the Cuban crisis, the telephone was nearly silent, but as soon as the Russians started dismantling missiles, it started to ring again.)

Unfortunately, the pressure got to us one day, thereby benefiting 362 applicants for the Southern Tier. October 12th's mail receipts for Area "J" were erroneously processed, and, we were forced to exceed the quota.

In attempting to buy the best quality in materials to be issued to permittees, the Bureau has encountered delays in delivery of some items for three consecutive years. The first year, 1960, we got the collywobbles over armbands; we could not find a manufacturer. The following year the problem was the metal seals. They were manufactured under specifications ordered by the State's purchasing specialists. The contractor could do the job as ordered, excepting the delivery date could not be met; *voila*, a two-week delay. The delay on materials encountered in 1962 came from the fact that the desired heavy duty envelopes could not be supplied on the date specified.

In 1962, for the first time, we attempted decentralizing the job of sending out application stocks to license issuing agents. Next year, the job goes back to the Albany office *in toto!* Everything that could possibly happen to complicate the job happened. A shipment of applications sent from a printer in Buffalo to our Poughkeepsie office was lost in transit. As a result, agents in the southeastern counties didn't re-

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Cold Storage Bear

by Willet Randall

BLACK BEARS are the largest and wariest of our Adirondack big game animals. Second in economic value to the whitetail, they are more prized as a trophy. Yet, only a few are killed during open seasons in the North Woods, and since bears have no enemies except feeble man, this brings up the question: "Why?"

There may be more than one answer. One theory for the scarcity argues that a bear uses poor judgement when bedtime comes. If he selects a den where water seeps in, he may freeze down and die. Often he makes his bed under an upturned tree, scraping together whatever material he can reach without leaving the spot. Nature builds his roof of heavy snows and the crust seals him in until the warm March sun thaws the roof, then trouble starts. The nest becomes soaked, putting him in cold storage for keeps.

[*This is a novel hypothesis. It has not been advanced in any of the scientific studies of bear. However, Nick Drahos, who took the excellent photographs of a sleepy bear in his den, last issue, says that such a fate could overtake a thin bear. But on the other hand, the usual opinion is that thin bear do not den up. Any proof from readers?—Ed.*]

Dens are usually occupied by a single animal. Families more often seek the caves. Do bears occupy the same dens year after year? I know where there are three in this area (North Creek)—one on Peaked Mountain, one on Casey and one on Bullhead. From 1910 to 1926 all of these were bunk houses for bear families—how many I don't know. Early in April, tracks in the snow leading to and from these dens proved the bears were there. They came and went on scouting parties until the snows had melted. This seemed to indicate safe retreats. Lumberjacks, beaver trappers and hikers sometimes stumble across dead bear that have frozen in.

Bears have hazy eyesight; but what they lack in sight they make up with their noses. Probably none of our game animals is possessed of keener powers of scent. And when it comes to hearing, well, the bear's is matched only by that of your mother-in-law.

Popularly classed as a hibernater, this is only partly true. The bear does spend four to five months in the den but his stupor is not deep and if you approach the den you'll find the occupant very much alive.

In length, bears seldom exceed five feet and may weigh up to 500 pounds; more often 200. The color is a uniformly rich glossy black with slight variations. I have seen two with dull white markings on the face and breast. Range—Canada to Mexico. The several species include polars, grizzlies, blacks, browns, gray, blue and cinnamon (the latter five color phases). There are other allied forms but only the blacks are typical New Yorkers; the number of species is small as compared with many of our wild animals.

A bear tames readily (so does a "blonde", but you can't trust 'em; both have the same unpredictable temper). Do not kid yourself on the good job of taming you have done—you may get chewed up. The law says bears may not be kept in small zoos or roadside stands. This is a good law because these captives are positively dangerous. They break out of the strongest enclosures and grow bolder with age. We have kept them here at "The Ark" for many years, mostly for study purposes. Our dens, made of cement and stone, were roofed with chainlink fence under covers which could be lifted so we could look into the nests at all seasons.

We found that the mating time was July and cubs were born in February—naked and blind, weighing about one pound. Females start mating when about two and a half years old; cubs number two; sometimes there are triplets. We know that captive females breed only every alternate year so it seems reasonable to suppose they follow that pattern in the wild. Pregnant females habitually den alone but otherwise sleep with their cubs of the previous spring.

The second winter these youngsters are on their own and den by themselves; four or five sometimes get into one den. Sometimes mature males are in the same caves with them. When the old female is not pregnant, he may winter with her.

We found that when pairs were left together during hibernation, there were no cubs the following spring which leads to the belief of old natives that the male destroys the cubs. If we feed them during winter, they stayed awake most of the time and fed about every second day. When we stopped feeding, they went to bed. Fall brings ferocious appetites; they consume great quantities of food and grow excessively fat preceding retirement. The quality of food does not matter; it's quantity alone. This may consist of anything a pig would eat plus a lot he wouldn't. In the wild they crave fruit, any kind, apples especially and tear down limbs and break off tops in their efforts to dislodge them. They leave great piles of excrement around feeding places. They stay in a given locality only while the picking is good, then move on.

Honey and pork are their pie and of late years the public campsite dump has been a favorite rendezvous. This is a new wrinkle with Adirondack bears, but it was, and still is an old trick to break into lumber camps and wreck the cupboard. When this happens there's only one remedy. Old Adirondack natives used to hunt them with dogs, smoke them out, catch them in deadfalls made of heavy logs, put strychnine in dead carcases, particularly those of deer, and bait them with a live pig or lamb to a log cubby where steel traps weighing 40 pounds were concealed, attached to heavy log drags of a 100 pounds or more.

I once followed the trail of a bear caught in one of those traps. You didn't need good eyes to follow that trail. Trees and bushes as high as the animal could reach were broken or bitten off. A modern tractor wouldn't have kicked up a greater ruckus — but it was the most barbaric and cruelest thing I have ever witnessed. Most bears are now shot.

If you hunt bears in the Adirondacks, you'll probably have a lot of fun, but chances are you won't see any bears. Many old natives, who live within their haunts, have never seen one. Don't follow a wounded bear if you are alone. They can pack a lot of lead and get away with it. Bears won't attack you unless wounded; then they are dangerous. A mother with cubs will put up a fight.

If you happen to spot one at close range do what this lumberjack did. One early morning he was returning from a spree when he met an old bear standing erect in his path. Suddenly, he recalled how he had been taught to pray if he got in a tight spot, so, down on his knees he went and with eyes toward Heaven he poured out this prayer: "O Lord, I never did ask any odds of you—and I don't know as I do now, but if you won't help me, don't help the bear, but lay low and keep cool, and you'll see the dambdest fight you ever saw in your life."

And then there were Jeff and Jim who hunted Adirondack bears last fall. Both worked at the local mill and got leave to go bear hunting. After several days of absence the boss asked Jeff why Jim hadn't returned to work: "You had your bear hunt didn't you?"

"Yes," said Jeff, "but I don't think Jim's comin' back no more." "Why?" asked the boss. "Well, you see it was like this. We found a bear den but the bear wouldn't come out, so Jim crawled in to see if he couldn't find out why. That was eleven days ago and so far as I know neither Jim nor the bear has come out yet."

Most of us think the law against taking cubs in certain areas should be repealed. We think it is far better to take the cub than his mother, a breeder.

Sometimes a bear will show you his teeth at close range which is the only proof of his age. Even then it's a guess whether he's an oversized cub or yearling.

Bear stories grow with repeated telling. You may be one of the lucky ones and run smack into one of these elusive critters. Fear not if you do. If you are as good a shot as you claim to be, are cool in the head and quick on the trigger, you should make a safe score and I can vouch for the statement (notwithstanding reports to the contrary) that Adirondack blacks are among our most peaceful citizens.

Robert Avery and dressed bear

Record Black Bear

A New York State record black bear, weighing 562 pounds field dressed, was taken this winter. Robert Avery of Arietta, downed the animal on December 1, 1962, in the Town of Benson, Hamilton County, on the northeast corner of Moose Mountain, just south of Mud Lake.

The 562-pound weight, including heart and lungs weighing about eight pounds, is the heaviest ever recorded in New York State and probably in eastern North America. The previous record bear taken by a hunter was killed in 1955 in Essex County with a dressed weight of 540 pounds including heart, lungs and liver. The calculated live weight of Avery's bear is a little over 650 pounds.

This 650-pound live weight easily beats the 599-pound record bear that was captured, ear-tagged and released in 1957 near Tupper Lake. As far as is known, this latter bruin is still alive and wandering the mountains.

Hauling the mammoth creature out of the woods took two days. Finally, a crawler tractor was required to negotiate the 4½ miles of wilderness. Avery planned to save the hide and have the bear mounted in an upright position.

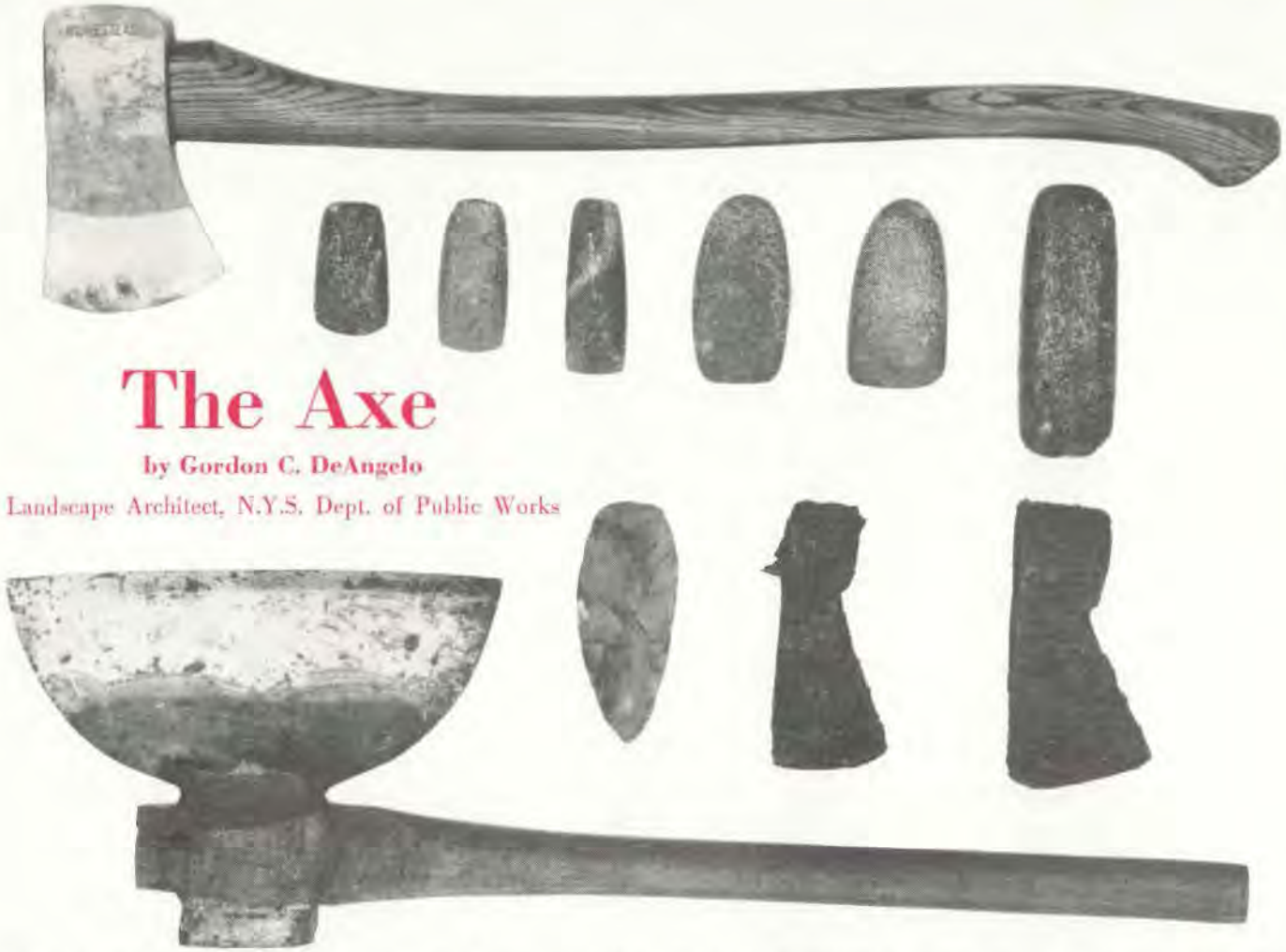
Examination of the skull and tooth wear provided an estimated age of 5½ to 8½ years. As with many bears killed each year, this animal was trying to avoid drivers in a deer drive when he was downed. Several bear had already been taken earlier in the fall by other hunters with Avery.

This was a male bear. Heaviest females rarely weigh more than 300 pounds, even in the older ages. Measurements taken by Department biologists help to show the large size of this trophy. From tip of nose to tip of tail, he measured 71 inches, just one inch under six feet. His neck was 28 inches around, the head was 14 inches long with canine teeth almost an inch and a half in length. The hind foot measured 7¾ inches in length and 4¼ inches in width.

The 599-pound male bear, trapped and released in 1957 and estimated to be 7½ years old, measured 66 inches in length, 35 inches around the neck, 15 inches in head length with canines slightly longer than one inch. The hind foot measured 8¾ by 4⅛ inches.

Remarkable weight gains have been noted among bears. For example, two male bears that were trapped, ear-tagged and released were caught again three weeks later with weight gains of 81 and 92 pounds. Bears will gain on the average 50 pounds a year for the first four years. After two years, males grow larger and heavier than females. Several male bears have been trapped and released during the summer months, weighing over 500 pounds, so it is entirely possible one of these huge animals now will even exceed the new record of at least 650 pounds.

If you intend to hunt for large bears, the central Adirondacks is the best place to try. Bear hunting can be a very discouraging sport, and the success ratio is low. However, the thrill of actually seeing and bagging New York's largest and wariest big game animal is well worth the effort. Interested sportsmen may write for the leaflet "There Goes A Bear," to the State Conservation Department, Division of Conservation Education, Albany.—STUART FREE, *Leader, Big Game Project*



The Axe

by Gordon C. DeAngelo

Landscape Architect, N.Y.S. Dept. of Public Works

Top: Modern Michigan pattern. Top row: Stone axes from Celts from 3000 B.C. to 1400 A.D. Bottom row: Point Peninsula chipped hand axe, 2000 B.C. to 1000 A.D. and English "trade axes" 1690 to 1720; Canadian pattern broad axe of the 1800's.

ONE last stroke of the paddle noses the canoe into the narrow beach. The pack baskets are swung ashore. A day's paddling has brought you away from the honk of the automobile to the mournful cry of the loon. A sense of loneliness pervades the forest, but as the first flat "chonk" of the camp axe echoes across the water, the wilderness becomes "home."

One old-timer said. "You can *exist* in the woods with a belt knife, but it takes an axe to make you comfortable."

The axe is ancient. Dr. Leakey, the East African archeologist, excavating Olduvai Gorge in Tanganyika in 1960, found evidence that prehistoric man made chipped edge "hand axes" nearly 2 million years ago.

Neolithic (8,000 to 10,000 years ago) "axe-factory" sites have been found in the English Lake District and North Wales in Great Britain. At these sites close-grained volcanic rock was chipped roughly to shape and then taken elsewhere for the final grinding and polishing. These "celts" were widely traded and in some cases exported to Europe.

The Lamoka Culture brought celts and hand choppers with them when they moved into south central New York State approximately 5,500 years ago.

It is not known exactly where copper was first used, although Badarian graves in Egypt of about 4000 B.C. contain copper beads and pins. Copper saw limited use around 2000 to 1800 B.C., in south and central Europe, but stone artifacts were still much more common.

In northeastern America, primitive man learned to make use of the copper deposits in the Lake Superior region. When the people of the Laurentian Culture invaded central New York State around 3000 B.C., they brought with them copper celts and other tools. On Isle Royale and the Keweenaw Peninsula in Michigan, one can still see the ore beds once worked by the primitive "heating and beating" method.

While our Laurentian people were using their soft copper axes, metal workers in Mesopotamia had learned to combine tin with copper and began to produce the harder metal—bronze. Cast bronze axes became highly valued due to their ability to hold an edge. Sometime during this period, the double-bitted axe made an appearance, for by the "Golden Age of Crete" (2000 to 1600 B.C.), a broad double bladed axe called the Labrys was used as an insignia of the Minoan goddess. Later, Homer in his "Odyssey" tells of Odysseus escaping from Calypso's island by building a raft of alder, aspen and pine with an auger, an adze and "a good handy axe of bronze, double-edged, with a well fitted handle of olive wood." If we accept the Trojan War as the background for "The Odyssey," this double-bitted axe reference dates cir. 1200 B.C.

It must be kept in mind that no precise dates exist for the Stone, Bronze and Iron Ages. In Asia Minor, the Bronze Age may have lasted 1,000 years, while the Australian bushmen have never left the Stone Age. By 1300 B.C. iron was being smelted in Asia Minor, although no regular use of iron appeared in Europe until 600 years later. It was only after 700 B.C. that European farmers equipped with iron axes could seriously tackle the temperate forests. In the Americas, the natives had to wait for the arrival of the Europeans before iron became available.

Axe in America

We may never know just who brought the iron axe to America. At present we must discard a broad bladed Viking axe found near Beardmore, Ontario, as a probable hoax: however, all those with a spark of romanticism hope that the archaeologists and scholars eventually prove the presence of axe-wielding Norsemen in the Northeast a thousand years ago.

When in 1497, John Cabot arrived near Newfoundland, the coastal Algonkian tribes were using both grooved and ungrooved stone axes (celts). By the time that Cartier had investigated the northeastern coast in the early 1500's, the Europeans had created an "insatiable appetite" among the Indians for iron axes, knives and nails as well as brass and iron kettles. Where these items were available, stone, bone, and pottery quickly disappeared. Later, in the early 1600's when Hudson's "Half Moon" was seeking the Northwest Passage, and Champlain's "young men" were traveling through what was to become New France, most of the inland Iroquois were still using smoothly polished celts.

The first trade axes were broad edged with a narrow socket which was formed by bending the flanged end of the head. Those found in New York vary in size and are occasionally stamped with a cross enclosed by a circle. Beauchamp in his "Metallic Implements of New York Indians" (N. Y. Bull. 55, 1902) stresses the quantities of trade axes found within the State. Two hundred pounds of axes were reported to have been uncovered near East Aurora, while a farmer near Lima "paid for two years tillage" in axes found in the area. In addition, Beauchamp reported that early blacksmiths along Cattaraugus Creek were kept supplied with iron from reclaimed trade axes.

When Van den Bogaert visited the Oneidas in 1634, he reported that the Indians "had very good axes to cut underwood," and sketches of Iroquois clan "totems" made in 1666 show the Turtle, the Beaver, and the Eagle holding typical trade axes.

While we have no knowledge of when the custom of "burying the hatchet" evolved, it is interesting to note a quote from the writings of Lieutenant Governor Cadwallader Colden regarding a council at Albany in 1681 (seven years before Colden was born). "Then the axes were buried in the Southeast end of the courtyard and the Indians threw the earth upon them."

During the early 1700's, the use of the axe in hand to hand combat caused the gradual development of the tomahawk. This light fighting axe appeared to be patterned after the military hand axes of Europe. In the tomahawk, the rear of the head was extended into a point or knob. Later, this extension was often cast into the shape of a tobacco pipe, a handy implement if, while smoking the "peace pipe," negotiations broke down.

Due to its shape and balance, the tomahawk, while relatively useless for cutting timber, was admirably suited to throwing. This point was noted by M. Pouchot, Commander of Forts Niagara and Levis during the French and Indian War (1755-60). He also commented upon this weapon as a standard piece of Indian equipment, stating that "They carry their mirror and tomahawk upon their hips."

George Thomas, present Council Chief of the Onondagas gives "Ah-sqweh-sah" as the Onondaga word for axe and "Nee-wah-sqweh-sah-ah" for hatchet.

The early Colonists arriving in the New World were faced with a serious problem. The forests of the Northeast appeared to stretch on forever. If they were to raise their own food, the land had to be cleared and their major tool, the axe, was not made for heavy use. The thin-eyed trade axe was bit-heavy, awkward to use and easily broken. The tomahawk was useless for heavy chopping and the broad bitted military axes stuck in the wood. Gradually a heavy polled axe with a medium width blade evolved.

We do not know exactly when an axe, recognizable as modern in form, was made, but by the late 1700's the backwoods blacksmiths were welding expensive English "crucible steel" bits to soft iron polls. Each axe was handmade to order. The pioneer had to wait weeks for delivery for a dull axe on which he must spend additional days at the grindstone to produce a cutting edge. Yet the customer waited, for the axe was a necessity!

John Mason Peck in his 1837 edition of the "Guide for Emigrants to the West," wrote, "Hundreds of cabins are made without a nail or particle of iron about them. . . . The axe, auger, froe, drawing knife, broad axe, and crosscut saw, are the only tools required in constructing these rude edifices; *sometimes the axe and auger only are employed.*"

Several years before Peck's "Guidebook" appeared, two young men from Hartford, Connecticut hit upon a scheme that would revolutionize the entire approach to axe making. Samuel and David Collins worked for their uncle, David Watkinson, selling iron and Sheffield steel to blacksmiths. David, seeing the slow process of hand crafting axes wondered why "finished" axes could not be sold to the public. The production problem appealed to Samuel, and the two of them together with a cousin, William Wells, bought a gristmill on the banks of the Farmington River at South Canton. After setting-up a water-powered air pump to feed the forges, the Collins boys hired a few blacksmiths and in 1826, they proceeded to produce the first standardized axes.

By 1828 they had so many orders that they installed trip hammers and a battery of six-foot grindstones. With this equipment, they could turn out 10 axes per man per day, and three years later (1831), they were employing about 40 men.

Even with the Collins' innovations, the quality of the product depended in a large measure on the skill of the blacksmith. After the soft iron poll or head was beaten into shape, the blade was grooved to take the steel bit. Borax flux was applied to the surfaces to be joined, deoxidizing the steel and iron. The actual welding process consisted of heating and hammering until the union was formed. It was during this process that the trip hammers proved invaluable in speeding up production.

Following the welding process, each axe had to be tempered. Here the experienced blacksmith was essential in creating a temper which was neither too brittle nor too soft. Under these primitive methods the heating of the axe and quenching it in brine usually resulted in a hard temper which was then drawn out to a certain degree by re-heating. At first the axe would take on a light straw color, then brown, purple, blue, dark blue and finally black as the oxides began to form. It was the blacksmith's trained eye that detected the "pigeon blue" color which indicated the proper temperature for a good temper.

More Modern Production

Until 1832, the Collins factory operated on the principle that each man made an axe with the aid of water-powered hammer and forge. In that year, however, a man by the name of Elisha King Root arrived in Collinsville. Mr. Root had worked as a millwright's machinist in Chicopee Falls and had studied the Whitney method of speeding up production through the use of machines and "production" lines. As an inventor, he had impressed a certain Mr. Samuel Colt in the summer of 1829 after he saved Mr. Colt from being "roughed up" by an angry mob in Ware, Mass.

Though Root was only 24 years old when he went to work for the Collinses, the ten years following his arrival showed a marked increase in output. He developed a machine that punched out the "eyes" in the axe polls, a forging machine that formed the poll and grooved it for the bit, a tempering drum furnace to heat many axeheads at one time, and grinding jigs to quickly put a sharp standard edge on the bit. By 1842 unhandled axes were being sold at $14.00 to $16.00 per dozen and the "arm and hammer" trade-mark of the Collins Company was respected throughout the country. This was due in large measure, to Root's efforts.

Root not only helped the Collins brothers, he also contributed much to the development of another "land taming" tool, the revolver. In 1849, Sam Colt, offered him the largest salary in American industrial history up until that time, in order to have Root come to Hartford and apply his methods to the Colt Armory. At Colt's death in 1862, Elisha King Root became the president of the Colt Company.

Latter 19th Century Axe

During the latter part of the 19th Century, the axe took many shapes depending on the use and the regional idiosyncrasies of its users. Both single and double bitted axes appeared in patterns such as the Michigan, Jersey, Yankee, Connecticut, Western and many others. One 1919 catalog lists 22 American pattern axes together with 55 South American export patterns. Since many of these patterns were furnished in four weights, and some in six to eight weights, the woodsman was confronted with a wide range of choices to fit his personal preference.

A Sears Roebuck catalog of 1899 offered 11 pattern axes (unhandled) in weights ranging from three to five and one-half pounds. Prices ran from 54¢ for a "Red Ridge" Michigan single bit to 86¢ for a "Hubbard's Patented Easy Chopping Hollow Ground" Wisconsin double bit. The best handles ran 23¢ each. At this time the broad axe (timber hewing tool of the backwoods carpenter) came in two patterns, ranged in size up to 9 pounds (13½" bit), and cost $1.77.

Over the years many of these designs have been discontinued, and it would be difficult for the buyer to find more than two or three patterns and weights in the average hardware store. Nationwide, however, almost 100 different pattern and weight combinations are still in use.

In general, the longer handles and heavier heads are used in the Western "big timber" areas, while the Northeastern woodsman prefers 28-inch to 32-inch handles and heads no heavier than five pounds. Years ago out West, it was possible to tell where a man "hailed from" by his hat and his saddle. The same was true of the woodsman's axe. Even today, peculiarities such as the octagonal handles of Texas and Arkansas, and the habit of Adirondack loggers of hanging a double bit head on a single bit handle give some clue to the woodsman's "stamping ground." In addition, one occasionally comes across specialized axes such as the turpentine axe of the south and the undercutters or Humboldt axe of the west coast.

Choice and Care of the Axe

Although the choice of an axe is an extremely personal thing, certain generalities may be observed. Because professional woodsmen have been known to start fights over the various attributes of their favorite axe style, we will limit our discussion to the average user.

In choosing an axe, the following points should be kept in mind:

1. In picking a pattern, remember that narrow bladed axes work better in hardwood, while wide bladed ones are more suited to softwoods.

2. The longer your trip and the wilder the country, the larger the axe. Prolonged chopping sessions with a light axe may develop your muscles, but will also "raise Cain" with your polite vocabulary.

3. Buying the axe head separately and personally fitting a carefully selected handle will result in a generally better balanced and more reliable axe.

4. In buying an axe, you usually get what you pay for. Although we can recall that one double bitted "cruiser's" axe from a very expensive New York City outfitting house left a large half-moon section of one blade in a hemlock knot, we would still advise buying the best head that you feel you can afford. A "cheap" axe can be a headache.

The choice of single or double bit depends largely on use. The North Woods logger or the camper favoring extended wilderness treks may well prefer the balance and smooth swing of the double bit, as well as the opportunity to keep one blade thin for felling and one thick for splitting and "swamping." On the other hand, a short term camper or a farmer would prefer the safety and utility of the single bit axe.

In addition to the full size single and double bit axes, the camper might consider the "boy's" axe. This axe is a 2¼ to 2¾ pound single bit with a 26- to 28-inch handle, popular among Canadian pulpwood loggers and many campers. Its handiness in close places and light weight make it a first rate choice for "backpackers" and canoe campers. Based on this writer's experience with young campers, we feel this should be a youngster's first axe. We have no faith in the hatchet, except as a never-failing "leg biter." Perhaps they have a place in the garage tool box or the duffle of the "super-light" hiker, but as a camp tool—No.

The only safe way to chop with a hatchet is with both hands and in a kneeling position. Give a youngster a light axe and the extra reach keeps his shins away from the blade. Teach him how to use it properly and he will readily take to the safe use of a full size axe as he grows older.

Another light axe, the "cruiser's axe," is a double bit similar in size and weight to the "boy's" axe. While it is used to some extent in the small timber of southern New England, it is primarily used by timber cruisers. Due to its light weight and inherently hazardous double blades, its use should best be left to the experts.

A word might be said in passing concerning the famous Hudson Bay single bit. This axe, weighing a total of about 4 pounds, handle and all, appears in style to be almost a direct descendant of the belt tomahawk. In familiar hands, it is a useful tool, but due to the unusual backward sweep of the blade, it became a "knee splitter" in the hands of the amateur.

When purchasing an axe head, the buyer must place his trust to a certain extent in the hands of the maker. In selecting the handle, however, there are definite points that the customer must keep in mind.

Axe handles come in patterns similar to the heads. Single bit styles range from the extremely curved "X pattern" to the practically straight "Maine" or "Hoover" pattern. Double bit handle shapes do not vary as much although the "double bit knob" style has essentially a single bit shape. As with axe head patterns, much of the variety in handles is regional and the choice is up to the chopper, depending on which feels comfortable to him.

While red oak, white ash and even sugar maple are sometimes used, rapid growth hickory is the usual choice for axe handles. The buyer should examine the end of the handle and count the annual growth rings. As long as there are not more than 16 annual rings to the inch (this indicates the proper density), it does not matter whether the wood is "white" or "red" hickory.

A good axe handle should be straight. The wood grain should run evenly down the length of the handle, with the annual growth rings parallel to the blade. Be suspicious of painted handles. You can't see the defects!

Regarding handle length, a backwoodsman from the Hudson Highlands once told the writer. "Ah reckon an axe handle oughta' be just long enough to reach the head." Though facetious, there is some truth in this statement.

Ray Benson, Onondaga County Forester, recommended an easy check for your personal proper handle length. While holding the axe handle with one hand in a comfortable grip, allow it to hang, head down, at your side. If the handle is the correct length, the axe head should just clear the ground. Knowing the length of the axe handle is handy for marking firewood lengths. Remember, Paul Bunyan's blue ox, Babe, was "42 axe handles and a plug of chewing tobacco between the eyes."

To Rehang Head

Even if you buy a finished axe, the time will come when it will be necessary to rehang the head on a new handle. The following procedure will insure a proper job:

1. Be sure that both the axe handle and the hardwood wedge are dry and well seasoned. Softwood wedges are not springy enough, while steel wedges crush the wood fibers and do not expand.

2. Cut part of the "deer foot" off of the end of the single bit handle so that it will not split when being driven. Always draw the head on by hammering on the other end of the handle with a wooden mallet.

3. Fit the handle to the eye of the axe head with a wood rasp or draw shave.

4. Assemble the axe and check for proper alignment and hang. Alignment is tested by sighting down the blade. The line of site should split the center of the end of the handle. Hang is tested by placing the axe on a table so that the end of the handle and the edge of the blade touch the flat surface at the same time. The point at which the blade touches the table determines the hang of the axe. Some axes such as the Connecticut and the Jersey single bits and the Pennsylvania double bit, are hung so that the *middle* of the blade touches. Most axes, however, including the popular Michigan pattern, are hung so that the blade touches about *two-thirds* of the way toward the back of the blade. Special steps should be taken to make certain that a double bit head is hung at right angles to the handle.

5. After checking to see that the axe head is well down on the shoulders of the handle, the axe is taken apart and the wedge slit is made by sawing or better, splitting the handle.

6. The axe is then reassembled, the wedge driven in with a wooden mallet, and the excess handle cut off with a hacksaw.

7. A strip of tape directly below the head will help prevent splintering when you "over-reach." The same tape at the end of a double bit handle will keep it from slipping out of your hand. A coat of bright paint over the eye and head (not the bit) will prevent a mislaid axe in the brush, and serve as a warning of a loose head. A clear non-slippery finish may be applied to the handle, or an occasional linseed oil rubdown is even better. Some loggers bore a hole in the end of the handle, fill it with linseed oil, and plug it tightly. If the axe head loosens soak it in linseed oil, *not water* —better still, use a new wedge.

A broken handle can usually be removed by cutting it off and driving it out of the eye. If it must be burned out, be sure that the blade is kept cool or you will lose the temper.

Sharpening the axe is the final step. Most axe heads direct from the factory are too thick near the bit. This must be ground down to a gentle convex taper with a slow wet grindstone. Do not use an emery wheel. In the first place you may ruin the axe temper due to the heat, and in the second place you never get a nice smooth finish. A large, slow turning grindstone, revolving toward the axe and kept very wet will do the best job.

Start grinding one and one-half to two inches back from the edge, working back and forth across the wheel. If no grindstone is available, a slightly worn file will work with the addition of considerably more "elbow grease." For this operation a double bit may be driven into a stump, while a single bit should be blocked up at an angle. A leather or wood washer on the file will keep your fingers in one piece.

The edge after grinding or filing should be a convex taper, *not hollow ground*. The latter will dull too easily and stick in soft woods.

The final honing with a smooth whetstone should remove any "wire-edge" remaining. Use a circular motion of the stone for a smooth finish.

Safety Rules

Safety should be in an axe user's mind from the moment he picks it up. The writer has seen people who would take precautions before using a chain saw, start chopping under extremely hazardous conditions. It is unfortunate that the neophyte axeman cannot see an actual axe wound. It's an ugly sight! So:

1. Make a simple axe sheath, and use it.

2. Never carry an axe on your shoulder. If you must carry it unsheathed, grip it near the head in a balanced position. On slopes carry it on the down hill side. If you trip don't hang on to it, toss it out of your way.

3. Don't drive metal wedges with a single bit, or the side of a double bit.

4. In zero weather, warm the axe head before chopping. Frost can crystallize tempered steel.

5. Lay down your axe in a safe, obvious place, and never leave a double bit driven upright into a stump or log.

6. When chopping, be sure of your footing and spend a few minutes clearing out all brush and twigs within the axe's reach.

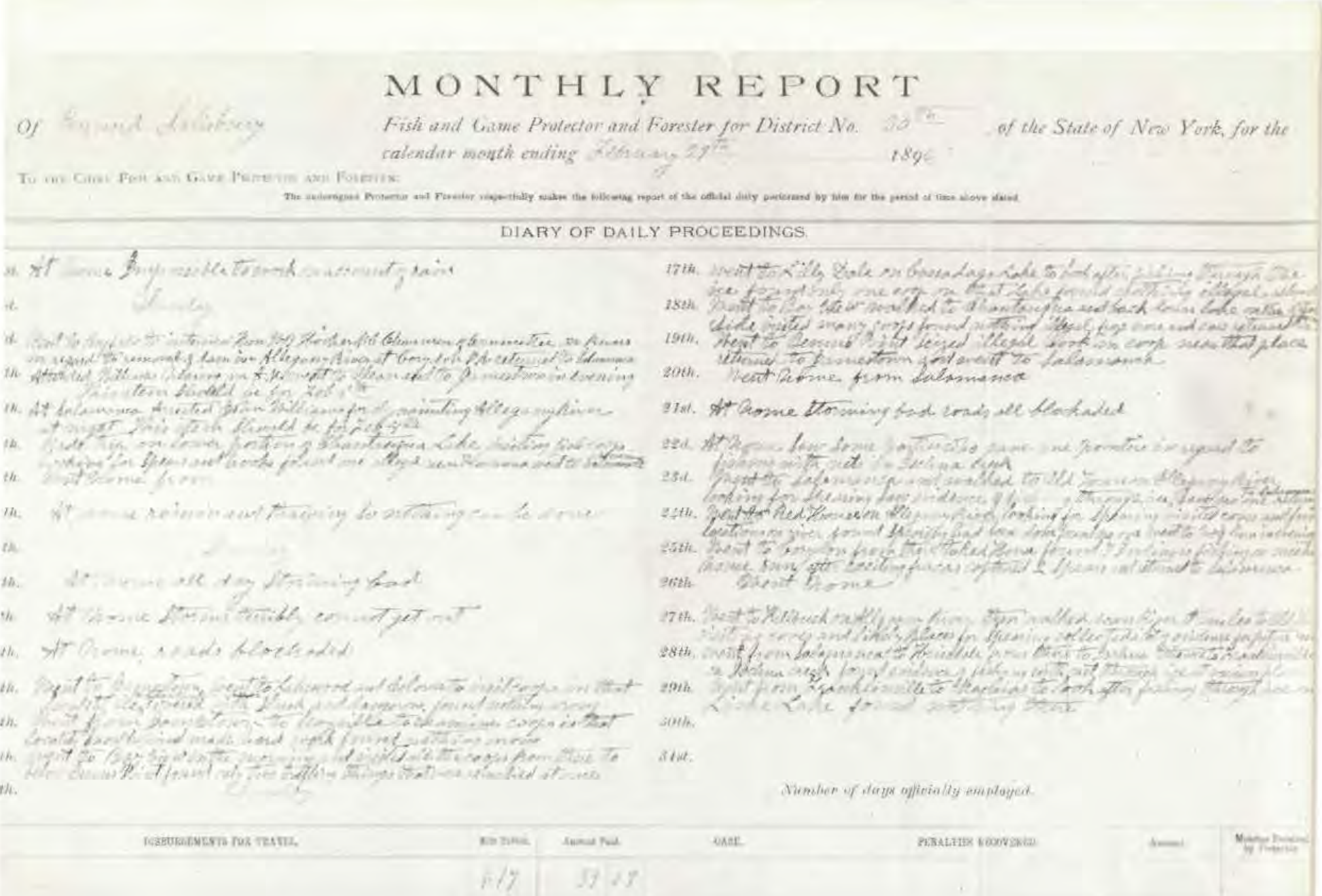
7. Keep the axe sharp. A dull axe bounces. We have seen more people cut with dull tools than sharp ones.

"Week end woodsmen" are at a disadvantage in axe work, for practice is necessary if you wish to become an expert. A good man with an axe can do some remarkable things. "Speed choppers" like Dave Geer of Norwich, Connecticut can go through a 16-inch oak log in 45 seconds, or a 12-inch softwood log in 16 seconds. This type of work requires special, heavy-headed, short handled axes, and the ability to put the blade at exactly the right spot and correct angle every time.

A fine steel axe can be sharpened to the point of giving a reasonably good shave (with lather). But don't expect such performance from a cheap axe. For those who wish to observe this feat, we suggest a trip to the Woodsmen's Field Day at Tupper Lake.

Axe throwing has shown a recent rise in popularity, particularly in the Lake States. While this is not recommended for beginners (too much hazard and resharpening work), it is a fascinating sport to watch. In some cases, the "bulls-eye" is replaced by a full can of beer braced against the heavy wood backstop. It's hair-raising to see a big double bit sail through the air, slice open the top of the beer can and bury itself in the backstop. Before the axe handle stops quivering, the logger has leaped forward to drink the beer before it drains away.

Yes, the axe has a long and noble history as both a tool and a weapon. Careful choice, healthy respect and regular maintenance of your axe will insure many years of reliable use.



MONTHLY REPORT

Of Barnard Salisbury Fish and Game Protector and Forester for District No. 30th of the State of New York, for the calendar month ending February 29th 1896

To the Chief Fish and Game Protector and Forester:

The undersigned Protector and Forester respectfully makes the following report of the official duty performed by him for the period of time above stated.

DIARY OF DAILY PROCEEDINGS

20th. Went Home from Salamanca

21st. At Home Storming bad roads all blockaded

Number of days officially employed.

DISBURSEMENTS FOR TRAVEL.	Miles Traveled	Amount Paid	DATE	PENALTIES RECOVERED	Amount	Moneys Remitted by Protector
	617	39 07				

"Found 7 Indians Fishing . . . ."

by Roland B. Miller

BITS of Americana turn up in old trunks at auctions. The "Monthly Report of Barnard Salisbury, Fish and Game Protector and Forester for District No. 30, of the State of New York, for the calendar month ending February 29th, 1896" is an instance.

This is on a big form, (shown on this page) printed, with space for the Fish and Game Protector and Forester (they combined duties in those days) to fill in, by hand, in ink, and addressed to the Chief Fish and Game Protector and Forester, who was then J. W. Pond. It duly reported the official duty performed by Salisbury for the month.

The section, "Diary of Daily Proceedings," is particularly interesting: it runs the gamut from "At home. Impossible to work on account of rain" (February 1st) to "Went to Corydon, from there to Red House. Found 7 Indians fishing on Meeting House Run. After exciting fracas, captured 2 spears and returned to Salamanaca" (February 25th). No revelation of what the "fracas" was about.

Versatile is not enough to describe such early State employees. They were more than that. Salisbury "went to Buffalo to interview Hon. W. B. Hooker, M. C., Chairman of Committee on Rivers in regard to dam in Allegany River at Corydon" on February 3d. And on the fifth, he arrested a man for dynamiting the Allegany River at night. (His notation after this bit of brevity says it should have been reported under the fourth.) On the sixth he was at Chautauqua Lake "visiting fish coops" "looking for spears and hooks" and "found one illegal." Several succeeding days housed the gentleman because of rain, thawing, storms and roads "blockaded."

When he did get about again, he visited a lot of other "fishing coops." These, by the way, are our present day ice fishing shacks or shanties. He traveled 617 miles and disbursed $39.07 for travel. The report continues showing the dynamiter was fined $10 and sent to jail for 30 days. While his arrest occurred this month, the act was recorded as having been committed the previous July 7.

"Nets and Other Illegal Devices Seized" shows Salisbury picked up "a hook with 7 points, a hook with 4 points and 2 spears." The hooks were valued at $3. and $2 respectively, and the spears at $5. They were "held as evidence for future use."

His "General Remarks" discloses him as a man of a few words. In fact, he probably thought he was garrulous:

"Have tramped many miles on ice on Chautauqua Lake and visited over 100 fish coops on that Lake. Am satisfied that spears and other devices have been thrown under the ice to elude any search. Have collected evidence that will convict many people of illegal fishing through the ice on Allegany River and Ischua Creek in Cattaraugus Co."

The Oaks of New York State

by Edwin H. Ketchledge,
Associate Professor, Forest Botany,
State University College of Forestry
at Syracuse University

AMONG the hardwoods native to our eastern states, the various species of oak are unquestionably the most difficult to differentiate.

In several species, the leaf size and shape vary from tree to tree or from branch to branch. Compounding the problem, most of the oaks hybridize naturally, producing offspring intermediate between the parents in botanical features. Thus, even trained botanists and experienced foresters frankly admit uncertainty at times in naming individual trees. It is a wise man who walks humbly when identifying the oaks!

Based upon leaf, fruit and wood characteristics, the oaks may be divided into two groups: The white oaks, and the red (or black) oaks. The woodsman in the field relies primarily upon the leaves and bark to recognize the species, although fruit and twig features may serve as secondary aids where needed (as often they are). In the white oak group the lobes of the leaves are typically rounded and smooth and the bark light-colored and scaly.

In the red oaks, on the other hand, the lobes are bristle-tipped and the bark usually dark and furrowed. The several species of oak which lack lobes on the leaves are classified in the red oak group because of their fruit characteristics and wood anatomy. Whenever identifying oaks it is good practice to look for several characteristics rather than just one and good policy to check your identification in a standard textbook or reference in the library.

In New York State we have 12 species of arborescent oaks, equally divided between the two major groups; two additional species do not obtain tree size. Many other species, native to nearby states or distant lands, may also be seen planted in parks or along streets, especially in the southeastern portion.

The Red Oak Group

RED OAK. Red oak is the largest most abundant, and most widely distributed species of oak in forests and woodlands of New York State. Hardy in our cold winters, fast growing and tolerant of city conditions, red oak also finds favor as an ornamental.

The leaves of red oak (*Fig. 1, left*) are generally seven to eight inches long, rectangular in shape, with about nine lobes. Because the leaves may be confused with black oak or scarlet oak, it is essential to check one or more of the secondary characteristics to verify an identification. The acorns, large for the genus, are borne on a shallow cup. The dark brown and hairless buds are conical in shape. The bark is slate-gray in color and although becoming rough in age, numerous broad, smooth ridges will be seen on the higher portions of the trunk.

BLACK OAK. Although not as abundant or as widespread as red oak, black oak will often be found with red oak growing in the river valleys and lowlands of the State. Of all our oaks, these two species are the most easily confused.

The leaves of black oak (*Fig. 2, right*) closely resemble red oak but are usually shorter, distinctly broader in the upper portion of the blade, and with only five or seven lobes. As with red oak, checking secondary features is essential when identifying this species. The acorns, smaller than red oak, are enclosed at the base in a deep cup. The buds are densely hairy and five-sided, rather than conical. Early in the life of the tree the bark becomes black and very rough, lacking in distinct ridges. Curiously, the inner bark of the branches is yellow-colored when scratched with a knife, unlike the reddish brown of other species.

SCARLET OAK. An inhabitant of the Hudson Valley and of lowlands in the western half of the State, scarlet oak may be found growing with red and black oak. The leaves of scarlet oak (*Fig. 2, left*) are smaller than red oak, the lobes more toothed, and the sinuses between the lobes nearly elliptical in outline. The fruit matches black oak in size and shape but differs in having concentric rings around the tip of the acorn, a feature not seen in other species. The thin bark is neither as dark as black oak or as distinctly ridged as red oak. In the autumn the leaves turn a brilliant scarlet brown, making this a lovely ornamental species.

PIN OAK. Because of its picturesque form, pin oak stands high on the list of native species favored as ornamentals. Unlike most oaks, the silhouette is distinctly conical, reminescent of an evergreen with a single straight stem. The branches, small and slender for an oak, at first stand out horizontally or point upward at an angle, but in age the limbs arch gracefully downward, each covered by a multitude of small pin or spur shoots. In the wild, pin oak is found only in the Buffalo area and in the Hudson Valley, but now it is seen planted in nearly every city in the State.

The leaves of pin oak (*Fig. 2, right*) look like a small scarlet oak but with fewer spines, only five or seven lobes, and with very broad, open sinuses. The acorns resemble those of red oak but are only $\frac{1}{3}$ or $\frac{1}{2}$ as large.

BLACKJACK OAK. Without the acorns, blackjack oak might be mistaken for a member of some other genus of trees, for the leaves lack the conspicuous side lobes characteristic of most oaks. Rather, the broad top portion of the leaf (*Fig. 3, left*) is faintly or shallowly lobed. On one or more of these top lobes the main vein of the leaf protrudes slightly beyond the margin of the leaf, producing thereby the short spine so characteristic of the red oaks.

The upper surface of the leaf is dark, lustrous green, as in most oaks, but the underside is densely covered with yellowish hairs, giving the tree a distinctive coloration noticeable at great distance. From close range, blackjack oak may be recognized by its very black bark which is broken into rough squares or blocks. A common weedy species of the southern states, blackjack oak ranges northward as far as Long Island.

WILLOW OAK. Willow oak is another southern species rare in our area. It is native on Staten Island, and may be seen as an ornamental on Long Island. The leaves (*Fig. 3, right*) are the least "oak-like" among the oaks; three to five inches long, narrow, pointed at the top, they resemble a willow, whence the common name. The acorns closely resemble those of pin oak in size and shape. Willow oak is a common tree of the southern states, where it is considered a superior street tree.

The White Oak Group

WHITE OAK. White oak is certainly the best known and most prized oak in North America. In the forest it is a

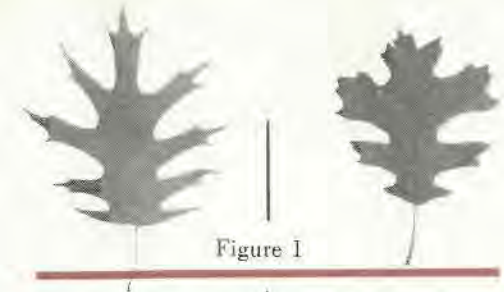


Figure 1

Red Oak
(Quercus rubra)

Black Oak
(Quercus velutina)

Figure 2

Scarlet Oak
(Quercus coccinea)

Pin Oak
(Quercus palustris)

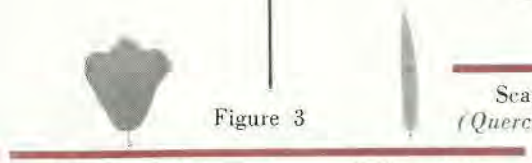


Figure 3

Blackjack Oak
(Quercus marilandica)

Willow Oak
(Quercus phellos)

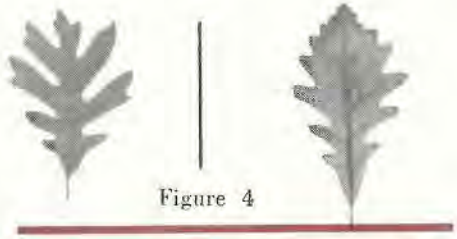


Figure 4

White Oak
(Quercus alba)

Swamp White Oak
(Quercus bicolor)

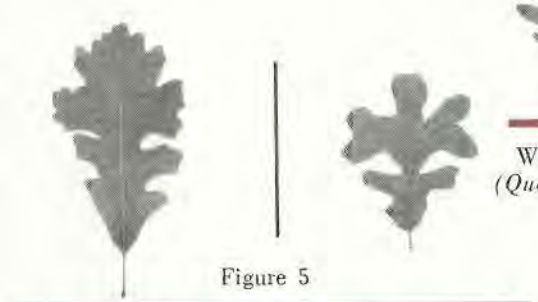


Figure 5

Bur Oak
(Quercus macrocarpa)

Post Oak
(Quercus stellata)

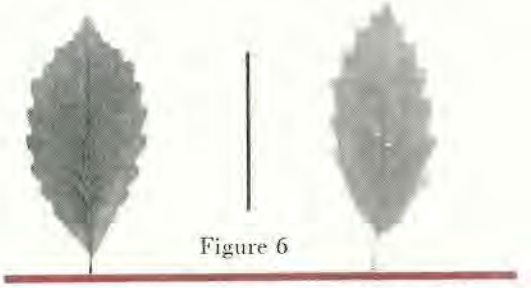


Figure 6

Chestnut Oak
(Quercus prinus)

Chinkapin Oak
(Quercus muehlenbergii)

White Oak. Swamp White Oak, Chestnut Oak. Bur Oak

Figure 7

Red Oak. Black Oak. Scarlet Oak, Pin Oak

producer of high-quality, all-purpose lumber. Around the home it is unsurpassed for stature and beauty. No other American hardwood rates so high in so many categories of wood use or general utility. In New York, white oak occurs in all sections of the State except the higher mountains.

The leaves of white oak *(Fig. 4, left)* are generally six to eight inches long and oblong or elliptical in outline; the rounded lobes usually number seven to nine. On some trees the sinuses are very shallow, yet on other trees the sinuses may extend inward nearly to the midrib. Although highly variable in roughness, the bark is light ashy gray, easily distinguishable at a distance. The acorns are enclosed for a third of their length in a warty cup.

SWAMP WHITE OAK. The distribution of swamp white oak in New York parallels that of white oak but trees are much less frequent, and are usually confined to wet habitats along streams or in swamp woods.

The leaves of swamp white oak *(Fig. 4, right)* superficially resemble those of white oak but the lobes are less uniform in size and often are angled at the end rather than rounded. The underside of the leaf is distinctly lighter in color than the upper surface. The acorn cup is very deep. The bark is more conspicuously furrowed than in white oak.

BUR OAK. Bur oak has the distinction of bearing the largest leaves and largest acorns of all our oaks. The leaves *(Fig. 5, left)* are the most variable of all the white oaks. Typically they are eight to ten inches long, although individual leaves near the edge of the crown may be nearly a foot long. The leaves are broadest above the middle, and usually are divided into two portions by a deep pair of sinuses near the center of the leaf. The lobes differ in size along the margin, those at the top often being very small. The acorn cup is conspicuously fringed around the edge, a feature unique to this species.

Bur oak grows in non-mountainous sections of the State. It commonly occurs in open situations, where it develops a very broad, spreading crown, as is true also of white oak. Bur oak may be distinguished from other species by the very stout, corky branches, and by the deeply furrowed and ridged bark, an unusual condition among the white oaks.

POST OAK. Post oak is one of the easiest species to recognize because of its distinctive foliage. The leaves *(Fig. 5, right)* are five to six inches long and usually have only five lobes; the middle pair of lobes are disproportionately large, thereby giving the leaf the ap-

(Continued on page 36)

The Bounty—Does It Do The Job?

Samuel B. Linhart,
Conservation Biologist,
N.Y.S. Dept. of Conservation

"THEY ought to put a bounty on 'em!"

This remark, often directed toward a game biologist, seldom fails to cause considerable mental anguish and at the same time, warns him to prepare for a lengthy and usually heated discussion. All too often the result of such a discussion is to leave both sides with the impression that the other fellow just doesn't understand the problem.

Bounties have been widely used in hopes of controlling certain animals whose presence or habits for some reason interfere with the activities of man. The facts and fallacies of this method of wildlife management have been widely and well documented. It is hoped that a discussion of the bounty question will lead to a better understanding of the problems inherent in this means of regulating animal numbers.

A bounty is a cash reward given to individuals for destroying certain animals, generally predators. It is paid in the belief that animal numbers will be lowered and thus result in an increase in game species, a reduction of domestic livestock losses, or in some cases, the control of wildlife disease which may be transmitted to man, his pets, or his livestock.

The bounty system as a wildlife management technique has been tried in nearly every state in the Union. As early as 1630, Massachusetts was paying a bounty for wolves. Since that time, bounties have been offered for many different species—most frequently, perhaps, for the fox, coyote, wolf, mountain lion, bobcat and certain species of birds.

The trend in recent years has been toward eliminating the bounty.

Statewide bounties are expensive. Michigan, over a ten-year period, paid more than $1,750,000 to bounty claimants; and in a single year, paid over $140,000 for red foxes alone! In Pennsylvania, the total cost over a 20-year period amounted to over $2,000,000 while payments for red and gray foxes totaled $116,524 in a single year. A report from North Dakota says:

"Bounties have been paid for the destruction of foxes over fifteen years and more than 1½ million dollars has been paid to fox trappers and hunters in that time. We now have more foxes than ever."

Unfortunately, in many cases, money used for bounty payments comes from game funds derived from the sale of licenses—money which could have been used to far greater advantage for improving wildlife habitat, acquiring public hunting areas, or badly needed research.

Some proponents of the bounty believe that bounty payments provide a source of income to rural landowners and farm children. However, a look at the facts shows that this is not true. In Michigan, as well as in Pennsylvania, it was found that about 85 per cent of the bounty claimants presented less than six foxes a year, certainly not a significant source of income. North Dakota surveys have indicated that only 2.3 per cent of bounty claims are presented by people under legal age. Another report estimates that in most states, farm boys receive no more than two to five per cent of all bounty payments.

No matter how carefully a bounty program is organized, it is impossible to prevent fraud. In many cases, foxes are taken from any area where they are plentiful and easy to catch and then presented for bounty in the county or state where payments are being made. This practice has been reported in western New York where certain counties paying fox bounty are located adjacent to those in which no bounty is paid. New York State foxes have also been known to mysteriously change their state of residence and end up being submitted for a bounty in Pennsylvania.

In some cases, bounty trappers have released trapped females to maintain "seed stock" to provide a source of animals for succeeding years. Cases have also occurred where the same animal has been presented for bounty payment more than once. In certain areas where bounty payments were high, people have raised animals in captivity specifically for the bounty!

Establishment of a system of bounty payments doesn't necessarily mean that intensive efforts will be made to destroy such animals. Many "undesirable" animals are killed each year by sportsmen, farmers, and trappers whether a bounty is paid for these animals or not. It is obvious that bounties are paid for many animals which would have been killed anyway. The fox is a good example. Very few hunters will refrain from shooting a fox while out in the field for other game animals, regardless of its bounty status.

It has been shown that in many areas, more foxes are presented for bounty during the late fall and winter months. A biologist in Pennsylvania states, ". . . probably 50 per cent or more of the mammalian predators (red fox, gray fox, and weasel) would also have been killed regardless of the bounty." In Michigan, it was estimated that about three-fourths of the foxes presented for bounty were taken by people not primarily interested in the bounty. It seems evident that bounties paid for such animals are wasted money.

The bounty system is popular among people who erroneously feel it can control wildlife abundance. It is simple to administer because it only takes an appropriation of money to put it into effect. In most states that pay bounties, the system was begun long before research had shown it to be ineffective. Human nature being what it is, people have been reluctant to accept the research findings when the traditional viewpoint seems so logical. In the case of predation by foxes, the traditional logic follows this pattern: "The rabbit is a desirable game species and since foxes eat rabbits, a bounty on foxes should increase rabbit abundance and leave more for the hunter." However,

The red fox flourishes despite years of bounty hunting

the facts show that the problem isn't this simple.

Popular opinion leans toward the belief that predators, the "killers," are the main factor determining the abundance of prey species and should be controlled by the superior animal—man. This is far from the truth. The numbers of predators, like prey species, are strongly affected by the environment in which they live. Food, cover, and weather conditions generally play a far more important role in determining the number of animals which will be present each year. Starvation, parasites, and disease may all take their toll of predators and prey alike. These limitations, as well as other factors not mentioned, may all cause animal numbers to wax and wane in abundance depending on the ever-changing pressures exerted by their environment.

The so-called "balance of nature" is, in fact, not a "balance" but rather a state of constant fluctuation. Adverse weather, a scarcity of food, poor nesting success, any such factor may cause the "balance" to change and result in a decrease in animal abundance which will likely return to the same or higher levels when conditions improve.

In only a very few cases, has it been demonstrated that a direct relationship exists between the numbers of certain prey animals and predator abundance. Such a relationship is occasionally evident when the number of prey animals is low while that of the predator is high. However, under these circumstances, the predator species generally turns to a more plentiful source of food or else in turn becomes less abundant.

Animals capable of breeding at an early age, who have more than one litter a year, and who have large broods or litters, are less affected by predation since they are able to compensate for losses due to this factor. In many cases, increases in game abundance have occurred while at the same time increases in predator numbers were also noted. Here is an example. On the Seneca Ordnance Depot in central New York, the pheasant population was found to be the highest known in the State during the winter of 1947-1948. Rabbit populations were also high in the area. Yet at the same time, foxes were also extremely abundant.

Other states have found that predator bounties do not increase game abundance. Michigan reports, "At no time during the long history of the bounty system in Michigan can it be demonstrated that the killing of predators has resulted in more game. Predator populations have not been effectively reduced either." A biologist in California says, "At no time in our 30 years of direct and indirect association with predatory animal control work in the Western States have we encountered any bounty payment plan which of itself has successfully brought about the reduction of predators when and where needed."

The intended purpose of a bounty is to decrease animal numbers. Therefore, if this method of control is effective, then the number of animals bountied each year should decrease annually indicating a decline in the total population. However, in no case has a fox bounty, paid over a number of years, shown this trend. In some cases, the number on which bounties were paid each year has increased. Under a bounty system only a portion of the annual surplus of animals is taken. An insufficient number of animals are destroyed to reduce the breeding stock and the following year the population returns to the same or to a higher level than before.

In certain instances, it may be necessary to reduce predators locally when livestock or crop losses occur, where intense game management is being practiced such as on game farms or shooting preserves, or in other special circumstances. These situations can best be handled by intensive control in the immediate area.

Some counties in New York have placed a bounty on foxes in an attempt to control rabies in wildlife. It should first be noted that the fox is particularly susceptible to this disease and once infected, invariably dies. Fox populations in areas where an outbreak of rabies occurs will be drastically reduced by the disease whether control efforts are undertaken or not. Unfortunately, considerable livestock losses and human exposure generally occur before fox numbers are reduced and the chain of infection broken.

Some counties have erroneously attributed the decline in fox numbers and concurrent decline in rabies cases to the bounty, when in fact this turn of events would have taken place regardless of whether a bounty was in effect or not. State trappers, assigned to rabies-free counties which have had a history of a fox bounty, have found fox populations to be as high in these counties as in areas where no bounty was in effect.

The most effective method of wildlife rabies control is an intensive effort to reduce fox numbers *before* a serious outbreak takes place. A low level of vector or carrier abundance serves to reduce the spread of the disease and minimize the rate of incidence. At present, this can best be accomplished by a co-ordinated trapping program under the supervision of professional trappers. This method of control is usually more expensive than bounty payments, but it exerts heavy pressure on fox abundance where and when it is needed.

Both practical experience and research have shown us that with few exceptions, bounties are not effective in controlling animal numbers.

The Last Prison Camp

by H. E. Krueger, District Ranger, Lowville

SOON after the opening of Sing Sing prison, it was decided that a new prison was needed. The selection in mid-1800 of the east slope of Dannemora Mountain as a site very probably was based on the presence of a body of magnetite iron ore and the virgin forests for charcoal. By barge up the lakes and over land by ox team, the "Captain" took the men to establish a camp—a prison camp to build a prison.

The story is not well known and may probably be poorly received. There was no primary romantic interest and no inspiring goal to urge men on to higher things, only confinement and punishment in the most remote portion of the State.

After Siberia became infamous, Dannemora adopted the name Little Siberia; probably nothing more unpleasant could be imagined by the wearers of the ball and chain.

The scenery from the village is more like the foothills of the Alps. Looking southeast one sees the road on Whiteface Mountain, then down the length of the Saranac Valley to Lake Champlain and on to the east to the rugged hills of Vermont and Mount Mansfield. It is worth seeing spring, summer, fall or in the clarity of winter. Northward over the crest lies a smaller basin-like valley hemmed in by Lyon Mountain, Johnson Mountain, Dannemora and the Ellenburg and, at the bottom, Chazy Lake and the Great Chazy River flowing east and north to Lake Champlain. Three miles downstream was the State Mill; the last of the prison camps was there until 1947.

Prison camps started even before the Captain's journey up the Hudson to Dannemora. They continued as adjuncts to the various maximum security prisons of the State and even the county jails used them. Some were farm camps, some were road camps and some were abused as leased labor to private contractors. Much of the ill repute of the early camps came from this leasing of convict labor to private contractors, for often this amounted to slave labor. Most camps were for the early road building of the town, county and state. In these early days, there were incidents of cruelty, corporal punishment and, of course, greed.

Prior to the 1920's the Warden, the prison administrator, was 'titled "Warden and Agent." As Agent he handled moneys directly for purchase of certain supplies and from the sale of some goods, a procedure that has long since been outlawed. He could and did delegate some of this authorization to the camp boss for the purchase locally of food and other supplies. One of the camps in the central Adirondacks, building roads by hand, developed trouble over the food supplies. The convicts were on the verge of revolt because of the steady diet of "veal." At about the same time a camp owner reported the theft of a boat and a Game Warden was called in.

He found the boat hidden on the shore in another place, so he watched it. He caught a convict armed with a rifle and with illegal venison. A lawyer would have a field day with that one, but the results were a change in camp personnel, so I was told many years later by the convict with the gun.

Clinton Prison and Dannemora State Hospital control about 20,000 acres of forest land in a radius of 10 miles of the prison. The purchase of this land preceded the establishment of the Forest Preserve by about seven years or 1868. The forest was purchased to have a steady supply of charcoal for the production of iron mined by the convicts. The convict miners wore leg irons and their hours were 7 A.M. until 6 P.M. The shaft extends from the opening somewhat northerly toward the site of the old tuberculosis hospital. Quite a lot of iron came out before the mine flooded.

The charcoal was made by private

BEAVERKILL:
a legend

WILLIAM HERRICK

Kill.

The Dutch say it
And for the length of sound
You sense a shimmering shape of water
With wandering waterbugs
Dry-backed beneath the willows.

Pool.

House Pool.
Bridge Pool.
Maple Pool and Currans Pool and
Acid and
All the rest
Up and down the Beaverkill—
Meandering like a melody
Through the night air: misty.
We throw the line with Hope in every cast,
And leaders spun so fine:
A measure of our sporting purity.

Beaverkill: we sing of you in winter silence,
And salute the end of season.

A crystal vein in grass and pine,
Lost in tapered whirlpools,
From brushing limbs: A sign:

In winter you are silence
Sliding beneath a coat of white,
Hinting of a summer's offering,
Beyond the world of night.

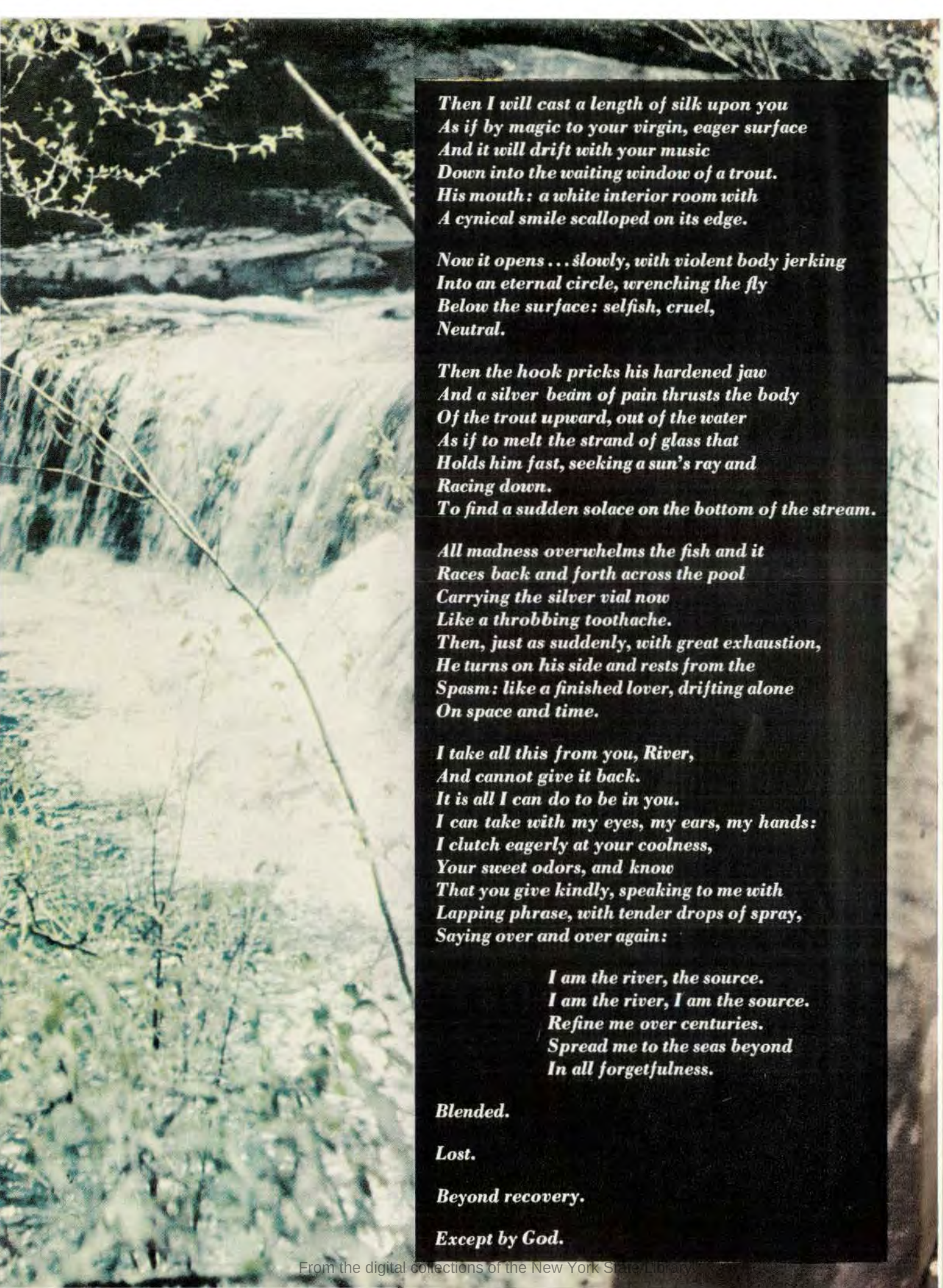
When snow is gone and ice remains
Bleeding in the sun...
I think with some disquietude
Of stumps bequeathed to worms.

I walk upon the flows of ice,
Above the frosted rocks
Where, set in whiteness, stones of red
Are traced around
A curving neck of land.

The first thaw comes and destroys
Your loveliness, making you huge and
Pregnant in the warm-cool April sun:
A breeding orgy with that first heat of spring,
Obscene with bloated brown
Water ripping at the tender shoots
That seek to blossom on your reclining banks.

Suddenly the greedy drinking is over and
Like a woman laughing in
Great relief,
You are green water, like gin,
With each stone shining
And the white straws that garnish
Your sand will once again be
Reflected in your
Slow and turning glass.

Embrace me, Beaverkill,
With cool breezes that burn my face
While gold willow combs grow
Bright along your shore,
Bristling before my eyes in a
Dancing view of wind...shooting across
Your wet complexion in delicate
Arrow trails: a moving wake of water
That some may think a racing fish.



Then I will cast a length of silk upon you
As if by magic to your virgin, eager surface
And it will drift with your music
Down into the waiting window of a trout.
His mouth: a white interior room with
A cynical smile scalloped on its edge.

Now it opens . . . slowly, with violent body jerking
Into an eternal circle, wrenching the fly
Below the surface: selfish, cruel,
Neutral.

Then the hook pricks his hardened jaw
And a silver beam of pain thrusts the body
Of the trout upward, out of the water
As if to melt the strand of glass that
Holds him fast, seeking a sun's ray and
Racing down.
To find a sudden solace on the bottom of the stream.

All madness overwhelms the fish and it
Races back and forth across the pool
Carrying the silver vial now
Like a throbbing toothache.
Then, just as suddenly, with great exhaustion,
He turns on his side and rests from the
Spasm: like a finished lover, drifting alone
On space and time.

I take all this from you, River,
And cannot give it back.
It is all I can do to be in you.
I can take with my eyes, my ears, my hands:
I clutch eagerly at your coolness,
Your sweet odors, and know
That you give kindly, speaking to me with
Lapping phrase, with tender drops of spray,
Saying over and over again:

I am the river, the source.
I am the river, I am the source.
Refine me over centuries.
Spread me to the seas beyond
In all forgetfulness.

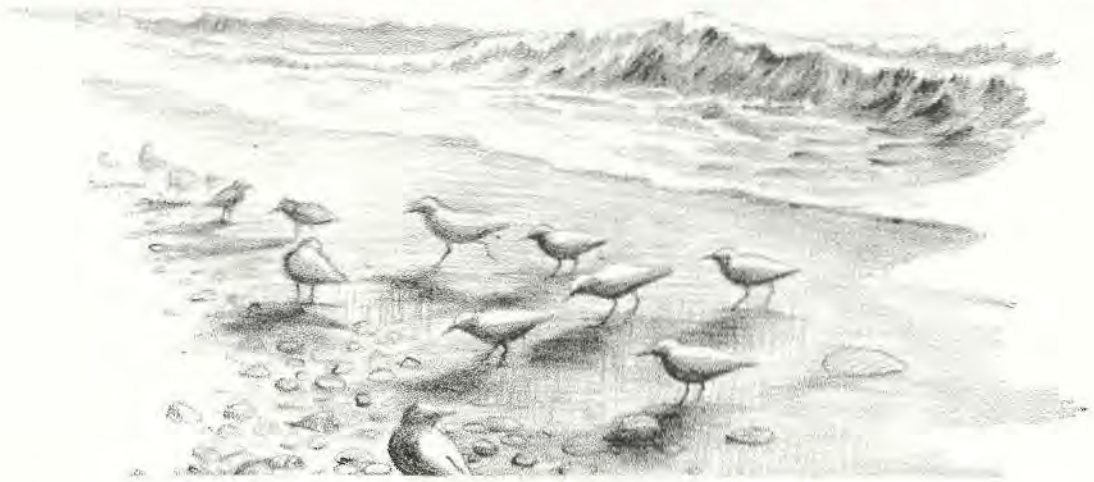
Blended.

Lost.

Beyond recovery.

Except by God.

Some New York Sea Shells



by Percy A. Morris,
Peabody Museum of Natural History,
Department of Invertebrate Zoology,
Yale University

THERE are many pleasant activities for the vacationer at the seashore, and one of the most rewarding is the search after shells. None but those who have given a little time to shell-hunting can conceive of the multitude of varieties which are discovered when practice sharpens the eyes.

The molluscan fauna of our northern beaches cannot compare in color with the many brightly-hued varieties that inhabit tropical and semi-tropical waters, but even New York, with its coastline consisting chiefly of the two sides of Long Island, has a surprisingly large number of both clams and snails. Many exhibit real beauty in form and sculpture if not in rich colors, several are deliciously edible, and all of them can be of extreme interest when you get to know them.

Most of us are "collectors" at heart, and shells offer an ideal subject for satisfying this natural urge. Properly cleaned shells will never be bothered by insects, they are durable, and their colors and patterns will not fade. While it is true that a shell will fade and lose its luster if exposed to the bright sun for a long period, as witness the bleached examples to be seen on any beach, it is also true that if kept in a cabinet or drawer away from direct sunlight the same shells will retain their beauty for years. The writer recently unpacked a box of shells that had been collected in Florida "sometime prior to 1832," according to the label, and the contents were just as colorful and fresh-appearing as any shells living on the Florida beaches today.

Where to find shells? The novice usually starts by walking along the shore and keeping a sharp eye for specimens that have been washed in by the waves. While many excellent shells may be obtained this way, especially on days following a storm with an inshore wind, a large majority will be waveworn, eroded, or otherwise imperfect, and the collector soon graduates to the stage where only living examples are taken.

Just as in bird study, we look for certain kinds of birds in open fields, others in deep forests, and still others in marshes, so it is with the mollusks. We find that some, in fact most, show decided preferences for particular kinds of marine territory. A vast assemblage of different forms live on rocky coasts, clinging to or hiding under the rocks while the tide is out. Others prefer sandy flats where they burrow into the sands at ebb tide. Many like nothing better than a muddy bottom, and the blacker and stickier the better. Some will live in nothing but the purest of sea water, while others seem to like it better where the water is different, sometimes thriving best in partially polluted waters.

One of the many rewards of "shelling" is meeting others with the same interests. One cannot search the sand flats or pry under drift logs for any length of time without running into someone simularly engaged, and many lasting friendships have been initiated on the beach. "Shell people" like to get together, and shell clubs have been organized in many localities throughout the country; in fact, their growth during the past decade has been surprising. Most are affiliated with the American Malacological Union, and it is strongly urged that anyone seriously collecting shells consider joining this society. The only requirement is an interest in shells, and probably more than half of its members are enthusiastic amateurs. Information may be obtained from the Secretary, Margaret C. Teskey, Box 318, Marinette, Wisconsin.

Local shell clubs range in size from several hundred members to small groups that get together more or less regularly at the homes of neighbors. Two of the largest in this State are the Conchological Section, Buffalo Society of Natural History, which meets at the Buffalo Museum of Sciences on the third Friday of the month, (Eugene Musial, president, 53 Idlewild Drive, Tonawanda.) and the New York Shell Club which meets on the second Sunday of each month, at the American Museum of Natural History, New York City (its president is Harold S. Feinberg, 2334 Tiebout Avenue, Bronx 58, New York). You will be more than welcome at any meetings, will mingle with kindred souls, perhaps enrich your collection by exchanges, enjoy the good fellowship of local field trips, and obtain help in the identification of puzzling material.

Following are some of the commoner shells, with a few rarities, to be looked for along New York shores. Do not expect to find them all on any one trip, but do expect to find many that are not even mentioned here. For those who contract the malady that veteran collectors like to call "shell shock," the following books are recommended.

Jacobson, M. K. & Emerson, W. K.: "Shells of the New York Area" (includes all of Long Island). Argonaut Books, Inc., New York, 1961.

Abbott, R. T.: "American Sea Shells."

D. Van Nostrand, New York, 1954.

Morris, P. A.: "Field Guide to Shells of the Atlantic and Gulf Coasts" (from which the following descriptions were taken). Houghton Mifflin Co., Boston, 1951.

Tortoise-Shell Limpet
(Acmaea testudinalis) (Müller)

A caplike shell averaging about one inch in length, although some individuals are close to two inches. The larger specimens occur in Maine and New Brunswick, and most examples found in New York waters are less than one inch long. The shell is conical, oblong-oval, and only moderately arched, with the apex behind the middle and turning slightly downward toward the short end. The color is bluish white, checkered with dark brown marks radiating from the summit. The interior is a glossy dark brown with a checkered gray and brown border, the two separated by a paler band. These limpets may be found adhering to the under side of rocks just offshore, and occassionally in tide pools, and so tightly do they cling that it is difficult to dislodge a specimen without breaking it. Slip a thin-bladed knife under a specimen, however, and it will roll off in your hand uninjured. This is essentially a cold-water snail, and closely related forms occur in Alaska and in northern Europe.

Brown-Banded Wentletrap
(Epitonium rupicola) (Kurtz)

The wentletraps, or staircase shells, are decorative little fellows that make up in bizarre sculpture what they lack in size, although a few warm-water varieties grow to respectable dimensions. The brown-banded wentletrap is just over one-half inch tall, and is made up of eight rounded whorls, each bearing about sixteen delicate, raised vertical ribs which may be lacking on the lower portion of the body-whorl. The outer lip is thickened considerably by a reflected border, secreted during rest periods in shell growth, and this reflected lip becomes a new rib (termed a varix) as the mollusk grows. The color is pinkish white when fresh, sometimes with one or two brownish bands on each volution. This is a carnivorous snail, spending its time creeping over the ocean floor from well beyond the low water line to abysmal depths. Specimens are often found in the stomachs of cod and other bottom-feeding fish, and dead shells are frequently to be discovered in the high tide drift on exposed beaches.

Moon Shell
(Lunatia heros) (Say)

A very common and well-known shell on our northern beaches, being abundant from Maine to North Carolina. It gets to be four inches in height and is ashy brown in color. The shell is thick, globular, and bears a thin yellowish periostracum. There are five or six whorls, somewhat flattened at the tops. The aperture is large and oval, and is closed by a thin horny operculum. The umbilicus, at the base of the shell, is large and open, coarsely wrinkled, and it extends through to the top of the shell. The moon shell burrows in moist sand, its whereabouts at low tide being indicated by a small mound projecting above the general surface of some sand bar. The "foot" is relatively tremendous in size, and one wonders that the creature can withdraw entirely into its shell. It is a voracious feeder, drilling into the valves of a clam that it encounters in its subterranean wanderings. This is accomplished by a sandpaper-like tongue (called a radula) probably assisted by acid-secreting glands, and once the perforation is complete it is a simple task to suck out the contents of the luckless bivalve. Such perforated shells, each with a neat, round, countersunk hole, are usually common on the beach, both clams and small snails.

Callused Moon Shell
(Polinices duplicatus) (Say)

Another common moon shell, about two inches in height but nearly three in diameter. Its color is grayish brown tinged with bluish. The shell is solid and oval, the whorls compressed so as to give it a more flattened outline. The umbilicus is irregular, and is covered wholly or in part by a very thick, chestnut-brown callus. This species has a much flatter appearance than *heros*, just discussed, and it is somewhat smaller, but it may be instantly recognized by the brown lobe of shelly material that extends over the umbilicus. Its habits and habitat are the same as those of *heros*, but this species enjoys a more southern range, being common from Cape Cod to Florida. The eggs of this species, as with the last one, are laid in a mass of agglutinated sand that is molded over the shell, and, upon hardening, form the fragile "sand collars" often found lying on the beach in the summer months.

Slipper Shell
(Crepidula fornicata) (Linne)

These are among the first objects collected by children at the seashore, as they make excellent miniature boats for sailing in quiet tide pools, and also serve as tiny scoops for digging in the sand. The empty shells also have a commercial value, for, under the trade-name of "quarter-decks," many tons are annually scattered over the ocean floor for embryo oysters to settle upon. About one and one-half inches long, the shell is obliquely oval, with the apex prominent and turned to one side. Its shape varies according to the object on which it is seated, for this is an adhering mollusk like the limpets. As a rule it is moderately convex, but some are fairly flat. The color is soiled white, flecked with purplish brown. The interior, or lower side, is partially divided within by a horizontal white platform that is known as the diaphragm. Slipper shells are easily found alive adhering to each other and to stones and other shells, particularly oysters, from Nova Scotia to the Gulf of Mexico. Along the sandy beaches of Cape Cod where stones and pebbles are rare, one can pick up clusters of these shells and one must peel off several layers of slipper shells in order to get down to the stone, which may be no larger than a small plum.

White Slipper
(Crepidula plana) Say

This slipper shell is pure white, sometimes tinged with yellow, and it is remarkably flat: in fact, it is sometimes known as the flat slipper shell. The length is about one inch, and the shell is ovate and thin with the apex turned slightly to one side. The outer surface is wrinkled by concentric growth lines and the inner surface is highly polished, sometimes iridescent. The inner platform is less than half the length of the whole shell. The general shape may be flat, slightly convex, or even concave, according to the object to which it is attached. This species is ordinarily not found on rocks, but prefers living on the inside of the aperture of large dead snail shells such as whelks and moon shells. Often a large kingcrab, or horseshoe-crab, will be found to have several dozen on the lower side of its domelike shell. Range: Maine to Florida.

Common Periwinkle
(Littorina littorea) (Linne)

The common periwinkle of northern rocky shores, this snail is from one-half to a bit more than one inch in height, and brownish olive to nearly black in color, usually spirally banded with brown. The shell is heavy and solid, with six or seven whorls. The outer lip is thick, and black on the inside, and the base of the columella is white. There is no umbilicus. The apex is sharp, but the shell appears rather squat. This snail, so common in Europe (where it is sold, roasted in its shell, from pushcarts in the city streets) was long believed to be an introduced species. Apparently none of the early conchologists ever saw a specimen, and the first one reported was taken at Halifax, Nova Scotia in 1857. From there the species spread down the coast as far as New Jersey, where its southern migration was halted, probably by water temperature and possibly by the sandy Jersey beaches, for this is a rock lover. Recent investigations of ancient Indian mounds on the north shore of the Gulf of St. Lawrence have brought to light unquestioned examples of this species which may be more than one thousand years old. It is likely that currents at the mouth of the Gulf prevented the free-swimming larvae from ever reaching the south shore, until sometime around 1850 a ship, possibly sailing from Labrador to Halifax, inadvertently transported some eggs, perhaps in sea weeds used

for packing. Once established in Nova Scotia there was nothing to prevent this hardy snail from colonizing all of our northeast.

Rough Periwinkle
(Littorina saxatilis) (Olivi)

The rough periwinkle averages less than one-half inch in height, and is yellowish gray in color as a rule, but is a rather variable shell, and some may be marked with whitish or purplish bands. There are four or five whorls, and the shell is ovate, strong, and coarse. The spire is only moderately elevated, and the surface is marked with very perceptible lines of growth and by revolving lines, so that it is indeed "rough" in comparison with the other periwinkles. Young examples are smooth and variously mottled and spotted with yellow and black. This species, also well known in Europe, is abundant on the northern New England coast, and less common south to New Jersey. This snail does not lay eggs, but gives birth to living shelled young.

Smooth Periwinkle
(Littorina obtusata) (Linne)

This periwinkle will be found most frequently on seaweeds. Like all of this group, it is a strict vegetarian. It is nearly one-half inch in height, with a shell that is quite stout and globular, smooth and shining, with very faint revolving lines. There are four whorls, the last one very large and the others scarcely rising above it. The aperture is nearly circular, the outer lip moderately thick, and there is no umbilicus. This is a fairly common species, generally to be found on rocky shores exposed to the sea. It is quite variable in color, the usual shell being some shade of yellowish brown, but others may be bright yellow, orange, whitish, or reddish brown. Some, especially the juveniles, are boldly banded. The range is from Labrador to New Jersey.

Oyster Drill
(Urosalpinx cinerea) (Say)

The well known and much despised oyster drill is about one and one-half inches high, and a dirty gray in color, with the aperture dark purple. The shell is coarse and quite solid, with five or six convex whorls. The surface is sculptured with revolving raised lines, and made wavy by numerous rounded vertical ribs, or folds. The aperture is oval, the outer lip thin and sharp, and the canal short. Next to the starfish, this little snail is the worst enemy the oystermen have to contend with. In some localities, notably the Chesapeake Bay area, their depredations sometimes exceed those of the starfish. Settling on a young bivalve, the oyster drill quickly bores a neat round hole through one valve, making expert use of its sandpaper-like tongue. The snail can then insert its long proboscis and consume the oyster in short order. This is one of our commonest marine univalves, and may be found by the hundreds at low tide on rocky shores, from southern Maine to Florida.

Thick-Lipped Drill
(Eupleura caudata) (Say)

This shell is slightly less than one inch tall. Its color varies from reddish brown to bluish white, the margin of the lip frequently bluish. The shell is solid, with about five whorls that are distinctly flattened at the shoulders. The surface bears about a dozen stout vertical ribs, of which the one bordering the aperture and one directly opposite, on the left side of the body-whorl, are enlarged into stout, knobby ridges. The outer lip is thick and bordered within by raised granules. The canal is short and almost, but not quite, closed. This little snail is often confused with the oyster drill, to which it is closely related, but the oddly thickened lip immediately identifies it. Found from Cape Cod to Florida, it is probably as bad for the oysters as the oyster drill, but it is far less numerous; in fact, it is moderately uncommon throughout most of its range.

Dog Whelk
(Thaïs lapillus) (Linne)

Sometimes known as the rock purple, or common purple, as the mollusk contains a reddish purple dye. The famous "Tyrian Purple" color of the ancients was obtained by crushing the bodies of a Mediterranean snail somewhat like this species. The shell averages about one inch in height and is quite variable in color, ranging from white to lemon yellow or orange yellow, and purplish brown. Some individuals are banded with white or yellow. The shell is thick and solid, with a short spire and a sharp apex. The surface is sculptured with deep revolving furrows and ridges, as well as by many transverse wrinkles. There is a very short open canal. There is considerable variation, aside from color. Some are larger, some much stouter, and some more angular than others, and in a series of several dozen shells it is possible to find extremes that if studied separately would almost seem to be different species. A carnivorous snail feeding commonly on barnacles, this species is very abundant from Rhode Island north, but in New York it occurs only on eastern Long Island.

Mud Snail
(Nassarius obsoletus) (Say)

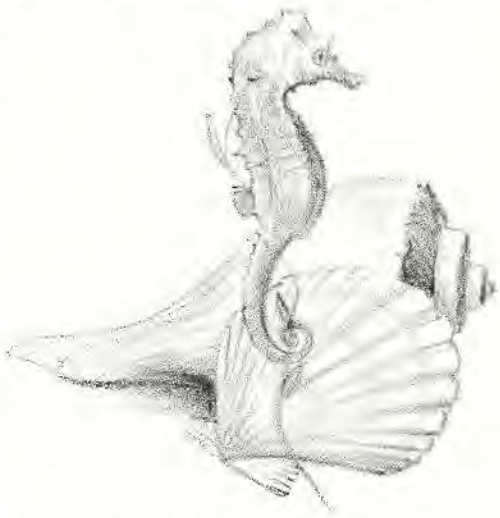
This species is just under one inch high, and varies from dark reddish brown to purplish black in color. The shell is solid, with six or seven whorls and a moderately elevated spire with the apex rather blunt. The surface is marked with numerous unequal revolving lines and a few oblique folds, especially on the earlier volutions. The aperture is oval, the inner lip, or columella, deeply arched, with a fold at its front. The canal is a mere notch. This dark and unattractive mollusk is one of the most abundant snails to be seen on the Atlantic coast, ranging from Canada to northern Florida. It is a scavenger, and a dead fish or a crushed clam thrown into the water will quickly attract hundreds. Specimens are abundant on mud flats. Adults almost invariably have the apex of the shell more or less eroded.

Basket Snail
(Nassarius trivittatus) (Say)

The basket snail is slightly more than one-half inch tall, and white or yellowish white in color, sometimes partly banded with brown. It is a robust little shell with an acute apex and six or seven whorls, each flattened a little at the shoulder. A series of spiral grooves cut across a series of beaded lines, giving the surface a "pimpled" appearance. The lip is sharp and scalloped by the revolving lines. Relatively common off shore on sandy beaches, live specimens are seldom found on shore, but in many places dead shells, many occupied by hermit crabs, are abundant at the water's edge. This shell is often found with one volution perforated with a perfectly round hole, showing that some carnivorous snail, probably a moon snail, killed it. The range is from Maine to Florida but it is not common south of Cape Hatteras.

Waved Whelk
(Buccinum undatum) (Linne)

Attaining a maximum length of about four inches, this is a stocky shell of six rather stout whorls. The upper whorls are decorated with stout, vertical folds which become weaker on the later volutions. These folds are crossed by numerous elevated, revolving lines, giving the shell a wavy appearance. The aperture is oval, about one-half the length of the whole shell. During life the surface is covered by a yellowish brown, velvety periostracum, and inside the aperture the shell is pale yellow. This is a circumpolar snail, occurring south on our coast as far as



New Jersey. Very common on the coasts of Maine and Massachusetts, it is rare in New York. Its station in life is from just below the low water level to rather deep water, where it is a voracious feeder, frequently robbing the New England lobstermen of their bait. It is the edible whelk of Scotland and Ireland.

Knobbed Whelk
(Busycon carica) (Gmelin)

This is the largest snail to be found north of Cape Hatteras, growing nine inches long. Its range is from Cape Cod to Texas, but specimens living in sheltered bodies of water, such as Long Island Sound, do not reach the maximum size of those living in the open surf. The shell is large and thick, and roughly pear-shaped. There are six whorls, the body-whorl large and broad and crowned by a series of blunt nodes, one at each stage of growth. The spire is a low cone, with the series of nodules encircling the shoulders of each volution. The aperture is long and oval, the canal long and open, and the outer lip is thin and sharp. The inner lip, or columella, is twisted, and there is a horny operculum. The color is yellowish gray with the interior orange red. Young specimens are frequently streaked with violet. This species occurs on all sorts of bottoms, but perhaps most commonly where the ocean floor is somewhat stony. It is carnivorous and predacious, overpowering and destroying mollusks nearly as large as itself. It is in turn eaten by man, and is commonly to be found in Italian fish markets. Most visitors at the seashore have noted the egg ribbons of this and the next species of marine snails, in the form of strings of curiously flattened, disklike capsules that may be picked up along shore during the summer months. Popularly called "Venus' Necklace," each capsule contains about a dozen baby snails.

Channeled Whelk
(Busycon canaliculatum) (Say)

Not quite so large as the previous one, the channeled whelk gets to be about seven inches long. The shell is pear-shaped and rather thin in substance, and is composed of five or six turreted whorls. The body-whorl is very large above, gradually diminishing downward and terminating in a long, nearly straight canal. There is a broad and deep channel at the suture, forming a winding terrace up the spire, beaded at the edges. The color is buff-gray, the aperture yellow, and in life the exterior is covered with a dense yellowish periostracum that is bristly with stiff hairs. This character is lacking in *carica* described above. The egg capsules of this species may be distinguished from those of *carica* by their sharp edges. Those of the latter are squarish at the rims. Indian "wampum" was made from the twisted columellas of both of these whelks, cut into elongate beads. The channeled whelk is common along the shores of Long Island Sound and on the south shore of Long Island. Its habits are the same as those of its slightly larger relative, and it, too, is frequently seen in the markets.

Salt Marsh Snail
(Melampus bidentatus) Say

This snail is usually less than one-half inch in height, and its color is greenish olive. Young specimens are banded with brown, but old shells are often corroded and coated with a muddy deposit obscuring any color. The shell is oval, thin, and shining when clean. There are about five whorls, the last one constituting most of the shell, the others flattened to form a short, blunt spire. The aperture is long and narrow, broadest below, and the inner lip is usually covered with white enamel, with two folds crossing the lower part. Deep within the outer lip are several elevated, white, revolving ridges that do not reach the edge of the lip. This is the commonest salt marsh snail on the Atlantic coast, ranging from Nova Scotia to Texas. It inhabits marshes occasionally overflowed by tides, and is never far from the high-tide mark. When the tide comes in these snails clamber up the tops of the marsh grass, as if to avoid getting wet.

Nut Clam
(Nucula proxima) Say

This is a tiny bivalve in sheltered harbors along the Atlantic coast from Maine to Florida. Only a little more than one-quarter inch long, and white in color, it has a thin olive green periostracum that is usually missing on beach specimens. The shell is triangular, the beaks somewhat elevated and inclined forward. The interior is pearly and highly polished, with the margins crenulate. The hinge is composed of tiny but sturdy comblike teeth. Specimens can usually be found among the litter on suitable beaches. It frequents muddy bottoms in moderately shallow water and is eaten by many marine fishes and various bottom-feeding ducks.

Bloody Clam
(Anadara ovalis) (Bruguiere)

Formerly listed as *Arca pexata* (Say), this is a very common member of the ark shells, characterized by a hinge composed of numerous comblike teeth arranged in a row on both valves. It occurs from Maine to Florida, and gets to be about two inches long. It gets its popular name from the fact that it is one of the few mollusks having red blood. The shell is thick and solid, with prominent beaks that terminate in points that are nearly in contact, so that when viewed from the end the shell is heart-shaped. The surface has about thirty-five radiating ribs, somewhat broader than the spaces between them. The color is white, but the lower two-thirds of the shell is covered with a thick and shaggy greenish-brown periostracum. This covering does not usually remain on the shell for long after death, and the majority of shells picked up on the beach are a dull lusterless white. This species thrives on sandy bottoms in relatively shallow water.

Transverse Ark
(Anadara transversa) (Say)

The transverse ark is only about one inch in length. Dull white in color, the shell is transversely oblong, with prominent beaks that are slightly incurved, and with strong teeth along the hinge line. The surface is decorated with about thirty radiating ribs. The two valves are slightly unequal, so that the margin of one passes a little beyond that of the other. The hairy periostracum is dark brown. Easily recognized, it lives just off shore on sandy or muddy bottoms, and its valves are generally plentiful in the beach litter from New England to Florida.

Oyster
(Crassostrea virginica) (Gmelin)

The common oyster ranges from six to ten inches in length and is lead-gray in color. The rough and heavy shell is generally narrow, elongate, gradually widening, and moderately curved, but it varies in shape according to the position in which it lies during growth. The upper valve is smaller and flatter than the lower, and it moves forward as the shell advances in age, and growth of the ligament leaves a lengthening groove along the beak of the adhering valve. The interior is dull white, with the muscle-scar nearly central and deep violet. The tiny youngsters, called spat, are free-swimming for a short period before they settle upon some hard object to become sessile

(Continued on page 26)

SOME NEW YORK SEA SHELLS

CHANNELED WHELK (7 inches high)
(Busycon canaliculatum)

BLACK QUAHOG (4 inches)
(Arctica islandica)

SOFT-SHELL CLAM (5-6 inches)
(Mya arenaria)

CALLUSED MOON SHELL (2 inches high)
(Polinices duplicatus)

HORSE MUSSEL (5-6 inches)
(Modiolus modiolus)

BAY SCALLOP (3 inches)
(Aeiguipecten irradians)

COMMON MUSSEL (3 inches)
(Mytilus edulis)

DOG WHELK (1 inch high)
(Thais lapillus)

ARCTIC WEDGE CLAM (1½ to 2 inches)
(Mesodesma arctatum)

MOON SHELL (4 inches high)
(Lunatia heros)

QUAHOG (5-6 inches)
(Mercenaria mercenaria)

SURF CLAM (more than 6 inches)
(Spisula solidissima)

KNOBBED WHELK (4-9 inches high)
(Busycon carica)

BALTIC MACOMA (1 inch)
(Macoma balthica)

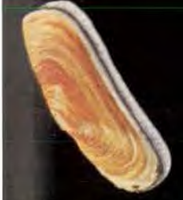
WAVED WHELK (3½ inches high)
(Buccinum undatum)

COD CLAM (1 inch)
(Venericardia borealis)

BLOODY CLAM (2 inches)
(Anadara ovalis)

RIBBED MUSSEL (3 inches)
(Brachidontes demissus)

RAZOR CLAM (6-7 inches)
(Ensis directus)



BLUNT RAZOR (4 inches)
(Tagelus plebius)

JINGLE SHELL (1 inch)
(Anomia simplex)

FALSE ANGEL WING (2 inches)
(Petricola pholadiformis)

TRUNCATED BORER (2 inches)
(Barnea truncata)

PANDORA CLAM (1 inch)
(Pandora gouldiana)

ARCTIC BORER (1½ inches)
(Hiatella arctata)

CHESTNUT ASTARTE (1 inch)
(Astarte castanea)

WAVED ASTARTE (1¼ inches)
(Astarte undata)

TRANSVERSE ARK (1 inch)
(Anadara tranversa)

WHITE SLIPPER (1 inch)
(Crepidula plana)

SPOON CLAM (more than 1 inch)
(Periploma leanum)

MORTON'S COCKLE (1 inch high)
(Laevicardium mortoni)

DUCK CLAM (½-¾ inches)
(Mulinia lateralis)

NUT CLAM (¼ inch)
(Nucula proxima)

GLASSY CLAM (¾ inch)
(Lyonsia hyalina)

GEM SHELL (1/5 inch)
(Gemma gemma)

COMMON PERIWINKLE
(½ to 1 inch high)
(Littornia littorea)

SMOOTH PERIWINKLE (½ inch high)
(Littorina obtusata)

TORTOISE-SHELL LIMPET (1 inch)
(Acmaea testudinalis)

SLIPPER SHELL (1½ inches)
(Crepidula fornicata)

THICK-LIPPED DRILL
(less than 1 inch high)
(Eupleura caudata)

BASKET SNAIL
(½ inch high)
(Nassarius trivittatus)

MARSH SNAIL (less than ½ inch)
(Melampus bidentatus)

BROWN-BANDED WENTLETRAP (½ inch high)
(Epitonium rupicola)

MUD SNAIL (¾-1 inch high)
(Nassarius obsoletus)

ROUGH PERIWINKLE (less than ½ inch high)
(Littorina saxatilis)

OYSTER DRILL
(1¾ inches high)
(Urosalpinx cinerea)

OYSTER (6 to 10 inches)
(Crassostrea virginica)

(Continued from page 23)

for life. Those which chance to settle in the mud perish, and to minimize the annual loss oystermen spread tons of broken shells, called clutch, over the beds each year. Contrary to popular belief, valuable pearls are not found in the valves of this mollusk. The oyster's shell lining is not pearly, but is smooth and dull, so any pearl that may be formed is porcellaneous, and without luster or iridescence. The valuable pearls come from the pearl oysters, found in warmer seas only.

Bay Scallop
(Aequipecten irradians) (Lamarck)

This is the common scallop of the Atlantic coast from New England to Cape Hatteras, and tons are dredged annually for the markets. It occurs in shallow water, commonly among eel-grass, and the unfortunate disappearance of eel-grass in many localities has led to a corresponding scarcity of scallops. Fishermen obtain them by dragging a rakelike instrument through this grass. The shell is roughly round, or fan-shaped, and well inflated, attaining a diameter of some three inches. The surface bears radiating ribs, producing a scalloped margin to the valves. At the beak there is a small projection on each side. These are known as wings, or ears, and their surfaces are marked with fine concentric lines. The color is variable, ranging from nearly white through orange, reddish, purplish, and mottled brownish. Often there are concentric bands. Unlike most of our clams, the scallop neither crawls or burrows. It progresses through the water by a series of jerks and darts produced by rapidly opening and shutting its valves, forcing a jet of water out through openings under the wings. This manner of locomotion is powered by a single large muscle, which is the part of the scallop we eat. The group is also unusual among clams in that its members possess functional eyes, tiny beads that fringe the edge of the mantle and are plainly visible when the valves are partly open, each complete with cornea, lens, and optic nerve.

Jingle Shell
(Anomia simplex) (Orbigny)

This shell is about one inch long and varies considerably in color, ranging from sulphur yellow to coppery red, with many specimens silvery gray or black. The shell is circular, and variously distorted according to the object to which it is attached. The surface is minutely scaly and of a waxy luster. The upper valve is convex, with a small beak, while the lower valve is smaller, flat, and bears a circular hole for the passage of a fleshy stalk by which the mollusk adheres. These are the "jingle shells" that are prized by children at the seashore and perhaps the commonest shell on many beaches. It used to be popular to string them on cords and hang them in an open window or doorway at a shore cottage, where each passing breeze produced a pleasing tinkle. The bivalve lives attached to stones in moderately deep water. The cuplike upper valve is the one that is washed ashore after the animal dies, and the perforated lower valve is not very often seen. This species is found all along the Atlantic coast.

Common Mussel
(Mytilus edulis) (Linne)

About three inches long and bluish black in color, the shell is roughly an elongate triangle, the beaks forming the apex. The surface bears many fine concentric lines and is covered with a shiny periostracum. The interior is white, the margins violet. Young specimens are usually brighter colored, and may be greenish or even rayed. Acres of these common mussels are exposed at low tide all along the Atlantic and Pacific coasts and in Europe. They are attached to stones and pebbles in clear water, on the pilings of wharves, and in rocky places generally. They are fastened by a series of tough threadlike filaments, but are capable of moving about to some extent. This very abundant clam is a tasty morsel, much relished by those who have tried it, but for some reason, probably the abundance of larger bivalves, it has never become very popular here, although eaten by the tons in Europe.

Horse Mussel
(Modiolus modiolus) (Linne)

The horse mussel is a big fellow, five to six inches long. The shell is heavy and coarse, and oblong-oval in shape, the surface marked by lines of growth and sometimes a few faint radiating lines. The color is bluish black, with a thick and leathery periostracum, the interior white. The horse mussel inhabits deeper water, dwelling on a stony bottom where it can find secure places of attachment. Generally regarded as unfit for food, it ranges from the Arctic Ocean to about Cape Hatteras. The empty shells, which are often to be found on the south shore of Long Island, are noticeable on account of their size. Bleached shells often turn a pale lavender or reddish.

Ribbed Mussel
(Brachidontes demissus) (Dillwyn)

This mussel is some three inches in length and yellowish green to bluish green in color. The shell is moderately thin, oblong-oval, and much elongated. The surface is ornamented with numerous radiating, somewhat undulating ribs that occasionally branch. The interior is silvery white, often iridescent. These are the familiar mussels of brackish water and tidal flats. Here they are found clustered in among the stones or embedded in peatlike earth near the high tide mark, their valves commonly encrusted with bryozoans and barnacles. Ranging from Nova Scotia to Florida, this mussel is not generally regarded as edible, possibly because it appears to thrive best in partially polluted waters.

Pandora Clam
(Pandora gouldiana) Dall

This little clam is an inch or so in length and grayish white in color. The shell is irregularly wedge-shaped, rounded before, with a recurved, truncated tip behind, and is remarkably thin and flat. The two valves are unsymmetrical, the right one flat and the left one slightly convex. The interior is pearly and highly polished. This curious little bivalve is instantly recognized by its extreme thinness. It seems scarcely possible that there is room for an animal between its compressed valves. It frequents stony and pebbly bottoms and is generally fairly plentiful on oyster beds. The range is from Prince Edward Island to North Carolina.

Glassy Clam
(Pandora gouldiana) Dall

An attractive little bivalve, its length about three-fourths of an inch. The shell is thin and fragile, translucent and pearly. The front end is rounded, with the back end elongated, narrowed, and slightly truncate. The surface is covered with radiating wrinkles that are minutely fringed so as to entangle grains of sand, with which the margins of the shell are often coated. This species occurs all along the Atlantic coast, preferring shallow waters and clay bottoms. The delicate valves are commonly washed ashore, but they can stand but little rolling about in the surf, and perfect specimens are likely to be few and far between.

Spoon Clam
(Periploma leanum) (Conrad)

Pearly white in color, sometimes with a thin yellowish periostracum, the length is just over one inch. The left valve is almost flat, and rounded at both ends, while the right valve is more convex, and somewhat truncate at the rear end. A faint ridge extends from the beaks to the same end. The hinge contains a prominent spoonlike tooth that is nearly horizontal. Occurring from the Gulf of St. Lawrence to North Carolina, this bivalve lives in moderately deep water, preferring a sandy bottom. In spite of the brittle and fragile appearance of this shell, perfect specimens may be found on the beach following storms.

Black Quahog
(Arctica islandica) (Linne)

The black quahog is a large and robust clam, four inches long when fully mature. The shell is thick and heavy, and roughly circular in outline. The beaks are elevated and turned forward and inward so as to come nearly in contact. The periostracum is black

Late stage: Tree has almost succumbed to ash dieback

Ash Dieback Spreads

by S. B. Silverborg, J. H. Risley and E. W. Ross[1]

TWO decades back, sharp-eyed persons began to notice that many ash trees by the roadside in New York State and New England were taking on a purple color. Some persons noted also that these same trees changed to their fall coloration in late summer and very early in the fall.

Unwittingly, they were observing the intermediate stage of a now important disease of trees—ash dieback.

Since then, white ash (*Fraxinus americana*, L.) and to some extent green ash [*Fraxinus pennsylvanica* var. *lanceolata* (Borkh.) Sarg.] have been dying in large numbers in New York State and other sections of the Northeast from the disease. Observed first on roadside and hedgerow trees, during the past few years diseased trees have appeared in many forested areas. This new disease problem appears to be intensifying.

White ash is a valuable timber species in the Northeast, being used principally for baseball bats, furniture and many novelty items. Therefore, the disease has become of great concern to the wood-using industries of the northeast.

How to Recognize the Disease

Early Stages: In the early stages of ash dieback the leaves of diseased trees lose their normal dark green color and become pale greenish-yellow. At this stage a few dead twigs or terminal branches may be visible upon close examination of the tree.

Intermediate Stages: In the intermediate stages of ash dieback the symptoms or evidences of the disease are more apparent. The leaves are tufted at the tips of branches giving the tree crown a thin appearance. Large dead branches may be present throughout the crown. The bark of these branches becomes reddish brown to yellow particularly at the point where they join the live stem. Also, in the intermediate stage of the disease, the leaves may develop a purple color and appear to be taking on early fall coloration. Commonly, diseased trees take on fall coloration early and defoliate much sooner than healthy trees.

Late Stages: In the late stages of the disease only a few live branches remain and the trees appear to be near death. However, it is not uncommon to find long spindly water sprouts with dwarfed yellow or purple leaves developing from areas of live bark on the main stem and around the base of larger branches.

Localized areas of dead bark, known as cankers, develop early on the main stem or the larger branches in many trees. These cankers kill large areas of bark around the stems and the entire portion of tree beyond the canker dies. The dead bark in these cankered areas is reddish-brown to yellow and may remain intact on the tree or eventually be sloughed off exposing the wood underneath.

Close examination of the dead bark commonly reveals numerous small black pimple-like ruptures in the bark. These are fruiting forms of fungus, *Cytophoma pruinosa* (Fries) (Höhn), commonly associated with the disease. The outer growth rings of a diseased tree generally indicate a reduction in diameter growth within the past few years. The disease occurs in all sizes of trees. Studies indicate that once the tree develops the disease it will never recover although it may take from two to ten years to die.

Typical symptom: Spiral scarring of bark by a miner commonly associated with disease

Disease Survey

To determine the range and intensity of the disease in New York State, a field survey was conducted during the summers of 1960 and 1961 by members of the New York State Conservation Department and the State University College of Forestry. Approximately 10 survey plots, one-tenth acre in size, were established in each county by line-plot procedures depending on county size and availability of ash. The plots in forest land were one chain by one chain square, while roadside and hedgerow plots were rectangular, two chains by one-half chain. A total of 8,494 trees were tabulated in the survey, of which 3,699 were roadside trees and 4,795 were trees

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growing on forest land. Of the roadside trees, 64% were healthy, 32% were diseased and 4% were dead. Of the forest trees, 63% were healthy, 31% were diseased, and 6% were dead. Summarizing both roadside and forest trees, 63% of the white ash in the State were healthy and 37% were in decline or dead.

A general view of the range and severity of ash dieback in the State was obtained by locating each survey plot, approximately, on a State map and indicating the percentage of diseased trees in each plot by a color code. The survey data indicated that the disease is present in every county of the State where white ash is common (Long Island and New York City counties excluded). It was most severe in the eastern counties along the Hudson River Valley from Warren County, southward to Westchester County including Washington, Saratoga, Schenectady, Montgomery, Albany, Greene, Columbia, and Dutchess counties. Onondaga County in central New York was another area of high disease intensity. The disease also was severe in some central and western counties of the State.

Another symptom: Bark split open due to canker on weakened tree with characteristic purplish leaves

Resurveys of selected plots in the future will indicate if the disease is spreading or intensifying. Resurveys of plots in eastern counties to date over a three-year period have indicated little increase in disease intensity from 1960 to 1962. Since a high percentage of diseased trees are in small size classes, below 10 inches d.b.h., the greatest losses at present lie in a reduction of ash growing stock.

Continued development of the disease may threaten future ash supplies unless the cause and controls are found.

Wood From Diseased Trees

The commercial value of white ash wood is largely dependent upon its strength properties; therefore, it is of vital importance to know what effect ash dieback has on the usefulness of the wood in various stages of disease.

Eight hundred small test beams were sawn from 20 ash trees in various stages of the dieback and subjected to toughness tests (resistance to sudden shock) with a timber testing machine. These preliminary tests indicate that there are no significant differences in the toughness of wood in dieback trees until all branches in the tree crown are dead. After death of the tree crown rapid de-

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Research on Ash Dieback

by R. A. Zabel, D. L. Collins, and C. J. Yops[1]

Intermediate state: Thinning foliage on affected trees

FOREST pathologists at the State University College of Forestry and tree pest specialists of the Conservation Department have been studying ash dieback disease on a special project basis since the summer of 1960. In 1962 forest entomologists of the State Science Service of the State Education Department joined the effort and began intensive studies to determine the insect pests associated with white ash and their relationship to the disease.

Initial research effort aimed at collecting detailed information on the location and severity of ash dieback in the State. This information was needed to verify alarming reports from foresters and other field men on prevalence and to pinpoint possible spread patterns and areas of disease concentration. With the seriousness of the disease clearly established in the fall of 1960 by the survey, a general research program with three major objectives was developed between the College of Forestry and the Conservation Department.

The first research objective was to collect information on the rate of deterioration of dying and dead ash for the wood-using industries of New York to facilitate efficient salvage of these materials. A research fellowship at the State University College of Forestry was sponsored by the Conservation Department in the summer of 1961 to initiate such research on the disease. In the summer of 1961 the strength properties of 800 small test beams sawed from 20 trees in various disease stages, were determined. Data indicated ash can be used safely for general purposes until death of the crown.

After crown death the stem is attacked by beetles and wood decay fungi which rapidly weaken the wood. Also many dying trees do show a marked reduction in growth rate which may adversely affect strength. However, this weaker outer shell generally is removed during sawing. A detailed study of the rate of deterioration of dead and dying ash in various size ranges from four areas in the State will be completed this fall by Mr. Richard Jagels, a research fellow at the College of Forestry.

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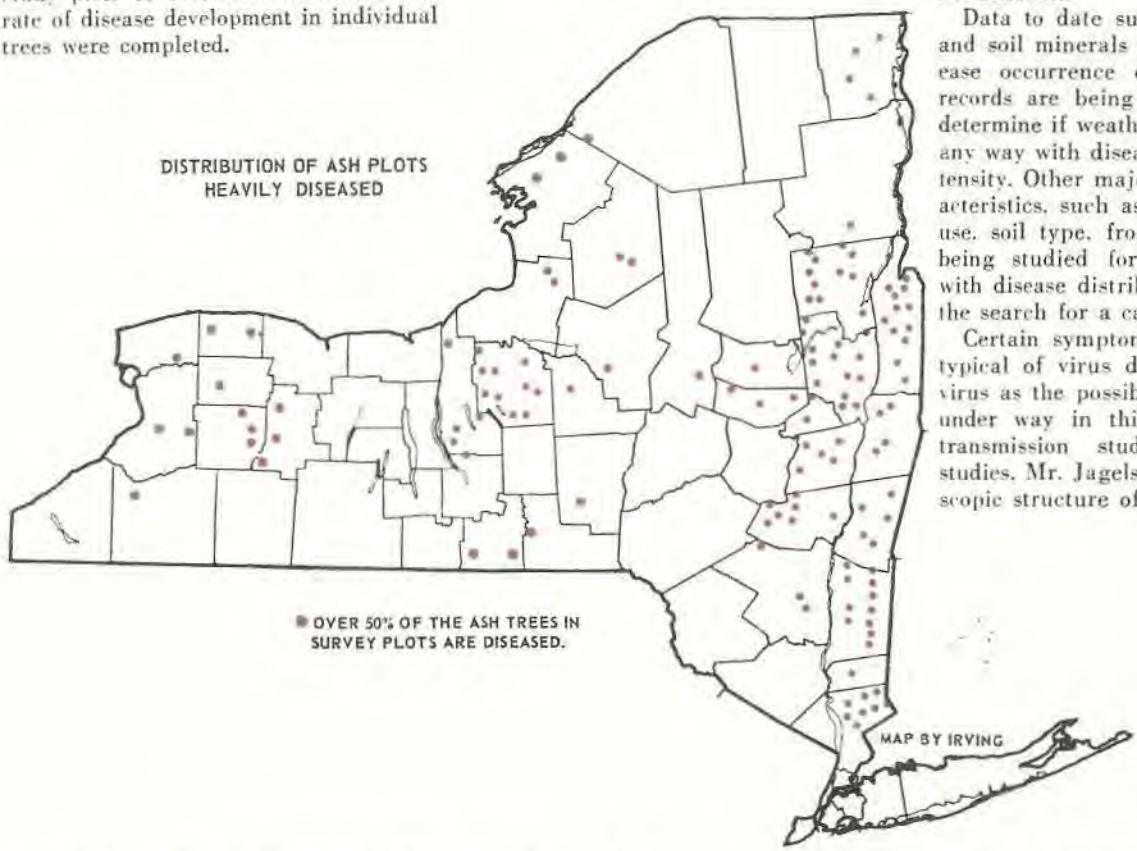
[1] Respectively, Chairman, Department of Forest Botany and Pathology, State University of Forestry at Syracuse University; State Entomologist, New York State Museum and Science Service; and Superintendent, Bureau Forest Pest Control, N. Y. S. Conservation Dept.

A second research objective was to obtain data on the rate of development of the disease in forestry stands and on the length of time diseased ash survive. Such information will be useful to foresters facing management decisions in stands containing diseased white ash. Resurveys of the original survey plots and the establishment of four special study plots to determine accurately the rate of disease development in individual trees were completed.



Field observations to date suggest that five years are required for white ash to die after the first early disease symptoms appear. Small saplings and poles may die within two years while larger trees may survive 10 years or longer. Also the rate of dying varies considerably from site to site. No recoveries of diseased ash have been observed to date, which we consider to be a very important fact. It is also significant that the disease appears most commonly in sapling and pole size white ash thus seriously threatening future crops.

Search for Cause

The third objective in the research program was the search for the cause and control of the disease. Tree diseases may be caused by a wide range of agents acting separately or in combination. Some of the important causal agents of tree disease are fungi, viruses, bacteria, and mistletoes. Also nematodes may play a role in tree disease. In addition a wide range of environmental factors such as mineral dificiencies, toxic gases, and prolonged periods of low soil moisture or adverse weather may cause or predispose trees to specific types of disease.

The elucidation of a disease cause in a forest tree may be extremely difficult, because of great age, large size, and the complexity of the surrounding forest biota. In this article, we will cover only a few of the many specific probes by members of the research team to determine the cause of ash dieback. Dr. Savel Silverborg and Dr. Robert Brandt first established in 1957 that a fungus, *Cytophoma pruinosa*, was commonly associated with the disease in cankers, and that the fungus when inoculated would cause cankers on apparently healthy trees. This research established the association of the fungus with the disease. The possibility remains to be explored that the fungus develops primarily on trees weakened by some other agent at present unknown. Three other species of fungi have been isolated from the branches and stems of hundreds of diseased white ash. At the College of Forestry, these have been inoculated in white ash under carefully controlled tests to determine if and when these fungi will form cankers in the tree. Two of these isolates have formed cankers. Such results strongly suggest that some unknown agent may be weakening or predisposing the trees to the disease. Soil samples from the root zones of numerous diseased trees have been studied to determine the frequency and types of nematodes present. Soil samples have been analyzed to determine if soil constituents such as nitrogen, phosphorus, potassium, magnesium and calcium may be deficient.

Data to date suggests that nematodes and soil minerals are not related to disease occurrence or intensity. Weather records are being carefully analyzed to determine if weather can be correlated in any way with disease distribution and intensity. Other major environmental characteristics, such as former types of land use, soil type, frost zones, etc. are also being studied for possible correlations with disease distribution and intensity in the search for a causal factor.

Certain symptoms of ash dieback are typical of virus diseases and suggest a virus as the possible causal agent. Work under way in this field includes virus-transmission studies, and serological studies. Mr. Jagels is studying the microscopic structure of diseased white ash in a search for evidences of abnormal plant tissues characteristic of virus involvement.

Similar Diseases

It might be emphasized that several other diseases similar to ash dieback, such as sweet gum blight and little leaf of pine in the South, and pole blight in the West, have appeared within the last few decades in the United States. In the Northwest, species such as white birch, sugar maple, and red oak also have been involved in these puzzling declines for which causes are unknown. In a recent paper, Dr. George Hepting, a recognized international authority on tree diseases, proposed that a world-wide warming trend since 1900 may have set in motion factors or a specific agent responsible for these declines.

Dr. Thomas Geary, a pathologist-physiologist at the College of Forestry, is currently studying root systems of white ash and analyzing the root tips for root rot

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Grass Roots Conservation

by **Philip Barske,** Field Representative, Wildlife Management Institute

This story of what our neighboring states are doing about conservation planning at the governmental level of the town will move many conservationists to ask: "Why not for our Town?" Some may be surprised to find there are similar agencies in New York State, functioning in their own back yards, so to speak, busily "getting their feet wet" in the problems of providing for adequate water and open space to serve the long range natural resource needs of the growing community. In fact, the reliance such groups are placing on our own field staffs for technical advice on conservation problems is exceeding our supply of advisors, even at the county level!

We, too, are concerned about the problem of how best to achieve sound, long range, conservation planning. We believe, also, that constructive involvement of local citizens in this effort is essential if conservation principles are to be saved from becoming conversation pieces.

Our own State is rapidly becoming highly organized with town, county and regional planning groups concerned with soil and water resources, recreation, management of timber, fish and wildlife, and it is encouraging and enlightening to see the form this activity is taking among our New England neighbors. We wish them every success.—Editor

OUR home town is frequently the most neglected part of the conservation scene. Yet here is where most persons have their only opportunity to do something tangible about conservation.

Why the inactivity? And what is being done about it? The answer to the first question is probably that most persons, interested in conservation, have their eyes focussed on national events: Threats to wilderness areas, a power development on the Allegash River, the decline of the bald eagle, or the preservation of Cape Cod beaches and dunes.

Few of us are large landowners and, therefore, we do not bump into local conservation in action: we experience only the talk about conservation. Although interested in conservation issues, the average citizen feels far removed from actual participation.

In brief, most persons do not do anything about conservation in their home town area because conservation has not become a personal concern to them.

What is being done about getting conservation action in the grass roots of our states?

New York has worked through the Fish and Wildlife Management Act and the Forest Practice Act. At the same time in New York, town and county planning boards often wrestle with conservation problems.

A dynamic approach is spreading through New England in the form of town conservation commissions. The most notable growth of this local conservation authority has taken place in Massachusetts, Rhode Island and Connecticut.

Conservation commissions, at a governmental level lower than the state, are not new: some of the Mid-Western states have had county conservation boards or commissions for many years. But, in the East, the concept of a local conservation commission is relatively new. Sparked by the pioneering act of Massachusetts in 1957, other New England states have followed suit and have passed enabling legislation which permits and encourages towns to establish such commissions.

Aside from state law, many New England towns have knowingly or unknowingly dabbled with local laws and regulations which might be labelled as "conservation laws." Some towns have committees or commissions on water, on forests, on shore erosion, on air pollution and even a few scattered towns have been found with wildlife committees. Many towns have a hodge-podge of prohibitive laws that relate to one or several aspects of natural resources—laws, but no program and little public interest or support.

Just where the formal town conservation commission idea originated may be lost in unwritten history. Before we credit any state for originating the "home town" conservation program concept we should bear in mind that the Province of Ontario in 1944 passed the Conservation Authorities Act, which permits the communities in each watershed to organize into a conservation authority in order to make a co-operative attack on their watershed problems. The Ontario Act is not exactly comparable to the town conservation commission program, since the Canadian conservation authority program related more to the physical area of a watershed, whereas the town programs encompass a political territory. The Canadian program is working very well and over 360 Ontario municipalities have organized into a conservation authority—a step forward to bring conservation closer to home.

In Massachusetts the real impetus for the town conservation committee came from the present Commissioner of Natural Resources, Charles Foster. His pioneering idea and continuous promotion of it, resulted in a state bill (1956, Chapter 223) that:

"Authorizes cities and towns to establish Conservation Committees to promote the development of natural resources and to appropriate money therefore."

This basic bill of 1957 further describes the intent of the legislation to be:

"To establish a Conservation Committee, for the promotion and development of the natural resources and for the protection of the watershed resources of said city or town. Such Committee shall conduct research into its local land areas and shall seek to co-ordinate the activities of unofficial bodies organized for similar purposes, and may advertise, prepare, print and distribute books, maps, charts, plans and pamphlets which in its judgment it deems necessary for its work. It shall keep an index of all open areas within the city or town, as the case may be, with the plan of obtaining information pertinent to proper utilization of such open areas, including lands owned by the commonwealth, or lands owned by a town or city. It shall keep an index of all open marshlands, swamps and all other wetlands in a like manner and may recommend to the city council or selectmen, to the Department of Natural Resources, and to the State Reclamation Board, a program for the better promotion, development and utilization of all such areas."

From the pioneer program of Massachusetts, Rhode Island and Connecticut subsequently passed legislation authorizing towns to set up town conservation programs.

Following the enactment of 1957 in Massachusetts, the growth of the program was merely encouraging in the first few years. Although wood may be on the hearth, kindling must be ignited before the fire becomes self-sustaining and useful. So it was with the Massachusetts town conservation program. By 1960, only

twenty towns had organized conservation commissions; but by 1963, well over 160 towns in Massachusetts—more than half of the Commonwealth towns—are now organized under the town conservation plan. In Connecticut, the town conservation program was authorized in 1961, more than 10 towns are organized and several more are in the process. Rhode Island passed enabling legislation in 1960 and 23 towns, or half of the towns in the state, now possess a commission.

Need for Local Commissions

The growing numbers of people crowding our eastern coastal region is creating unprecedented demands on all our natural resources, not just the basic resources of soil, water, plants and wildlife that we usually lump together. We have a new awareness that "space" is a resource to be conserved in suburban areas and nearby rural sections.

As our towns grow, we must consider whether we are setting aside enough park and recreation areas to meet future demand. Are we protecting our watersheds to insure adequate water supplies and flood control? How can we preserve the rural atmosphere and scenic beauty which some towns would like to retain? What is the effect of increasing urbanization on our wildlife?

As the pressure on our natural resources, particularly living space, becomes acute, there is a need for local agencies which can concern themselves with these matters from a conservation viewpoint. In Massachusetts, Rhode Island and Connecticut this is done by the local conservation commission as the official agency of a town charged with the development and conservation of its natural resources.

What Can Commissions Do?

Here are some examples of what can be done on a local level for the wise use and management of our natural resources:

1. *Water*—Study watershed and flood control problems within the community. Encourage flood plain zoning. Stress the importance of marshes and swamps as natural water storage areas. Review problems of water pollution and water supply.

2. *Soil and Land*—Make a conservation study of the town and keep a record of all open land, making recommendations for its proper use. Work with the local planning or zoning organization in the preparation or review of a town plan. Urge the adoption of good land use and soil conservation practices. Recommend areas for conservation easements and provide information about the concept of open space preservation.

3. *Recreation*—Work with the recreation and park commissions in planning for present and future park and recreation needs. Study and urge development of multiple-use and open green areas principles.

4. *Forestry*—Develop a sound shade tree and forestry program for the community. Establish and manage a community forest area.

5. *Wildlife*—Urge purchase of "odd" areas for wildlife development. Develop a community wildlife sanctuary. Stress the importance of marshland and so-called "waste areas" to wildlife.

6. *Information and Education*—Act as the co-ordinating agency of the community on conservation matters. Prepare informational and educational material. Inform citizens of the services available from federal, state, and private conservation agencies. Promote conservation education and natural areas for schools; encourage conservation activities for young people.

How Is Commission Set Up?

The commission is established by vote of a town's legislative body. It may consist of not fewer than three nor more than seven members, to be appointed by the chief executive officer of the town, to serve for terms designated by the legislative body establishing the commission. If properly constituted, a conservation commission should complement, not overlap or conflict with any existing organization.

While discussing what a town conservation commission can do, one more step should be explored a bit further and that is the character of such a commission. Too many of our local conservation organizations have been private citizen groups and their interest, pioneering and crusading lacked the important catalytic force of "authority." The ability of a town- or city-sponsored conservation commission provides the tie to authority, funds and legal support. These aids are important to make "conservation" more than just polite talk.

The fundamentals of a conservation commission organization were well stated by Dr. George Gunther, Chairman of the Stratford, Connecticut Conservation Commission:

"In organizing local conservation commissions, I feel it is important to encourage the legislative bodies of the towns to actively participate in the programs. This usually is for two reasons; first and foremost, to keep them informed and educated as to the needs of the community relative to conservation and open spaces; secondly, without the support of your legislative body you will soon find that you are stalemated with projects but no financial backing. To implement this type of program I strongly suggest at least a minority of the committee should be made up of legislators.

"It is also important that the non-elected members of these commissions be persons with a working knowledge of some phase of conservation needs. To have the commission as a training ground for neophyte politicians or as a jumping off point for candidates in other elective offices, will defeat a critical need for action now. This is one field (conservation) that has been overlooked for many years and many surburban towns must take immediate action to save what little green areas are left.

"Another consideration that should be kept in mind is not to have all men or all women committees. It is important for the public image, that these committees should not degenerate into another afternoon tea or stag club. Women members

Townspeople join putting deflector in a stream for fish and bank protection

are essential, especially those associated with local garden and conservation groups. These women usually have the time and know-how to get programs and projects off the ground. They are also excellent as liaison and public relations members."

The actual formation of town conservation commission will vary. Some towns will grant authority to the conservation commission to handle funds, acquire lands, the power of condemnation and other degrees of self-autonomy, while other towns will permit the conservation commission to recommend only. As to funds, the states vary in their authorization. In Massachusetts, the towns are authorized to appropriate sums up to 1/20 of 1 per cent of the town's assessed valuation and with this, the state has provided a grant-in-aid fund. Connecticut proposed a grant-in-aid fund that will come before the legislature early in 1963.

In state aid, New York set the pace for many states to follow with the enactment of the statewide program of land acquisition and particularly in the grant-in-aid program to acquire key wetland areas.

Continuing Development

The town conservation commission idea is new and the spirit of the program has added a new zest to conservation. The new approach stimulates greater local interest and a real participation by a new group of citizens who now have a vehicle to actually carry out programs.

To further stimulate and co-ordinate state-local programs, the Massachusetts town conservation commissions have organized into an association and the first statewide conference was held in 1962. To further exchange ideas and to broaden the base of the local activities, conservation workshops have been organized in various sections of Massachusetts.

In the operation of the conservation commission programs, there is the constant need for technical advice and service, and between the various federal and state conservation agencies, there should be a wealth of technical guidance available. Further, it is amazing how much local talent is available; many towns have state or federal conservation workers as residents and, each town has an unmined wealth of special talent—if it is sought.

A sound conservation program must be simple. Yet it must be understood that a good local conservation program stems from a thorough knowledge of the varied uses of all types of land resources—wetland, forest land, residential areas, recreational areas, business and industrial areas. The complex of varied resources helps to develop the economic and social well-being of a healthy town.

Results in Connecticut

Action by two of Connecticut's pioneer town conservation commissions may be used to illustrate the approaches that commissions may make in their nuptial flight.

The Glastonbury, Connecticut, Commission's first task was to make an inventory of the town's resources and then to project a need, and an anticipated needs, program.

With a backlog of knowledge of what is on hand, the condition of each resource and the probable future demand, an action, program can now be developed in conjunction with federal, state and other town agencies. An added achievement, in the conservation program, is the public awareness that begins to grow as *local issues* begin to assume their proper place and as people begin to care about their backyard resources.

Stratford, Connecticut actually jumped the gun in the formation of a legally constituted Town Conservation Commission. This cherished "first" stemmed, not from the desire to be first, but from necessity!

Stratford is a typical small town that has gone from 15,000 to 45,000 population in a few short years. Open spaces, and other natural resources (soil-water areas, forests, wildlife, and the beauty of the landscape) had dwindled until there was a sudden realization that "they just ain't makin' any more." The resources and open spaces that were left were the results of chance, or, as in the case of some open spaces, these lands were either too wet or too rough to develop economically.

The crisis that rallied Stratford to action was the fact that good land (from the builder's viewpoint) was about gone. This became plain when one of the remaining swamplands was scheduled to become a housing project. Action by a few interested citizens and an interested town official resulted in the formation of an action group to see if the land could not be saved for town purpose for flood control, for a natural park, and for a much needed chunk of "open space" in a heavily built up area.

The Stratford group although informally organized, was authorized (with the help of a town council member on the committee) to seek the owners of the land in question and see if the town might acquire it. Fortunately, a key portion of the wetlands in question was state-owned and the Highway Department was more than willing to sell it to the town for park purposes. The Conservation Commission recommended to the Town Council that the state land be purchased and for a nominal sum 11.2 acres were acquired. The area was only about 10 per cent of what would have been available a mere four or five years ago. This informal action resulted in town ownership of a key parcel of "open space" and blocked the plans of the builder.

An additional prize for the group that worked to save a small parcel of wetland was the encouragement given by this first local project: Success breeds success! A town conservation commission was formed all under state enabling legislation and by town council ordinance.

Since its formation, about one year ago, the Stratford Town Conservation Commission has recommended the acquisition of several additional parcels of land, worked with neighboring towns in co-operative ventures (such as a natural park along three miles of a town boundary stream) made a resource inventory of the town, and spurred several neighboring towns to form town conservation commissions. One achievement that is difficult to assess but is now quite evident in the town is a new understanding of town resources and an encouraging attitude that "this is a good thing."

One achievement that Stratford's Town Conservation Commission has behind it is a very simple legal act—the dedication of the town-owned forest, beaches and parks. Simple, but up until the legal dedication of these town lands, any part or parcel could have been sold or traded at any town council meeting. Now, any parcel of town-owned forest, park or beach land must go to a referendum before it can be sold.

Another unexpected benefit of local conservation action is the wonderful response by civic groups and various individuals. One person wants to buy a tract of marsh land and give it to the town; the local Kiwanis and Lions Club have tackled a pond building project at the town forest, where the goal is to develop a nature center. Garden clubs, chambers of commerce and other groups have offered money and labor—more than can be handled at the moment.

The community level conservation response has been wonderful; it may not last but the help has been stimulating and encouraging. True, the hard-core work will rest on the shoulders of the local commissions but the way has been made easier. More people know, more people seem to care and more people are participating. This local approach will move the Cinderella of conservation from the hearth to center stage.

the back of the book

Conservation camp fees up

Having held the line since the late "Forties," the Department now must raise the Boys' Conservation Education Camp sponsorship fee. Where $25 used to cover a boy for a week, the cost will now be $35 per boy per week—beginning with the 1963 season.

In an attempt to improve the quality of the camp program, it is planned to hold the weekly enrollments at each camp (there are four of them) to not more than forty boys. Thanks to enthusiastic response to the program, weekly enrollments have been approaching the sixty mark, but this is just too many to do a good job with available camp personnel and facilities. So, get your bids in early with the Regional Supervisors to insure a spot for the boy or boys you want to sponsor.

A word or two about the boys of your choice, too. Please, for the boy's sake especially, be sure that he knows what sort of camp it is; that he is interested in learning about the wise use of our natural resources; and really wants to attend a school type camp. For our sake, pick a boy of good character who is going to behave himself and get along with the others.

If you are not familiar with the Boys' Conservation Education Camp program, please get in touch with your nearest Conservation Regional Fish and Game office or write a note to the Division of Conservation Education, N.Y.S. Conservation Department, State Campus, Albany.—Roy Irving

New oceanographic vessel

The Fish and Wildlife Service's new vessel, "The Albatross IV," signals an increasing effort to help this nation's commercial fisheries and to accelerate oceanographic research. Also, two large naval tugs, converted into seagoing laboratories, will be added to the fleet. Fisheries research laboratories at La Jolla, Calif., Ann Arbor, Mich., Beaufort, N.C., and Seattle, Wash., too, are nearly completed.

Until a few years ago, the United States was second only to Japan in world fish production. Today it has dropped to fifth place—topped by Japan, the U.S.S.R., Red China and Peru.

Designed as a base for fisheries and oceanographic research in the northwest Atlantic "The Albatross IV" will chart the distribution and abundance of groundfish and scallops; study the environmental factors which cause seasonal and long-term changes in fish stocks; collect data on the bottom organisms which form the food supply of groundfish; investigate plankton populations and oceanographic conditions generally.

Complete research facilities provide wet and dry laboratories, photographic and electronic laboratories, an open deck laboratory for examining fish immediately upon catch, and a variety of electronic equipment such as underwater sonar, underwater television, closed-circuit aboard-ship television and an underwater electromagnetic log. Scientists can work in this safe and stable laboratory as it ploughs across the surface of the sea and at the same time be able to study ocean life and conditions several hundred feet below them, relayed to their viewing screens from a cable-suspended underwater television camera.

Ausable Point beach

The new Ausable Point beach near Plattsburgh will include a bathing beach, day-use area and public campsite. When completed, the 125-acre development on Lake Champlain will accommodate 5,000 picnickers and more than 1,000 campers.

With more than 800 feet of natural white sand beach front, the proposed development will be one of the finest public recreation areas on the western shore of Lake Champlain.

Belleayre skiing expanded

A new novice area, constructed at a cost of nearly a half million dollars, was opened to the public this winter at Belleayre Ski Center and is the first major expansion of this popular winter recreation complex since it opened in 1950. The new facilities include a double chair lift, lodge and cafeteria, three new ski trails and additional parking locations. The double chair lift is approximately 3,200 feet long with a 414-foot vertical drop and a capacity of about 800 skiers per hour. The three new trails run the entire length of the slope and are cleared to a maximum width of 80 feet.

The base lodge contains a cafeteria with a seating capacity of 200 persons, first aid room, ski school office and ski shop.

In addition to the new novice development, Belleayre Ski Center has 15 ski trails, two rope tows, two T-bar lifts, a 2,950-foot double chair lift with a vertical drop of 784 feet, a ski lodge and maintenance buildings. The entire skiing complex can accommodate up to 10,000 skiers a day.

Located in the Catskill State Park, Belleayre is a popular recreation spot for both winter and summer tourists. With 72 days of skiing in 1961-62, nearly 130,000 skiers used the Center's facilities. Last summer, 25,000 persons rode the main chair lift to the summit picnicking area.

Deer, next year

The following was received with deer "Party Permit" returns from a party with a sense of humor and good sportsmanship:

Saw no deer
Far or near
Better luck —
Next Year!
Yours truly
"Our Party"

New map

The New York State Museum and Science Service has just published a new State Geologic Map presenting the advances of the last sixty years of geologic mapping.

The publication is an important document for both the student of geology and any person interested in the rock formations of his particular area in the State.

The front cover, measuring 34 by 37 inches is shown in the photograph on this page. Actually the map is a book consisting of a series of large colored maps, plus a 42-page discussion of the various geologic eras, mineral deposits and related matters. This section was written by John G. Broughton, Donald W. Fisher, Yngvar W. Isachsen and Lawrence V. Richard. Layout and art for the publication were done by Marcia Ring Winslow.

The Geologic Map of New York State was prepared by the New York State Geological Survey. It was the compilers' aim to produce an accurate, practical and generally useful map of the State which is the "cradle" of systematic research in paleontology and geology in the United States. Concurrently, the map is also a progress report on the present status of knowledge of the bed rock.

Separately, there are three correlation charts (Map and Chart Series Nos. 1-3, Silurian, Cambrian, and Ordovician) to be considered with the Geologic Map since they are related.

The New York State Geologic Map costs $10 plus $1 for handling and mailing. Single sheets are $2, postpaid. They may be ordered from the New York State Museum and Science Service, Albany 1.

Correlation maps cost: "Silurian Rocks," 25 cents; "Ordovician Rocks," 75 cents; "Cambrian Rocks," $1.00.

This publication and the correlation maps are a basic and monumental work among the scientific reports about the physical nature of New York State. It represents the results of investigations of more than a half century, and will probably be a guidepost for the investigations of the next half century.

The publication will be of value to students from the level of high school through the university, and a channel for further geologic investigation by specialists in the field.—EDITOR

Midwinter waterfowl

More than 325,000 waterfowl were sighted during the Department's annual 3,000-mile between-season aerial inventory—the highest level in at least 15 years, according to State Conservation Department wildlife technicians. Unfortunately, the over-all duck picture was not as good as the inventory might indicate due to an uneven distribution of birds throughout the State's major waterfowl areas.

November temperatures were colder than normal and iced over most of the shallow upstate waters. This forced ducks to move further south and as a result, Long Island held its normal fall migrants while receiving wintering flocks of dabblers ahead of schedule.

This between-season survey showed an 80 per cent "above normal" gain for Long Island dabblers—mostly black ducks and mallards—and a diving duck population some seven times greater than "average." Nearly 95 per cent of the diving duck increase was brought about by substantial gains in the number of scaup and scoters inventoried. Both of these species come primarily from northern areas which have been relatively unaffected by the Canadian prairie droughts last summer.

Scoters usually winter off the New Jersey coast but seem to have stopped off, at least temporarily, around Long Island this year.

Conservation course

The correspondence course in conservation given by the N.Y. State College of Agriculture, Cornell University, has won wide public acceptance and the program will be given again in 1963.

Entitled "Conservation of Natural Resources," the course stems from a five-lesson home study program offered 170 students in 1961 with certificates awarded to 133. The 1962 course just completed had 259 enrolled with more than 70 per cent expected to qualify for certificates.

Each student receives seven illustrated booklets, including lessons in principles and problems of water, soil, forest and wildlife resources along with conservation history, wildlife law and ecological principles.

Interested persons should write to the Department of Conservation, Fernow Hall, Cornell University, Ithaca. The cost of the course and materials is $13.50.

Lighted bird traps

Traps, although not considered practical for the alleviation of many bird depredation problems, are useful in bird banding and other biological investigations and, under some conditions, may be helpful in control work. A floodlighted trap involving the use of a battery of floodlights placed behind a funnel-shaped net has proved useful in taking relatively large numbers of starlings and blackbirds at their roosts. A lighter, more portable structure has been developed by using aluminum octahedral towers for masts to support the net at the trap entrance. The towers make possible a trap entrance 50 feet high. Light trapping on 14 nights in Arkansas, Maryland, North Carolina, and Pennsylvania yielded 240,000 blackbirds and starlings.

4-H forestry winner

David Baker of Richville, (N.Y.) has been named a national winner and recipient of a $400 scholarship in the national 4-H forestry program. The scholarship was sponsored through the National 4-H Service Committee by the American Forest Products Industries, Inc.

During the past eight years, David planted some 6,000 seedlings, beginning with 1,000 red pine seedling trees in 1954.

Duck stamp

The design for the 1963-64 Migratory Bird Hunting Stamp will be a black and white water color painting showing a pair of brant landing and a lighthouse in the background.

Edward J. Bierly of Route 1, Lorton, Va., created the winning design, which was selected from 161 entries submitted by 87 artists for this 14th annual Federal "duck stamp" contest conducted by the Bureau of Sport Fisheries and Wildlife, Fish and Wildlife Service.

Issuing Party Permits

(Continued from page 6)

ceive their supplies until several days after the rest of the State had been supplied.

Similar complaints were received from western New York, and although the initial delivery to our office was not delayed, something inexplicable happened to the parcel delivery service on some of the rural routes. Such things will happen, it seems, regardless of the precautions taken, sort of like unwanted puppies.

So far as the Bureau of Game is concerned the 1963 party permit season has already begun. Even before the biologists take over in the spring on mortality counts, browse checks, and other investigations, we have begun to evaluate all aspects of the procedures involved in issuing permits as well as studying the difficulties reported by hunters in identifying, transporting and reporting their party deer. This is the third consecutive evaluation made. As a result of the 1961 review, we eliminated the self-locking seal. You may have been pleased to find that you did not have to carry this ungainly item with you in 1962, and its elimination made it easier to prepare the permits for mailing. Our next hurdle to jump will be in finding another armband fabric to use in 1963, since we have had many complaints that the report forms could not be written on when wet.

The 1963 application form may have a new look about it. We are presently discussing the possibility of using a self-contained, pre-addressed envelope so that the mail as it is received in Albany for processing will be uniform in size and will be easier and quicker to handle. We are also musing over a system whereby you will be permitted to select first and second choices of areas, thus cutting down the number of rejections.

We are aware of the inevitable annoyances the party permit applicants have had to bear and, whatever the difficulty, from soggy armbands to filled quotas, we are striving to perfect the party permit system.

Party Permits—Cumulative Totals By Area

AREA	A	B	C	D	E	F	G	H	I	J	K
First Week	112	167	374	125	64	44	707	4	132	738	406
Second Week	530	738	1.589	596	378	365	3.000	48	801	2.370	906
Third Week	1.503	1.816	3.582	1.345	1.004	1.056		131	2.128	4.518	1.278
Fourth Week	2.701	3.030	4.600	1.400	1.825	2.057		255	3.691	6.400	1.554
Fifth Week	4.100	4.100			2.200	2.500		513	4.800		1.987
Quota	4.100	4.100	4.600	1.400	2.200	2.500	3.000	800	4.800	6.400	2.000
Date quota was filled	Oct. 19	Oct. 16	Oct. 8	Oct. 8	Oct. 15	Oct. 15	Sept. 27		Oct. 17	Oct. 11	
Total rejected due to filled quotas	102	723	2.355	782	764	98	2.586		925	1.752	

The Last Prison Camp

(Continued from page 5)

hole, seven miles long. The men not only walked, they also pushed the tote wagon. They were hushed when they arrived. The bull of the woods told Nate and another lad to take a bag of skyhooks to the other guard a half mile up the trail. The "skyhooks" were a bag of scrap iron. When the two exhausted men staggered up to the crew, the guard told them they were the wrong ones and to go back and get the other ones. By this time Nate and his friend were dead on their feet and the crew had their laugh. Nate took it with tolerable good grace; in fact, he smiled as if he'd found the proper place.

Nate had little physical courage; he was not a coward, but he would talk his way out of difficulties. I think most of us felt that he would return either as a thief or as a "con" man. I was very surprised to read that he had shot and killed the driver of *The Readers Digest* payroll truck.

These were a few of the last 400 men who worked for 10 cents a day and keep during my 15-year stretch at the last prison camp. I don't think that I rehabilitated very many, but I am very certain that the regular hours, plain food and regular physical exercise at least put them on the street in the shape of a man and feeling like one. Not all men could or would stand the regimen and primitive living conditions, but there are so many men, young and old, guilty and not so guilty who could benefit by a return to this type of activity.

As a forester, I believe that our woods could benefit as a by-product of this activity without interfering with the job market.

The Oaks of N. Y. S.

(Continued from page 15)

pearance of a maltese cross. The leaves are leathery in texture; the underside is covered with minute hairs.

Post oak inhabits dry, infertile soils and in New York is found only in the Long Island area.

CHESTNUT OAK. Chestnut oak is not an abundant species in New York State but when encountered is easily recognized by the peculiar leaf margin. The leaves *(Fig. 6, left)* average five inches in length and are elliptical in outline. Each side vein of the leaf ends at the margin in a small lobe; thus the margin of the leaf appears scalloped rather than lobed in the usual oak fashion. The bark is equally distinctive because of the unusually deep furrows and long, sharp ridges which extend up and down the trunk.

CHINKAPIN OAK. The leaves of chinkapin oak *(Fig. 6, right)* resemble those of chestnut oak but differ in one important feature: The small lobes are angled at the tip, rather than rounded. In addition, the bark is scaly, as in white oak, rather than ridged and fur-

rowed. Chinkapin oak is infrequent in New York State; it may be found from Lake Champlain southward through the Hudson Valley and in the several river valleys draining into Lake Erie and Lake Ontario.

The two shrub oaks, dwarf chinkapin oak, *Quercus prinoides*, and bear or scrub oak, *Q. ilicifolia*, may be seen occasionally in the central and eastern counties southward to Long Island. Both are hardy inhabitants of dry, infertile sites. Dwarf chinkapin leaves look like those of chinkapin oak but are only two to three inches long. Bear oak leaves are similar in size but the margin is wavy, resembling a holly leaf.

Some New York Sea Shells

(Continued from page 27)

ends. The beaks are small and nearly central. This is a common mud-burrower, living in colonies in the flats between tides. It occurs from Cape Cod to Florida and the Gulf of Mexico.

Razor Clam
(Ensis directus) (Conrad)

The common razor clam is familiar to most seaside visitors, and it probably has the most fitting popular name of any of our mollusks, for its shape certainly does suggest one of the old straight razors. Six or seven inches in length, and yellowish green or olive green in color, the shell is thin, gaping, greatly elongated, and slightly curved. Both ends are squarish, and the surface bears a glossy periostracum. This clam occurs all along the Atlantic coast, living in colonies in the sand or mud near the low water line. It burrows vertically, making the speed with which it can sink down out of sight astonishing. It's no easy task to dig out a specimen. It is also a successful, if somewhat erratic, swimmer. It has a long "foot" which it protrudes, bends back against the shell, and then suddenly straightens out as if it were a steel spring; thus the clam is propelled swiftly for three or four feet. Razor clams are tender when not too large, and have an excellent flavor. The writer prefers them over any other species, especially for that delicacy, "fried clams."

Surf Clam
(Spisula solidissima) (Dillwyn)

Also known as the "hen clam," this is a large and heavy species, attaining a length of more than six inches. It is the largest marine bivalve found in this area. Yellowish white in color, the shell is thick and ponderous, and roughly triangular in shape. The hinge is strong, and there is a large, spoon-shaped cavity within, just under the beaks. It lives in the surf, where it travels just under the sand, and at high tide the fishermen obtain it by dragging the bottom with sharp sticks. If a stick passes between the open valves of a clam the mollusk promptly closes upon it and is drawn to the surface. Although not as popular as the quahog, this species is regularly eaten, and is considered excellent for "bakes." It occurs from Labrador to North Carolina.

Duck Clam
(Mulinia lateralis) (Say)

Sometimes known as the "little surf clam," this bivalve is only about three-fourths of an inch long. The shell is triangular, smooth, and polished, its color yellowish white. The beaks are about central, and the areas before and behind them are broad, flattened, roughly heart-shaped, and bordered by slightly elevated ridges. This species is an important food item for many of our marine fishes, as well as our sea-going ducks. It may be found, in shallow water, all along the Atlantic coast, from Canada to Mexico.

Arctic Wedge Clam
(Mesodesma arctatum) (Conrad)

A wedge-shaped clam, the very short end forming the base of the wedge. From one to two inches long, it is a thick and strong shell, grayish brown in color with a yellowish periostracum that often reflects a metallic luster. The hinge is sturdy, with a pitlike cavity under the beaks, and long lateral teeth that feature sawtooth edges. This rugged bivalve lives in the sands between tides, from Greenland to New Jersey. In New York it appears to occur only in eastern Long Island.

Arctic Borer
(Hiatella arctica) (Linne)

A rough and unattractive bivalve about an inch and a half long and dingy white in color. The shell is oblong-oval, and coarse and irregular in outline. Both ends are rounded, with the rear end nearly three times the length of the front. Young specimens will be found attached to the roots of marine plants, but this is chiefly a boring clam, sometimes living in hard-packed clay, but frequently boring into limestone. It occasionally does considerable damage by excavating its burrows in the cement work of breakers or embankments. This clam ranges to Panama on our west coast and to the West Indies on the east coast. It is not very common in New York.

Soft-Shell Clam
(Mya arenaria) Linne

This is the familiar clam that is always to be found on every quiet shore. Known by such names as long clam, long-necked clam, steamer clam, and soft-shelled clam, it lives in the muds and gravels between the tides, where it is exposed to the air twice each day. It gets to be five or six inches long if it is lucky, but persistent "clamming" has made examples that large rare and hard to find. The shell is moderately thick and gapes at both ends. Dull gray in color, the surface is roughened and somewhat wrinkled by lines of growth. An erect, spoonlike tooth is located under the beak in the left valve. This succulent clam lies buried with just the tip of its siphon (neck) at the surface. As one walks over its territory the bivalve's position is revealed by a vertical spurt of water, ejected as the alarmed clam suddenly withdraws its siphon. Although generally regarded as inferior to the quahog, this is an important food mollusk, and it enjoys a steady popularity in the markets. It is common all along our coast as far north as Greenland, and occurs as well in Europe and on our Pacific coast.

False Angel Wing
(Petricola pholadiformis) Lamarck

This is a burrowing clam, bearing a striking resemblance to the large and showy angel wing (*Cyrtopleura costata*) of Florida and the West Indies. The white shell is about two inches long, and is thin, much elongated, and somewhat cylindrical. The surface is marked with strong radiating ribs that are scaly and sharp on the front, or boring end. It is a common bivalve on muddy shores and in salt marshes, where it burrows horizontally into the banks between the low and high tide marks. It sometimes bores into stiff clay, or even into some of the softer rocks, such as limestone. Its range is from Prince Edward Island to the West Indies.

Truncated Borer
(Barnea truncata) (Say)

Some two inches in length, this is a pure white shell with thin and fragile valves. The shape is somewhat oblong, with the posterior end broadly truncate. The surface is transversely and longitudinally wrinkled, and is studded, particularly on the anterior end, with small erect scales. The valves gape widely, not nearly containing the animal, and there is a small shelly plate situated between the valves just in front of the beaks, so that this might be termed a "trivalve" rather than a "bivalve!" This clam burrows in mud or peat banks that are exposed at low tide. The shell is so fragile that it is difficult to dig a specimen free without crushing it. The best way to collect perfect examples of this clam is to dig out a large block of mud where they are known to be living, and then place the block in the nearest tide pool where it may be slowly dissolved, thus washing the earth from the clam rather than attempting to pry the clam out of the earth. The truncated borer may be found from Massachusetts to Florida.

Ash Dieback Spreads

(Continued from page 29)

terioration of the stem from insect and fungus attack occurs.

What Causes the Disease?

Three State agencies, the State University College of Forestry, New York State Conservation Department, and New York State Science Service are conducting a co-ordinated research program to determine the cause of the disease and develop controls.

Control

Since the cause of ash dieback has not been definitely established it is impossible to recommend any effective control. It has, however, been observed that ash trees adjacent to heavily fertilized agricultural fields are growing vigorously and apparently have some resistance to ash dieback. This will be investigated in future studies of the disease.

Unfortunately, research effort directed toward controls will have to be limited until the disease cause is known. At present we do not believe that thinning or release cuttings will be useful because of the prevalence of the disease in trees growing under a wide range of light intensities in hedgerows and in the forest. Soil fertilizer experiments are being initiated to explore the effects of various soil changes on disease development.

The research program described is an example of the way responsible State agencies may recognize a growing problem, marshal their resources rapidly, and work together effectively toward a solution. Similarily at the Federal level, an active research program on the disease is in progress. Forest pathologists of the Northeastern Forest Experiment Station and the Tree Pest Section, Region 7, U. S. Forest Service are initiating a survey of the disease to determine its range and intensity in the Northeast. In addition a research program to determine the cause, study the development of the disease, and develop controls has been in progress for several years at their New Haven laboratory.

Sportsmen Asked to Report

The authors would appreciate reports from foresters, forest-land owners, woodsmen, hikers, and hunters of locations in the State where the ash dieback is particularly severe. Equally important is information on areas where the ash is healthy and has apparently remained disease-free.

In closing, we stress that tree diseases and insect pest attacks are a major drain on our forest resources. Full utilization of the potential productivity of forest lands will not be possible until diseases and pest attacks on trees are economically controlled. Vigorous support of various state and Federal tree disease and pest research and control activities is needed in the future.

Research on Ash Dieback

(Continued from page 30)

fungi. He is also studying the many physiologic factors of the host involved in canker formation in diseased ash. In the near future he plans to explore food translocation and storage mechanisms in diseased and healthy trees.

Relation of Insects

A new and important line of research initiated by the State Science Service involves insects. Insects may defoliate and weaken trees, pre-disposing them to disease. They may carry viruses, or wound trees and provide an entrance for disease-causing fungi. Bark beetles and borers frequently attack trees after periods of drought. Such trees are more susceptible to attack by fungi and other pathogens. Mr. Charles Tiernan, a senior in Forest Entomology at the College of Forestry, has spent a summer determining the principal insect pests of white ash. He hopes to determine the insects that might be most closely associated with the disease, either as vectors of a pathogen or as a predisposing factor. These studies were done under the auspices of the State Science Service Biological Survey, with the guidance of Mr. Donald P. Connola and Dr. Collins of the State Entomologist's office.

Pass the flapcakes, Daddy

New York State produced a record 524,000 gallons of maple syrup last year, making it the number 1 producer in the nation. The New York crop reporting service says this was an 11 per cent increase over the 1961 bumper crop and the largest since 1947.

First runs were reported in all areas during the week of March 5th. These runs were small and production did not start to any extent until a week or ten days later. The season closed around April 19th for most producers. Quality ran generally good with an estimated 43 per cent Fancy, 36 per cent No. 1 and 20 per cent No. 2; the balance was unclassified.

Turkey take, '62

Some 300 lucky New York hunters shot a Thanksgiving turkey for their families. This harvest was the highest so far in a series of four New York turkey seasons, each a little larger than the last. The 1962 season ran from October 22-27 in Allegany, Cattaraugus, Chautauqua and Steuben.

Game men credit this 20 per cent increase in take, over 1961's total of 250, to a combination of tracking snow and Saturday hunting. Previous seasons had been from three to five days long and the 1962 extension to six days, closing on Saturday, gave many additional hunters their first crack at the big birds. But even under favorable conditions for hunters, the 1962 turkey harvest in most areas did not exceed maximum desirable levels—less than 10 per cent of the region's spring population *before* the addition of the 1962 "crop."

While the aim is for an increased turkey take in future, present thinking is for another six-day turkey season for 1963. This is based on the theory that many New Yorkers are rapidly gaining experience as turkey hunters. During the first seasons, most hunters found turkeys only by accident—in the course of hunting other woodland game. The runaway sales of "turkey calls" and books on turkey lore reported from many stores in the Southern Tier is an indication that turkey hunters will improve their present success ratio.

The possibility of future spring seasons on gobblers, to harvest more of the surplus adult males, is not being overlooked. But these seasons should wait until a fair number of hunters have mastered the art of turkey calling well enough to imitate the dulcet tones of a little hen.—CHARLES I. MASON

Dr. Friedrich U. Klaehn

An international authority on forest tree genetics and efforts to improve forest tree species, Dr. Friedrich U. Klaehn, 46, associate professor of silviculture at the State University College of Forestry at Syracuse, died suddenly on October 21, 1962.

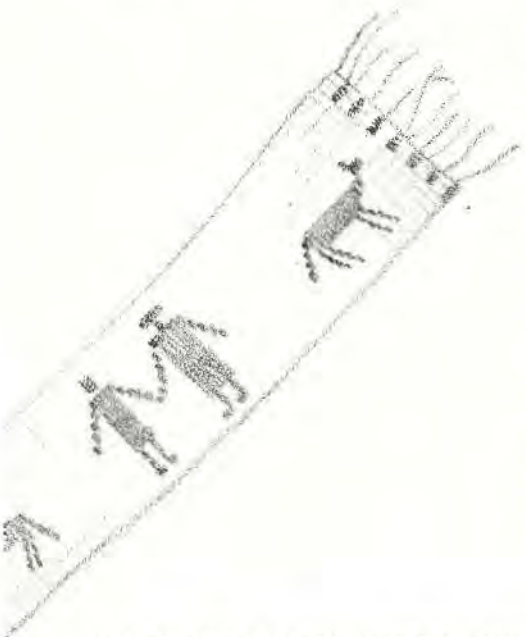
Dr. Klaehn was the esteemed author of five feature articles in THE CONSERVATIONIST. The articles were: Forest Tree Improvement in New York, (JJ '59); Forest Tree Flowers, (AM '60); Two Curiosities, (AS '60); Forest Tree Seeds and Fruits, (ON '60); New York's Forest Seed Orchards, (AM '61).

THE CONSERVATIONIST staff will miss him greatly.

or deep brown, coarse, shiny, and rough with crowded and loose wrinkles. The interior is white. This is a cold-water species, living from the Arctic Ocean to Cape Hatteras. In New England waters this species is regularly harvested, particularly for canning, and much of the tinned "minced clams" is apt to be this species, but it is uncommon south of Massachusetts.

Chestnut Astarte
(Astarte castanea) (Say)

This is a smooth little clam, with a shell that is small but thick and solid, with a strong hinge and broad hinge line. The outline is somewhat kidney-shaped, with the beaks nearly central and considerably elevated. About one inch long, the surface bears numerous concentric lines and wrinkles, but it lacks the deeper furrows that are so characteristic of most of this group, or has them only weakly defined. The shell is covered with a rich chestnut-brown periostracum, often eroded near the beaks. The interior is shiny white. This is a mud-burrowing clam, said to be unusually active. It occurs from Maine to New Jersey, and in life the "foot" is bright vermilion, and when seen protruding from the partly open valves in shallow water presents an extremely colorful sight.



Waved Astarte
(Astarte undata) (Gould)

The waved astarte is a mahogany-brown little clam, one and one-quarter inches long. The shell is robust and roughly triangular, with the beaks elevated and pointed. The surface is decorated with about fifteen strongly developed concentric ridges and furrows, the furrows being widest and strongest at the center of the valves and vanishing at each end. There is a thick and glossy reddish-brown periostracum, and the interior of the shell is glossy white. This species lives in colonies, in mud a few feet beyond the low water line, from New England to Cape Hatteras, but it is not common in New York.

Cod Clam
(Venericardia borealis) (Conrad)

Another solid and rugged shell, its length about one inch. The general shape is oval, the beaks pointed, elevated, and incurved, rendering the shell heart-shaped when viewed from the end. There are about twenty radiating ribs, wider than the spaces between them. The color is grayish white with a brownish periostracum, the interior glossy white. This is another coldwater bivalve, ranging from the Arctic Ocean to about the vicinity of New Jersey on the east coast and to Oregon on the west coast. It is uncommon in New York. In life the ribs are often practically concealed by the thick and shaggy periostracum.

Morton's Cockle
(Laevicardium mortoni) Conrad

Morton's cockle is small, thin, and inflated. Obliquely oval in outline, the length seldom exceeds one inch, and is usually less than three-fourths. The color is yellowish white, generally a little streaked with lilac or orange, and the interior is often bright yellow with perhaps a purplish spot at the margin. The surface is smooth and polished, and the inner margins of the valves are crenulate. This species has a wide range along the Atlantic coast, being known from Nova Scotia to Brazil. It is most abundant in the south, however, and southern specimens are generally the brightest in color, but even these fade somewhat as the shell dries out. Common in shallow bays, this is the only cockle on our shores.

Quahog
(Mercenaria mercenaria) (Linne)

Formerly listed as *Venus mercenaria*, this bivalve has a number of popular names, including little-neck clam, hard-shell clam, and round clam. When it is young it goes by the name of cherry-stone clam. It is five or six inches in length when fully mature, and dull grayish white in color. The shell is thick and solid, and rather well inflated, the surface bearing numerous closely-spaced concentric lines, most conspicuous near the ends, the central portion of the valves being smoother. The interior is white, commonly with a dark purple border near the rim. This is the chief commercial clam of the east coast, ranking next to the oyster in shellfish value. It was a favorite food of the coast Indians, as attested by the many shell heaps of ancient vintage scattered from Maine to Florida, and from the Red Men we get the name of "quahog" by which this bivalve is known in New England. The noted "purple wampum" was made from the colored edge of the valves, which may have influenced Linnaeus in naming this species *mercenaria*. The quahog lives in the sands and muds near the low water line, from Maine to Florida.

Gem Shell
(Gemma gemma) Totten

Sometimes called the amethyst gem shell, this is a diminutive fellow, only about one-fifth inch long. The tiny shell is broadly triangular in shape with the beaks about central. The surface is shining, with minute concentric lines. The color is pale lavender, the inside white, shading to purplish near the back end. This gemlike shell is found in great abundance on the sandy shores of protected bays and coves. The early settlers in Massachusetts sent boxes of them back to England as curiosities. The range is from Labrador to Cape Hatteras. It was first described, in 1834, by General Joseph G. Totten, whose name is perpetuated in Fort Totten and in Tottensville, Staten Island.

Baltic Macoma
(Macoma balthica) (Linne)

This rather common clam is just over one inch in length, and pinkish white in color, with a dull finish. The shell is moderately thin with a rounded outline, the back end somewhat constricted. The surface bears numerous very fine concentric lines of growth, and there is a thin, olive-brown periostracum that is frequently lacking on the upper part of the valves. This little clam is abundant in muddy bays and coves, and it sometimes travels part way up many creeks and rivers. It thrives all along the Atlantic coast to Cape Hatteras, and occurs in deeper water as far south as Georgia. It is also common in Norway and Sweden.

Blunt Razor
(Tagelus plebius) (Solander)

The blunt razor grows to a length of about four inches. The shell is white or yellowish, with a thin, yellowish brown periostracum, but most of the shells that have been empty for any length of time are a dull chalky white. The shape is elongate, stout, gaping, and abruptly rounded at both

(Continued on page 37)

Derbies and deer

We're not sure if all old-time Adirondack deer hunters drove Model T Fords, but the great majority seem to have worn derby hats. This fashion plate nimrod with buck. Ford and derby posed for a 1914 postal card picture.

Bees and sprays

Recently the pollinating role of the bee has assumed even greater importance to man. With intensified "clean" agriculture and the widespread spraying of insecticides, many species of native insects that were once pollinators of plants have been greatly reduced in numbers. It is estimated that today the honey bee is responsible for 80 per cent of the pollinating that is done, taking over the job of other native species. Many crops, such as clover and alfalfa, as well as many of our tree crops, would fail if it were not for the activity of bees. For example, well formed fruits on the apple trees are the result of full pollination. Ironically, in spite of the value of the bee, orchard owners are responsible for the killing of thousands of bees annually through poorly-timed spraying campaigns and there is evidence that some of the bees that survive return to the hive, bring with them insecticide-laden pollen.

Spelunkers note

The little brown bat and other species that occur in Northeastern States are known to be rabies carriers and for this reason they should not be handled. Professional bat workers would be well advised to secure immunizing injections to protect themselves and cave explorers should be especially careful.

Since bats are valuable as insect destroyers, they should not be molested except where they are a real nuisance in buildings.

State Forest Owners' Association

The New York State Forest Owners' Association is a new organization, the first of its kind in New York State.

Formation of the association came about following the 1962 Forest Landowners' Forum at the State University, College of Forestry at Syracuse. Several hundred owners of forest land property from throughout the State were in attendance.

Officers of the new organization include Theodore T. Buckley of Cambridge, president and Mrs. Barbara S. Pittenger of 9 Orange St., Marcellus, secretary-treasurer.

The objectives of the association, stated in the constitution, are to advance, protect and represent the interests of forest land owners in New York State.

Marina oak and grape stakes

There has been an increased demand for wood lot marking services in the northern and eastern counties of Forest District 4 which border on the Finger Lakes and the Barge Canal. The increase in boating and the many new boat marinas being constructed have caused a demand for construction oak, especially white oak.

In this section, too, there has been a large increase in the acreage of new vineyards.

Thus in this area, foresters think of grape stakes and anchor posts. Grape stakes are eight-foot posts with a 3-inch diameter. The anchor posts are usually much larger—in some cases railroad ties set at the ends of each row. For each new acre of vineyard established, there is a need of from 200 to 300 stakes and posts.

Shark attacks

So far, scientists have been unable to find a way to repel all kinds of sharks all the time.

Although some shark repellants are good, they are not a sure-fire method to keep sharks away, according to a report by the Shark Research Panel of the American Institute of Biological Sciences.

Only one repellant—nigrosine dye—is effective for any length of time and even this is not much protection during the sharks' "feeding frenzy."

Bathers and skin divers seem to be at the mercy of the shark and should know how to take care of themselves in shark-infested waters. Here are a few suggestions:

Swim with a companion so you won't become a lone target for attack by swimming away from the general area occupied by a group of swimmers and bathers.

If sharks are known to be in the area —dangerous ones, that is—stay out of the water. Be sure not to enter the water with a bloody wound, since sharks are attracted by blood.

Avoid swimming in extremely turbid or dirty water where underwater visability is poor.

Divers should always submerge with a companion for the same reason a swimmer should swim with a companion.

Be sure to remove all speared fish from your person. These fish attract sharks and could result in an attack on the diver.

A swimmer or diver should not panic at the sight of a shark because unnecessary action or vibration in the water attracts them.

If you ever see a shark circling you, get out of the water as quickly and as quietly as possible. When one is circling, he's ready to move in.

New record deer rack around?

Is that dusty moth-eaten old buck head, hanging on your den wall, a *new* New York State record for the white-tailed deer? How do you know it isn't? Have you had it officially measured?

THE CONSERVATIONIST will publish an article on the ten best New York trophy deer later this year, bringing up to date the last article on the subject, which was published in 1952.

Take a good look at the photo above. It is the present record head killed by Roosevelt Luckey of Hume, (Allegany Co.) in 1939. It scored 198⅜ points. To be considered in the ten best heads, a deer rack must qualify with a score of 166 or better.

Please send a snapshot of your head (deer, of course) to Nick Drahos, THE CONSERVATIONIST, N.Y.S. Conservation Dept., Campus Site, Albany 1, for consideration. Send it in even though you didn't shoot it, or even if it was shot a hundred years ago. We don't care who shot it so long as it was shot in New York State. If your deer rack looks like a record head, THE CONSERVATIONIST will make arrangements to have it officially scored.

Big butterfly migration

The Eastern Point Wildlife Sanctuary in Gloucester, Mass., was the scene of a most unusual migration. Some 4,000 monarch butterflies stopped there at the end of September to feed for a week on the seaside goldenrod and asters, before continuing on their flight south. The monarchs, clung to, and covered, the trunks of 60-foot trees at Eastern Point. During the ten years that investigators there have been studying and banding monarchs, they had never seen such a large flight.

In banding the wing of a butterfly, a tiny, water-proof tape is pressed onto the leading edge of the wing; a number identifies the insect which is then released. They fly from as far north as Canada, south to the Gulf of Mexico or west as far as Pacific Grove, California, where they spend the winter.

A mobile sawmill

A Waterloo, (N.Y.) sawmill operator has developed a mobile sawmill for use in a seven to nine county area. He can move into a wood lot for as little as two or three thousand feet of custom sawing. He built the mill on a truck body.

The unit is complete and can be set up and sawing in less than fifteen minutes after arrival on the job. Labor-saving devices include such innovations as all electric or air-powered set-works, dogs, log turner and even a log-lifter to pick logs off the ground and place them on the carriage. A slab and board conveyer moves the material away from the saw and eliminates the necessity for an off-bearer.—F. W. OETTINGER

Alarm clock for deer

A way to out-smart an old buck that's lived long enough to know all the standard tricks is to get to know his habits by walking up on his bedding grounds and noticing carefully the route he prefers to escape by. The day before the season opens, wrap an alarm clock in plastic, set the alarm for opening hour and conceal it in his bedding area. Next morning take a watch on his escape route and wait for the alarm to scare him your way.

Worm bands

Worms will stay lively longer if fastened to hooks with small rubber bands instead of hooking them in the conventional way.

A hunting accident

Have you ever been so preoccupied with the excitement of the hunt as to not pay attention to what you were doing—and have a hunting accident or a near miss? This happens to predators, too, and the results can be just as fatal.

On the evening of November 19, a screech owl, flying quietly along a hedgerow near a highway in Columbia County, suddenly hesitated. A movement of roosting sparrows in the bushes along the road had caught its eye. A banking turn, the flash of tiny talons and a sparrow was quivering its last. The owl's momentum had carried it and its victim through the bushes into the road where it rested before flying off to eat. Preoccupied, it never saw the danger until too late. The blinding glare of headlights was probably the last thing the owl knew before its limp body bounced off the chrome grillwork of a speeding automobile. It was here in the road I found them a short while later, the hunter and his prey, both dead.

—H. WAYNE TRIMM

'62's winning poster by G. Klopp, Frontier Central Jr. H.S., Blasdell (Buffalo)

Poster contest

The annual poster contest, sponsored by the Conservation Forum of New York State, will be open to entries until March 31. Competition is open to pupils of all schools in New York State, grades 5 through 12.

Posters may be in any medium, size 18x24 inches and can portray any phase of natural resource conservation. Only two posters may be submitted by any one room, class, junior club or Scout group. The signature of the teacher or leader is held to guarantee that the work is original and posters become the property of the Forum.

Cash awards in several classes will be made at the annual School of Conservation the first Saturday in May.

Entry blanks can be secured from the Forum at the Buffalo Museum of Science.

Skin divers' fish census

Salt-water fish along all coasts of the United States are tallied annually in an underwater census. The census, conducted during late May and early June, consists of identifying, counting and recording salt-water fish by 70 census teams in 16 coastal states. The teams vary from three to 15 persons and include men, women and teenagers.

The census takers are 400 skin diver volunteers of the American Littoral Society, an organization of amateur underwater naturalists, with headquarters at Sandy Hook, N.J. The program is co-ordinated by the Sandy Hook Marine Laboratory of the Fish and Wildlife Service. Divers list as many of the United States marine fishes as they can find during a nine-day period. In a pilot study held last summer, 24 test teams counted 23,000 fish of 93 species ranging from one-inch angel fish to twelve-foot tiger sharks.

Candle stove

Toss a couple of plumber's thick, heavy, wax candles in your knapsack. Some cold night or morning, they can take the chill off a small tent or trailer in a surprisingly short time.

Trail publications

Descriptions of the contents of two publications distributed by the New York-New Jersey Trail Conference were switched in the October-November Back of the Book section.

The "New York Walk Book," ($3.50) describes all the trails of the Metropolitan Area.

"Appalachian Trail Guide for New York-New Jersey," ($2.50) gives a detailed account of the route of the famous trail in the two states, plus where lodging and meals may be obtained, among others.

New water threat

The 1961 survey of Eurasian watermilfoil in the Chesapeake Bay area showed that 100,000 acres were infested, an increase of more than 50,000 acres from 1960. History of the increase is shown in the records of sampling stations on the Susquehanna Flats. None of the stations was infested in 1957, 1 per cent in 1958, 47 per cent in 1959, 84 per cent in 1960, and 88 per cent in 1961.

Eurasian watermilfoil rapidly chokes out waterfowl food plants and interferes with boating, swimming and fishing. Infestations have been found in fresh and brackish waters from New York to North Carolina and Tennessee. The ability of floating fragments to root and the capability of plants to survive in 14 to 16 feet of water help explain the rapid spread of this species.

"Angora" cottontail

The domestic "Angora" type rabbit is quite popular among breeders and fanciers but nature does not often come up with this type of mutation among wild rabbits.

Pictured is one of only two reported taken during the relatively long period of the Conservation Department's cottontail rabbit study. A young female, it was shot by D. French near Walton in Delaware County.

Letters to the Editor

Wisdom of deer feeding

Dear Sir: I have had the pleasure of meeting C. W. Severinghaus several times at the deer checking in station between Glens Falls and Lake George.

The Hollywood Club, about twelve miles in the woods northwest of Sevey, is composed of about three thousand acres and is used mainly for hunting and fishing. Our deer herd is good and the browse is good. We have averaged about a kill of eleven bucks each year for the past ten years. Last year it was seven and two years previous eight each year. There were some forty members hunting during the whole season. No more than sixteen in one week. A few eight- and ten-point bucks have been taken but the majority have been spike and crotch horns.

Every two or three years we have been cutting some soft wood and some hardwood under the Forest Practice Act. This has helped the deer.

We now are considering a feeding program for the deer starting around January or early February. We would plan to have certain feeding stations which we could get to by a weasel and feed elevator run hulled corn and possibly alfalfa every week end.

As I say, we are just considering this and I would appreciate it if you would give me your opinions on such a program. Naturally if we started it, we would continue to do so every year, for a while anyway. Some of us feel there should be more bucks taken out each year and also with larger antlers.

George F. Perkins, President,
Hollywood Club

• *We do not advocate or encourage the winter feeding of deer with domestic feeds. In New York, it is impossible for the Department even with the full co-operation of the organized fish and game clubs, local sportsmen and the interested public to service the hundreds of deer wintering areas in which deer annually suffer severe loss of weight because of insufficient natural food in winter. The death of deer from starvation is chronic in hundreds of wintering areas in the central Adirondacks and occurs every few years in many wintering areas of the Catskills.*

Our approach to the condition has been to advocate and use whenever possible any deer seasons to bring the deer population into a balance with the natural food supply available on the winter range. Our primary reason for this policy is the eventual condition of the winter range and the health of the deer population. If by winter feeding, a deer population is maintained that requires more food than is naturally available on the winter range, two detrimental things occur. First, the over-population causes an acceleration of the deterioration of the quality and quantity of natural food on the winter range; second, the excess deer must be fed ever increasing quantities of domestic food to compensate for the overbrowsing of the natural food supply and the maintenance of more deer than the natural winter range will support. The ultimate end of a program of winter feeding in sufficient supply to save deer in winter is a collapse of the population when eventually both natural and supplemental food is exhausted.

Extensive logging of a forest environment in and adjacent to a wintering area but without destroying the winter shelter of the area can delay or modify and possibly even prevent this collapse of the population. Also, sufficient harvests of both bucks and does can keep the population at a level so its food demand in winter is no greater than the supply.

Of course, individuals will feed deer in winter. High quality second cutting alfalfa is a reasonably good supplement. We have fed it to deer. It takes several weeks for deer to efficiently utilize it. Therefore, it is necessary to begin winter feeding three to five weeks before deer are in a starvation condition. When this feeding is not started early, we have had wild deer come to the feed racks and die of starvation with their rumen full of alfalfa.

Deer only utilize about half of the total bulk of alfalfa. We have fed second cutting alfalfa to deer with the following result: One pen of six deer were daily fed new alfalfa. These deer ate about half of it and would live but not thrive on it. The remaining half was removed daily from the first pen and fed to six deer in a second pen. This second group of deer ate this leftover alfalfa because they had no other food. But, this second group lost weight and would have died of starvation if we had not taken them off this diet of leftovers.

Alfalfa, when it is fed to deer, must be fed in sufficient quantity each day so that about half the bulk is wasted. Otherwise, your kindness becomes disguised cruelty.

In addition, large deer will bully small deer and drive them away from the feed racks. Therefore, when you offer deer alfalfa, there must be a sufficiently great quantity so that the fawns have new alfalfa from the racks as well as the adults. If the fawns have the leftovers only which the adults did not eat, then your kindness to the adults becomes cruelty to the fawns because there is insufficient nutrition in the leftovers for the fawns.

I would further recommend that if you must feed the deer, that in addition to alfalfa, you provide them with an unlimited supply of corn-on-the-cob. It usually takes 10 days to two weeks for deer to learn to eat this corn. But once they learn, they will eat it avidly.

Some years ago, we took six deer from the wild and fed them poor quality alfalfa and corn-on-the-cob. Each deer consumed daily 4.0 lbs of corn-on-the-cob and 2.7 lbs of this alfalfa. These deer remained in good weight from January through March on this diet. The results of the test does prove what you must certainly provide if you are going to start a winter feeding program.

The cost of feeding deer in winter is frequently greater than expected. As stated above a deer will eat about 2.7 lbs. of #2 alfalfa per day and will waste an equal amount. Such alfalfa costs at the store about $30 (or more) per ton. Corn-on-the-cob (#2) will cost about $35 (or more) per ton at the store.

The cost of this feed for 30 days would be about $4.53 per deer at the store. By the time transportation cost and labor cost of delivering this feed to deer is added, your actual cost of feeding one single deer for 30 days might be $8 (or more).

It is generally necessary to feed deer for 60 to 90 days (January through February or March and sometimes even April). Therefore, the cost might be $16 to $24 per deer per winter.

Anyone starting a deer feeding program should anticipate how long he must feed the deer, and how many deer he would be feeding.

I have seen where a winter feeding program for deer was started. Deer were attracted to the domestic feed. Severe weather set in, and the people abandoned the feeding

because it was too difficult to get the food to the station. The result was starvation death of many of the deer attracted to the feeding station. Don't start the winter feeding until you are certain you can continue it even during the severest winter. I again caution you about half of the alfalfa, mostly the stems, will be wasted. If it is not, you are not providing sufficient food for the small deer, especially the fawns.—C. W. Severinghaus, Supervising Wildlife Biologist

Animal graveyards

Dear Sir: This letter comes from the son of one of your loyal subscribers. I read and enjoy your magazine whenever I am home from college.

For as long as I can remember, I have always had an interest in bird study as a hobby and taken pride in being able to identify most of the local birds in the southern counties in New York. (Yes, there is a big black "mysterious bird" around here called a grackle.)

There is, however, an area which has always confused me. Where does a bird go when it dies? Predators, starvation, quick freezes all account for a bird's death, but aside from the first-mentioned cause, the bodies of the birds should be around. I can't ever remember seeing a bird's body in the woods other than one or two scattered remains of what a fox or a bobcat had recently finished up. With the great number of birds in any area, it seems reasonable to expect to see birds which have died of the "natural causes," yet this is not the case.

Any information which you or your staff might have would greatly satisfy my curiosity. Perhaps the bodies decay rapidly. If this is the answer, then I have known it without realizing it. Thank you.

Kent L. Bonney, Scarsdale

• *One of the puzzling facts about nature is that so much natural life seems to disappear after death without leaving a persistent stench or a ground littered with bones or feathers. This problem causes many people to believe the folk tale that the elephants in Africa and India went to an elephant graveyard in their last mortal illness and anyone so fortunate to stumble on this graveyard would become immensely wealthy through this vast deposit of elephant ivory. There are many things which help to rid our land of carcasses quickly after the animals have died.*

The skunks and raccoons and many other animals are at times efficient scavengers. Crows and some other birds will quickly devour any dead animals they find in the woods. Mice and insects also assist in this task. Each year thousands of mule deer drop their antlers, yet seldom is such a conspicuous object found in the woods. Antlers and bones contain mineral salts and calciums attractive to various rodents including the porcupine, woodchuck, squirrel, meadow mice and these animals quickly gnaw the bones and antlers. Should you ever find any antler in the woods, unless you happen to pick it up immediately after it was dropped, you will find the teeth marks of rodents showing quite plainly on parts of the antler. Some bones, of course, do survive to become fossils of a future age, or whitened bones which have been leached of their mineral salts by rains, are no longer attractive to rodents.

In my job with the Museum, I am called upon to collect small birds and mammals with special permits and equipment. A tiny bird shot from the tree tops must be followed in its fall to the ground every inch of the way or it becomes extremely difficult to locate in the undergrowth and ground litter. Should one be unable to locate such a specimen, shrews and mice and other animals quickly locate it or decay sets in rapidly and the bones and feathers quickly scatter and spread where no human eye will find them.

This is the fate of any animal which dies in nature. It is quickly reabsorbed by the wildlife around through bacterial action or larger animals. Even the part which is leached into the soil by water action is utilized by plants and so forth. It is part of the great cycle of nature.—E. M. Reilly, Jr., Curator, Zoology, N.Y.S. Museum and Science Service

Puzzled sprouter

Dear Sir: Last fall I obtained several closed pine cones in a market area known as "Little Italy" in lower Manhattan containing, so I was then told, the edible pine nut or "pignol." The cone shape resembles those of white pine and were over twice the size.

These cones were strung indoors by a sunny window and the seeds in their sooty black jackets were collected when the cones opened. Incidentally, on burning the opened cones, a delectable aroma was given off, permeating the entire house for several hours.

The jacketed seeds were placed in flower pots indoors and germination occurred during the late winter. During the early spring, disc-shaped sprouts of needles about two inches in length appeared and the plants were transferred into cold frames outdoors. The frames were removed in late spring with the appearance of second feather-shaped sprouts. These second sprouts are now about twelve inches in height, branched, silvery blue-green in color with needles about one-half inch in length and very robust. The initial disc-shaped sprouts have withered.

Now, I have been unable to positively identify the species (*pinus edulis?*). I have been unable to obtain any information of the optimum conditions for their development, nor of their size, shape, etc., at maturity.

Can you be of assistance?

Stanley J. Kravontka, Bronx

• *There are several species of pine which have edible seeds including the pinon pine which you refer to in your letter. From the description of the stems and leaves of your species, I would surmise that it is our own pinon pine, P. edulis. However, the description of the cone does not agree with that species. In order to name your plant for certain, I therefore would need a specimen of the cone. If you would kindly send me such a specimen, I would be glad to give you a more positive identification.—E. H. Ketchledge, Associate Professor of Forest Botany, State University College of Forestry at Syracuse*

Blue frog a baffler

Dear Sir: When (or why) is a frog blue? We discovered one on our pond in June and saw him every day for a week or so in about the same location—then he disappeared.

Would it be some flaw in pigmentation—like an albino, only lacking the yellow? (which would make green with the blue) or could it be a genuine mutation? Or is it a special kind of frog? (We couldn't find any blue frog in our nature books).

Really blue—not blue-green. The photograph does not exaggerate.

She-he didn't seem sick—very full of pep so not diseased.

Would be grateful for any explanation or similar examples you can give us.

Mrs. L. S. Chandler, Rhinebeck

• *Blue frogs have been reported before in the State, but I have been unable to find any scientific report on the subject. The colors of frogs are of two possible types: Chromatophores (="color bodies") which are controlled, at least in size, by some physiological process, and pigment evenly distributed in the skin tissues. Chromatophores are of two main colors in frogs, one called melanophores (="dark bodies"; may be brown or blue etc.) and xanthophores (="yellow bodies"). If a green frog is green because of blue melanophores and xanthophores or yellow pigments, the loss of the yellow would result in a blue frog.*
—E. M. Reilly, Curator, Zoology, N.Y.S., Museum and Science Service

Hornet trick

Dear Sir: In answer to Carl Stratton, Norwich, and his problem of hornets, I have found that any bug bomb which kills insects will do the job. If nest is a paper cone, after darkness falls when all are at home, using a flashlight to see what you are doing, point the bug bomb spray directly in the hole at the bottom of the nest. One good blast for five seconds will have them crawling out nearly paralyzed. Another one or two shots ought to do the trick. They will come out and fall on the ground. That is, all that can make it. The ones that can't will die inside the nest. Even old buildings, if one can mark the exact hole where they go in and out. Place the nozzle of the bug bomb at the hole and let it spray for a half a minute and Mr. Hornet or what have you will be no more the next day. I've used it in dry stone walls with 100 per cent success.

Glendon S. Pruner,
Pittsburgh, Pa.

Fresh clams

Dear Sir: I have three questions to ask and hope you will be obliging and answer same.

1. Are the fresh-water clams of Lake Champlain edible and how can they be used? 2. Does the Salmon River, which enters Lake Champlain just south of Plattsburgh, have a small pond at its start? If so is it accessible to the public? Where does the stocking (with trout) of the Salmon River take place? 3. What water and shore rights does an owner of lake front property have on Lake Champlain?

Thanking you in advance and hoping to hear from you soon.

Edward J. Mira, Flushing

• *I shall attempt to answer your questions in order as you have presented them.*

1. Fresh-water clams are edible but we have very little information on suitable ways of preparing them. We understand also that, in general, they are pretty tough and we have no information as to flavor compared with other food, etc. Our advice would be not to eat fresh-water clams raw since there is no inspection and classification of fresh-water clam producing areas relative to sanitation.

2. There is no small pond at the headwaters of the Salmon River. Possibly you have in mind Military Pond which is at the head of Black Brook, tributary to the Ausable River. This is a trout pond in the area of the Salmon River headwaters. It is not posted, but I believe is accessible to fishermen only by trail. Details of access probably would be available locally or you even might be able to obtain information from our Regional Office at Ray Brook.

The stocked section of Salmon River begins at the mouth of Riley Brook and extends upstream for 12 miles. Davis Lake in the course of the stream is also stocked with trout.

3. According to our information, the bottom of Lake Champlain is completely State-owned. An abutting owner, however, has the right of access to the lake and the right to install a wharf or dock 40 feet long or to a depth of 4 feet. He also has the right of reasonable use of the beach area. Lake Champlain is navigable water and if other specific, possibly questionable, uses are of interest to you, I suggest that you inquire of the Division of Motor Boats at this address for such specific information.—C. W. Greene Chief, Bureau of Fish

Alcoholic woodchucks?

Dear Sir: In the magazine for October-November, 1962, is a letter from Mr. Donald Fiaretti of West Henrietta, about mild 'chucks.

Frank Housemann was in the office with me and, having an idea there was a story of some kind, I asked him if he knew anyone that lived around Lake Keuka and he said, "Yes, I do." I read him the story and said, "What do you think, Frank?" He replied, "You know there are concerns making wine around Hammondsport. The pulp is given to the farmers for fertilizer." So when the grapes are placed in vats and something is added, possibly sugar to make them ferment and when the alcoholic content is at the right point, the grapes are pressed and the liquid is wine. The fermented pulp is given to the farmer. He puts it on his ground around his grape vines. The sun shines on it, it ferments some more; by that time, the alcohol is probably rather potent. The woodchuck comes along, it tastes good, kind of a sweet-sour taste, that seems like a real treat to a woodchuck. He gets a stomach full and shortly he is in a most amiable disposition, slightly inebriated, but not enough to stagger around but about this time he just don't hate anyone!

Lt. Charles C. Munson, Bath

Queer deer

Dear Sirs: After reading several issues of your interesting magazine, I thought you might be interested in some of the statistics on a deer reported by my son during the deer season just finished here in Vermont.

The deer had three points, being about 10" to 12" long on the beam. The horns were in velvet and, being soft, one of the tips broke off in dragging it out of the woods.

"It" had no testicles, does not appear to be an old deer and was very fat, its actual weight being 183, field dressed.

The meat is tender and of very good flavor. In twenty years of hunting I've shot many deer but none that were better eating.

On talking with other hunters I learned that an old buck with horns in velvet is taken once in a while and, of course, a doe with horns. Because this deer is neither one of the above, I am wondering if you have ever heard of or seen the equal of this "thing?"

Technically speaking, my son can't say he shot a buck, so what is it?

I'll be interested in your reply.

Russell G. Hemingway,
Saxton River, Vermont

• *Without a close examination and dissection of the animal, it is impossible to give you an answer on this one. Any readers have a similar experience?—Editor*

Princes, princess and Girl Scouts

Dear Sirs: Enclosed please find a piece of green which I would like to know the name of and whether or not it is protected by law.

I am a Girl Scout Leader and Past President of Carthage Garden Club and have taught nature study in Girl Scout camps, etc. Your CONSERVATIONIST magazine has been very valuable to me and I have been in trouble over the green which I call a club moss and other people call princess pine. If this is not princess pine can you tell me what princess pine is? Is it a herb used for medicine?

I would appreciate anything you could send me on this and will gladly pay for leaflets or books. I would like to know so I won't be teaching Girl Scouts something wrong. The Garden Club also would like to know as they like to use it in Christmas arrangements. Thank you.

Mrs. LeRoy Z. Sherman, Carthage

P.S. I am a Girl Scout Leader in Jefferson County Council, Troop 13 with 23 girls.

• *The specimen you sent was of* Lycopodium obscurum, *one of our common club mosses. There is considerable confusion about the common names: ground pine or crowfoot. I have never been able to make sense out of the "obscurum" part of the scientific name—it is the most conspicuous of the common species. While the name "prince's pine" is sometimes applied, this is incorrect. Prince's pine is the name properly applied to* Chimaphila umbellata, *common pipsissewa.—David B. Cook, Senior Forester*

Deadly nightshade items

Dear Sirs: In the August-September CONSERVATIONIST, page 47, in regard to deadly nightshade, we have had quite a bad time with it for about 45 years. The first I remember about it my Dad, who was living with us, noticed some by the house and told us we better get rid of it or some child might get very sick, or even die. He told us its name. We did not heed him, more's the pity.

Birds, as Messrs Ogden and Millard agree, eat the ripe berries and so spread the devilish stuff. We have had about six young heifers die, yes DIE from eating it. Two or three—can't remember for sure—were fresh registered and milking heavy.

They eat the young tender growth. I saw one of them eat it and she died about an hour after. Another one was made very sick and the veterinary saved her life; she dried up immediately and was only beef. Recently, a neighbor nearly lost a big Holstein from eating it, but the Vet., Dr. Herbert Jones, South Dayton (N.Y.), saved her. We pull it and spray it but it is in every brush or stone pile, hedgerows, blackberry bushes, etc. Have known of children dying in twenty minutes from eating it.

My sister wanted me to show her some and she handled it and then touched her face and it smarted quite a while. I dislike the smell when one pulls it. Like quack grass, every piece of root comes up.

Mrs. Ralph (Ruby) Rider
Forestville

Outlaw dogs

Dear Sirs: Here in Wayne County we are troubled with wild dogs. It is my opinion they are man-made wild dogs. Every case I inquire into, I am met with this answer: "Somebody dropped a female up in the woods and she had two litters of pups."

Please don't think I am a dog hater. I have two dogs of my own and I also raise sheep, but because of free-running dogs, I am going to have to stop, as have my neighbors. Not only do dogs form packs and hunt wild game throughout the year, but in this section they attack, kill and worry chickens, pigs, sheep, ducks, geese, cows, and ponies.

It's true the County Treasurers are supposed to pay out of the dog license funds for these damages incurred, but they don't and if they did in my opinion it's a poor investment. It's a fact that no one can shoot dogs with his tongue; neither can one catch them with his tongue.

From our County Treasurer's books I got these facts:

Total balance in the dog fund Jan. 15, 1958, $2,561.94.

Total amount paid for livestock claims from Jan. 1958 to Jan. 1959, $4,006.75.

Total balance in the dog fund Jan. 15, 1959, $13,972.69.

Total amount paid for 1959 livestock claims, $5,094.97.

Total balance in the dog fund Jan. 1, 1960, $14,318.65.

Total amount paid for 1960 livestock claims, $2,483.30.

Total balance on hand Jan. 1, 1961, $16,350.46.

Total disbursements during the year ending Dec. 31, 1961, $18,744.75

Total surplus for the year ending December 31, 1961, $19,023.71.

These claims range all the way from $1.50 for a rooster to $2,700 for a flock of sheep.

It seems like the Conservation Department should take an active interest in the better control of dogs. I talked with one of your employees at the State Fair this year and showed him a copy of my views. I would appreciate it if your Department could give me any assistance in the Legislature this year.

Mrs. Ellen Brundidge, Wolcott

• *The Conservation Department has periodic problems with uncontrolled dogs especially during the spring of the year when their harassment of deer is most serious. The other serious problem is rabies control but fortunately this has been kept in fair check by a pretty co-operative attitude in dog owners in having their animals immunized.*

I believe that Assemblyman Joseph C. Finley's assessment of the situation is an excellent one and pretty much covers the more serious aspects. From having dealt with the subject to a degree in the past, I am very much convinced that he is right when he says: "Our citizens seem to be about equally divided between those who are inclined to regard dogs as an unnecessary nuisance and those who feel that their pets should be free to roam at will."

The Conservation Department is, I am sure, concerned with field dogs and general dog control and wherever they can work with the Department of Agriculture and Markets, the various other municipal agencies that have responsibilities for the control of dogs and the general public, they will be happy to do so.—Editor

No Houdini, he

Dear Editor: I have taken your fine magazine for many years and like it very much. As a sportsman, I am passing along a little experience I ran into this summer while fishing for pike on Hefecourt Lake near Rapide Danseiur, Quebec, Canada.

We had enjoyed catching a few sizeable pike by trolling our boat around some islands. Then all at once I had another strike on L. W. flat fish so I threw our motor out of gear and began reeling in the fish. I saw he was undersized; that was why I used no net to land him. When I got him in the boat I went to take him off the hook by grabbing him with my left hand behind the gills. All of a sudden he jerked restringing the hooks in my fingers and hand. Then he jerked again setting the hooks as far as would go in first finger, rusty hooks, too. So I tried to free the hooks with my right hand. He jerked again and set the rest of the hooks in my right hand so there I was like a set of handcuffs on me. Couldn't get loose no how.

My wife sat at the rear end of the boat and came to my aid. She took the hooks out of my fingers and hands. We then let that very lively fish go back in the water. Let my finger bleed good and got our first aid kit out. Put pine pitch salve on. We get it out of fresh cut logs in the spring of the year. This took out the poison of the rusty hooks and the soreness.

My advice is to always take someone along when going fishing. I am 55 years old and have been fishing since I was 12 years old and the first time I ever had handcuffs on and it took a fish to do it.

I will return next year for more fishing but by all means take along the kind wife that carries the keys to the handcuffs.

John H. Caton, Rushville

Near record wildcat

Dear Sir: I was interested in the picture of a wildcat on page 42 of your issue for August-September, 1962.

A neighbor of ours, Fred Wilcox, Harwinton, Connecticut, shot a wildcat last fall which weighed 52 pounds. It was taken on the mountain west of South America Pond (south of Island Pond), Vermont. Head and skin were mounted by Robert Campbell, Middlebury Road, Watertown, Connecticut, a long-time taxidermist who said that it was by far the largest wildcat he had handled. Pictures showing Mr. Wilcox with the skin are enclosed. Mr. Wilcox is five feet, nine inches.

Karl F. Milde,
Litchfield, Connecticut

Disappearing trout

Dear Sir: We have a farm pond on our land, approximately three acres in size. It ranges in depth from about 3' to 13'. Six years ago, we initially stocked the pond with 300 brown trout—5" in length. They seemed to develop well and about sixty to seventy were taken after the second year, 13" in length.

Suddenly, there were no more taken or even seen and the pond was again stocked three years ago, with 600 fingerlings. No sign of these have ever been seen.

The theories given were many and varied. The one that has persisted 'though, is that the presence of two large snapping turtles, has accounted for the fish.

The question is—could these turtles possibly account for all these missing fish?

Apparently the analysis of the water is satisfactory else the original fish would not have developed so well, and there would probably be evidence of dead or dying fish on the banks of the pond.

If the theory of the turtles is true, and they, in fact, did dispose of the fish, how can we dispose of the turtles? The pond is of the nature that it would be nearly impossizle to completely drain it to rid it of the turtles.

Do you have similar circumstances that might help us in our problem?

Thank you for your indulgence.

Robert Irwin, Lafayette

• *In general, trout are not very long-lived in farm ponds. A ten-year study of fish management in farm ponds has recently been conducted by Cornell University in co-operation with the New York State Conservation Department and U.S. Fish and Wildlife Service. In the course of this research, we have never been able to detect any difference in survival rates of brook, brown and rainbow trout in farm ponds. Apparently such differences are more pronounced in natural waters. Although farm ponds vary widely, the average one-acre pond, stocked with 600 fall fingerling trout (4 to 6 inches long), will have only 1 or 2 per cent of these remaining three years after stocking.*

Another factor, and one that I suspect would help to account for your never seeing any of your second trout planting (assuming that these were also brown trout), is that browns in farm ponds are notoriously difficult to catch. This is so pronounced, in fact, that we do not recommend brown trout for stocking in farm ponds because the percentage return to the fisherman—even an expert—is so low.

In ponds where snapping turtles are present, we occasionally see a trout (in a seine haul containing 50-60 per cent of the total fish population) that appears to have been "nicked" by a snapping turtle. We see many more trout that bear heron wounds. From such experiences, and similar ones by biologists in other parts of the country, coupled with what is known about the food habits and preferences of snapping turtles, it seems almost certain that the snapping turtles do not have any serous effect on trout populations in farm ponds. I believe it would be impossible for snapping turtles to completely eliminate the trout population in a farm pond under anything approaching normal circumstances, since trout are difficult for turtles to catch, and this difficulty would increase the more "thinned out" the trout population became.

I am enclosing a copy of Cornell Extension Bulletin 1089, "Fish Management in New York Farm Ponds," that contains additional information.—Alfred W. Eipper, Department of Conservation, Cornell University

• *Do any of your neighbors like trout?—Editor*

Deer or "hart"?

Dear Sir: While hunting in Monroe, Orange County, I shot a 7-point buck, which seemed somewhat different to me than other deer. First, this buck had a very deep green pair of eyes, which I had never seen before. The 7-point rack was very slim and set closely together on its head. Its tail was quite short for a deer whose approximate dressed weight was about 100 lbs. When butchered, I was told that 'though this deer had plenty of meat, it was all very lean with little fat noticeable. Could you please advise me the reasons for the differences I mention, in this over other deer I have shot in the past?

I have recently been told that in the past we have had a deer known as the hart in the northeastern part of the United States, which is now extinct and known for its large rack. I have often heard the term "hart" but know nothing of its true meaning. Could you kindly enlighten me with the facts? Were they native to New York or other parts of the United States? Where can I secure all the details with regards to the hart?

James V. Rinaldi, Brooklyn

• *In reply to your questions about possible abnormalities in eye color, antler shape and fat content of the carcass, the descriptions you give do not eliminate the good possibility that this was a white-tailed deer. Eye color changes considerably as time elapses after the kill is made. A deep green color is one of the color phases they go through. There is a great variation in antlers. Although this is not an absolute rule, tendencies have been noted for young bucks to have more upright antlers whereas older buck antlers have a tendency to be more flattened. There also is a tendency toward a difference between the northern and southern states.*

Fat contents on bucks also varies considerably in relationship to the vigor of the animal. It is not unusual for the more vigorous bucks to lose up to 20 per cent of their weight from early September to late November or December.

There have been numerous incidences of the stocking of exotic deer in New York and adjacent states and it is not too improbable that you might possibly have encountered such a deer. However, since the descriptions you provided fall well within the variations sometimes found in the whitetail deer, it is more probable that you have shot a native.

Insofar as I can determine the term "hart" has not been in common usage in New York State and in fact it is not familiar to Bill Severinghaus, who is a pretty difficult man to stump on any question concerning deer. I found a remote reference to the term in the dictionary, which indicates that a "hart" is a name sometimes given to a male red deer that is more than five years old. The red deer is native to Europe and Asia. It has been stocked in New York State on various estates, but probably is extinct or nearly extinct in this State in the wild. It is not native to the United States.—Joseph Dell, Chief Wildlife Biologist

He'll take New York

Dear Sir: My hiking in the Mt. Marcy region of the Adirondack region began in 1924, and continued until 1942, except for some trips to the Mt. Mansfield part of the Long Trail in Vermont. There I began hiking in 1920 with a friend whose intended companion was unable to go. It was one of the best things that ever happened to me.

Having just returned from a trip in California, where I covered 3,000 miles by car of magnificent, but largely arid, scenery, I appreciate as never before the green hills and forested mountains of New York, laced with lakes, and year around streams. Even the weeds along the roadsides look good.

Can you tell me what the tall, pampas grass-like plant is that grows along the New York Central R. R. to New York City, and also on the New Jersey marshes? I think it turns purple in the autumn. Could it be the foxtail you did not illustrate?

George S. Reynolds, Troy

• *The grass which you observed along railroad lines and in the New Jersey marshes is the American common reed,* Phragmites communis berlanderi. *It is a native which becomes weedy in disturbed situations about water courses.— Stanley J. Smith, Curator, Botany, N.Y.S. Museum and Science Service*

Tree chokers

Dear Sir: It is my impression that the bittersweet will wind around a tree trunk and eventually kill its victim. Is this true as a characteristic or is it some other parasitic vine that tends to choke the life out of the tree it climbs? I have observed wild grape and other vines that have climbed trees and sometimes dominated their foliage but these seem to hang suspended from the limbs.

T. W. Howard, Schenectady

• *To our knowledge, the entwining of bittersweet on a tree trunk is not an indication of inevitable death of the tree. True, it will cause a deformity—usually a spiral depression in the stem where the vine inhibits growth at the points of contact.*

I recall seeing a 4-inch elm recently that has survived the existence of a hardy entwining bittersweet for what I estimated to be at least five years. The grooves in the stem were almost an inch deep, but the elm was vigorous—that is, up until the time Dutch elm disease entered upon the scene and delivered the coup de grace!

One advantage of entwining bittersweet is that it will, if you have the patience, grow you a novel walking stick if started on a small hardwood sapling say ¾ to 1" diameter.—E. H Huber, Senior Forester

More on bird feeding

Dear Sir: Your latest issue of THE CONSERVATIONIST has compelled me to write to you of my trials and errors regarding my bird feeding stations at my summer home in Peekskill.

I have three large pieces of ¼" mesh wire made into baskets and hung about 20 feet high on a steel pipe inserted into the ground behind my house. I have been successful in discouraging the squirrels of raiding my bird feeding stations by making a box out of the ¼" mesh wire.

This box is opened at the top only at filling time and then closed with wire and pulled up by stainless steel wire to the top.

I have been trying for years to keep the ground birds feeding in my area. I constructed boxes of aluminum frames and mesh wire around with a door. Unfortunately, this net is hung close to the ground as the animals tear the netting and also the boys open the door allowing all the animals to raid the box eating the suet and bread.

I also planted 150 feet of multiflora roses and have tried for years to purchase lespedeza seeds as recommended by your Department. It seems to be useless. There must be an easier way to feed and keep the birds to my area.

I appeal to you if you know of any ideas. Please send them to me.

I have a small wood lot, marshland and clearing.

Perhaps others have been successful with certain types of food or feeding stations which cannot be raided by animals. I would be glad hearing about it or if someone is successful in purchasing lespedeza seeds.

Would appreciate any hints or comments on type bushes to plant.

M. Roberts, Woodside, Long Island

• *Attracting birds may be a heartbreaking experience if we put a lot of effort into it and the birds do not respond as well or as rapidly as we feel they should. The best start anyone could make, is to refer to a book by Thomas P. McElroy, Jr., titled, "The New Handbook of Attracting Birds," published in 1960 by Alfred A. Knopf of New York.*

It is sometimes difficult to give advice from a distance, as often local factors have great influence, and it is difficult to tell what prevailing winds might be, what the surrounding plant cover might be, and what the population of rodents, dogs and cats, 'possums and 'coons might be.

To start with, squirrels generally present the biggest nuisance. They are very wary animals and it is not often we are able to outwit them and keep them from robbing our bird feeding stations. Your solution, using the mesh wire basket hung on a steel pipe, is generally most successful. However, for ground feeding birds, you must realize that these animals are going to need close cover. They want to be near some dense shrubbery, into which they may escape the stoop of a hawk or the charge of a cat.

The area in which you feed the birds should be surrounded on three sides by such shrub. This, in itself, will attract some birds. If you try to keep out many of the other animals, you are going to find that it is a never-ending chore. Putting suet and other items attractive to dogs and cats, as well as raccoons and 'possums is going to bring these animals to your area, and if they have strength enough to pull the wire baskets apart, they are certainly going to do so. My suggestion here would be to put such items on trays above the ground where only the smaller, less powerful animals can reach.

If you want to attract a variety of birds, you must plant a variety of shrubs, trees and other vegetation. The lespedeza is a group of plants which is most attractive to the bobwhite quail. This bird is, at times, locally common on Long Island and should be encouraged. Pheasants are also attracted to this plant, but its use by other wildlife is rather low. McElroy's book lists many species of plants which are attractive to wildlife, and many of these are also attractive because of their beauty to human beings. Such shrubs are generally available at local nurseries. Many local nurseries, these days, cater to people who wish to attract birds, and they may even have lists of plants available, at their nurseries, for such use.

Your land, with its marsh, wood lot and clearing, should attract a good variety of birds. There are feeders which may be placed near your home, that are designed to bar the larger birds and animals. Most of these are simply roofed feeding trays with wooden or plastic bars set far enough apart to allow chickadees and nuthatches easy access to the food, but close enough together to bar the starlings and squirrels. In copies of National Audubon Magazine, *many patented feeders are advertised, and these are usually successful.*

The mixed foods available, in most supermarkets today, are attractive to a great variety of birds. On the edges of some of the field, you might plant some of these seeds in the spring and the seeds will develop and be available in the winter and fall for the birds that like this cover. Local bird sanctuaries find that where they use this seed, some of the foods scattered by the birds grows naturally and the winter feeding trays thus help to attract all migrants. It may appear that a good percentage of this food is not used by the birds, but please remember that many birds eat the kernel and leave the husk on the tray, and this looks like the whole seed.

Near my home, at times, I have been very successful with the floor sweepings from nearby hay lofts simply piled on the ground and occasionally cleared of the covering snow and some additions made during the winter. This attracts juncos and horned larks, tree sparrows and others. I am sure that if you get a copy of McElroy's book and consult a local nursery or two, that you will have better luck in planning your wildlife center. The nurseries may even be able to obtain for you some seed of the shrub lespedeza.

We won't guarantee that you at least will be very successful but from your description of your property you should be able to attract a good number of birds and if you put your feeding area in the proper places you should see a good number of your visitors. Some of your visitors will be bashful and you might not see them at all unless you get up early in the morning or observe from the distance with field glasses. If we can help you in any other way please let us know.—E. M. Reilly Jr., Curator, Zoology, N.Y.S. Museum and Science Service

Snake eyes

Gentlemen: My family and I recently observed a snake apparently not described in your June-July, 1955 number. The location was Knapp Hill, northeast of Naples, (N.Y.) in a hayfield recently cut and removed.

The snake was slender, about 15-18 inches long. It had dainty rectangular markings with the long axis perpendicular to that of the snake. The markings were dark brown or black, separated by tan or yellow lines. There were at least two rows of rectangles. A pink or red stripe ran down each side.

The head seemed perhaps slightly wider than some snakes, but not greatly so. So far as could be observed, the pupil was round. There were no rattles.

The snake attacked and struck viciously with its mouth very wide open. It was too quick to observe presence or absence of fangs. It did not hiss nor play dead.

Because it seemed to be harmless in spite of its striking, we let it go. Can you identify the snake?

L. M. Harris, Fairport

• *The snake you described is a color and pattern variation of the common garter snake. This snake has many color variations and in making his paintings for the 1955 issue of* THE CONSERVATIONIST *Mr. Trimm had to choose the more common variations. The pinkish or reddish stripes down the sides are good indications of the species. Some garter snakes look very much like large brown snakes as shown by Mr. Trimm.*

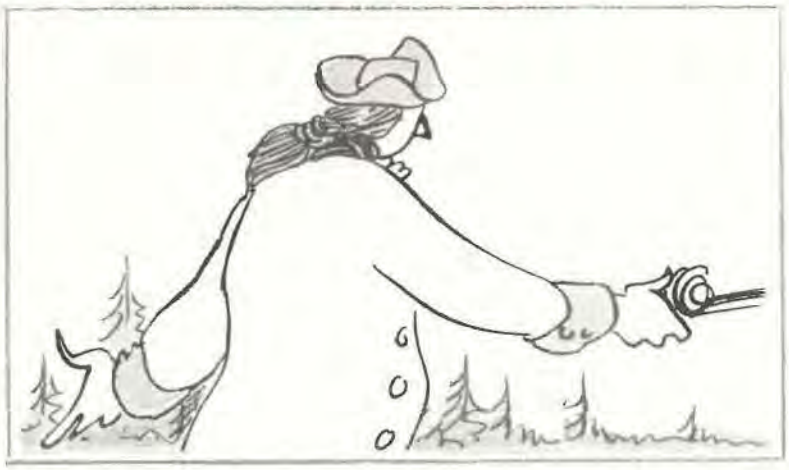
The round pupil of the eye was a good indication here in New York State that you are not dealing with a poisonous species. Most snakes, especially the garter snakes, will threaten and strike when they feel they are cornered and such actions are not restricted to, nor a sign of, poisonous snakes. —E. M. Reilly, Jr., Curator, Zoology, N.Y.S. Museum and Science Service

Credits

First cover, pages 4, 7, 20, 22, 23, 24, 25, 26, 27, third cover, H. Wayne Trimm; second cover, pages 6, 8, 18, 19, Nick Dralios; 2, R. Nagles; 9, Dan Owen and Company, Syracuse; 13, Earl McGuirk, Fred Chambers; 15, Edwin H. Ketchledge; 17, Joseph Dell; 28, 29, Donald Howe, College of Forestry, Syracuse University; 30, Roy Irving; 32, Maurice Otis; 35, Chambers, United States Department of Agriculture; 39, McGuirk; 40, Buffalo Museum of Science, at Buffalo, N. Y., Stuart Free; 41, Clayt Seagears, Trimm; 48, Matthew Casey; fourth cover, Frederick Pradon.

How to Tie a Fly

by Harry A. Darbee



[Deep in the Catskill Mountains, on the bank of the Beaverkill River, as tradition-steeped a shrine for fly fishermen as exists in all America, you'll find two practitioners of the art as renowned as any still living in this country—Elsie and Harry Darbee of Roscoe.

In these days of treble-hooks, chrome-plated spinning lures and the even greater succulence of impaled minnow or juicy garden hackle, the Darbees—creators of trout flies, nonpareil, breath life into a tradition dedicated to the philosophy that to fool a trout with a wisp of fluff and feathers is to the true angler a feat just short of bluffing his way through the pearly gates.

And here, illuminated by Wayne Trimm's sketches, is Harry Darbee's account of how to go about creating the tools of the trade—a typical dry and a typical wet fly.—A.W.B.]

To tie the Dry Light Cahill

TO tie a bunched wing dry fly (the Light Cahill), wax about five inches of an 18-inch length of 5/0 tying silk and affix to a light-wire dry-fly hook as shown in *Figures 1, 2, and 3.* Secure silk taut with thread clip, or by suspending hackle pliers or bobbin, thus freeing the hands for preparing the wings. This securing of the silk we will term simply, "securing silk" in future. It is important to keep the silk always taut during winding operations and securing it taut at the finish of each step described. Slackening of the silk will, of course, make a poor fly; the only knot used throughout is the whip finish at the head, when the fly is completed.

Having the silk secure, take the "wings" from a single flank feather of woodduck or similar feather such as dyed mallard. *(Figure A).* Two slips of fibers (sometimes called "barbs") are taken from each side of the feather to form matching wings as indicated in *Figure B.* Lay the slips of fiber together, matching the curves in the fiber, and place on the hook with the left hand as in *Figure 4.* With the right hand, take the tying silk and bind the wings to the hook with three or four turns of silk *(Figure 5).*

Still keeping the silk taut with the right hand, raise the wings upright with the left and bind upright with one or two turns at the base of wings, as in *Figure 6.* Then carry the silk around base of farther wing, under hook and around base of the near wing. The turns around wing bases are complete turns: do not make a simple "figure-of-eight"—study *Figures 8, 9, and 10,* which illustrate this step. Now trim excess material at wing butts on a taper *(Figure 7),* wind silk to a point opposite barb of hook and tie in eight or ten stiff fibers of a pale ginger hackle feather for the tail as shown in *Figure 11.* Secure tying silk.

Take a small pinch of cream-colored fox fur, remove coarse guard hair and twist into a loose spindle shape, catch it to the hook at the tail and spin it around the tautly-held tying silk *(Figure 12):* wind fur and tying silk to a point behind wings, leaving room to tie in hackles *(Figure 13).* Secure silk.

Prepare two pale ginger-colored hackles by stripping down and removing soft fiber from the butt ends of hackle quills, tie in at body behind wings with bright side facing forward. *(Figure 14),* wind silk over hackle butts toward eye of hook, leaving room to tie off hackles and form head. Trim off excess butts of hackles and secure silk.

Now grasp forward hackle by tip with hackle pliers and wind forward as in *Figures 14 and 15,* tie off tip of first hackle, release hackle pliers and repeat with second hackle, being careful not to bind down fibers when winding through the first hackle. Tie off second hackle, secure silk and trim off hackle tips. *(Figure 15).* Form whip finish as in *Figures 16, 17, 18.* Cut off excess tying silk close to finished head, apply drop of spar varnish or head cement to whip finish and fly is complete.

To tie the Wet Light Cahill

Secure thread and wind back affixing tail as in *Figure 20.* Spin fur body as in the dry fly *(Figure 12),* leave room for hackle and wing as in *Figure 21.* Take a soft-fibered hackle, grasp with hackle pliers at either end as in *Figure 19.* Hold hackle bright side upward in left hand and bring between left thumb and fore finger with a stroking motion, folding the fibers as in *Figure 19* (lower feather).

Tie this hackle in by its *tip* and wind as in *Figure 22,* using two or three turns of hackle. Bind and trim off surplus hackle. Prepare two sections of wing as in *Figure 23* and grasp with left hand with curves of fibers inward as in illustration. Bind wings on as in *Figure 24,* trim off butts of wings, make whip finish and varnish as in *Figure 25.*

Selected Bibliography

Atherton, John—*The Fly and the Fish.* Macmillan. N. Y.

Bergman, Ray—*Just Fishing.* Knopf. N. Y.; *Trout.* Knopf. N. Y.

Blades, Wm.—*Fishing Flies and Fly Tying.* Stackpole. Harrisburg, Pa.

Cross, Reuben R.—*Fur, Feathers and Steel.* Dodd Mead. N. Y.; *The Complete Fly Tying.* Dodd Mead. N. Y.

Flick, Art—*Streamside Guide to Naturals and Their Imitations.* Putnam's. N. Y.

Gordon, Theodore—*The Complete Fly Fisherman.* Scribner's. N. Y.

Jennings, Preston J.—*A Book of Trout Flies.* Crown. N. Y.

La Branche, George—*The Dry Fly and Fast Water.* Scribner's. N. Y.

Leonard, J. Edson—*Flies.* Barnes. N.Y.

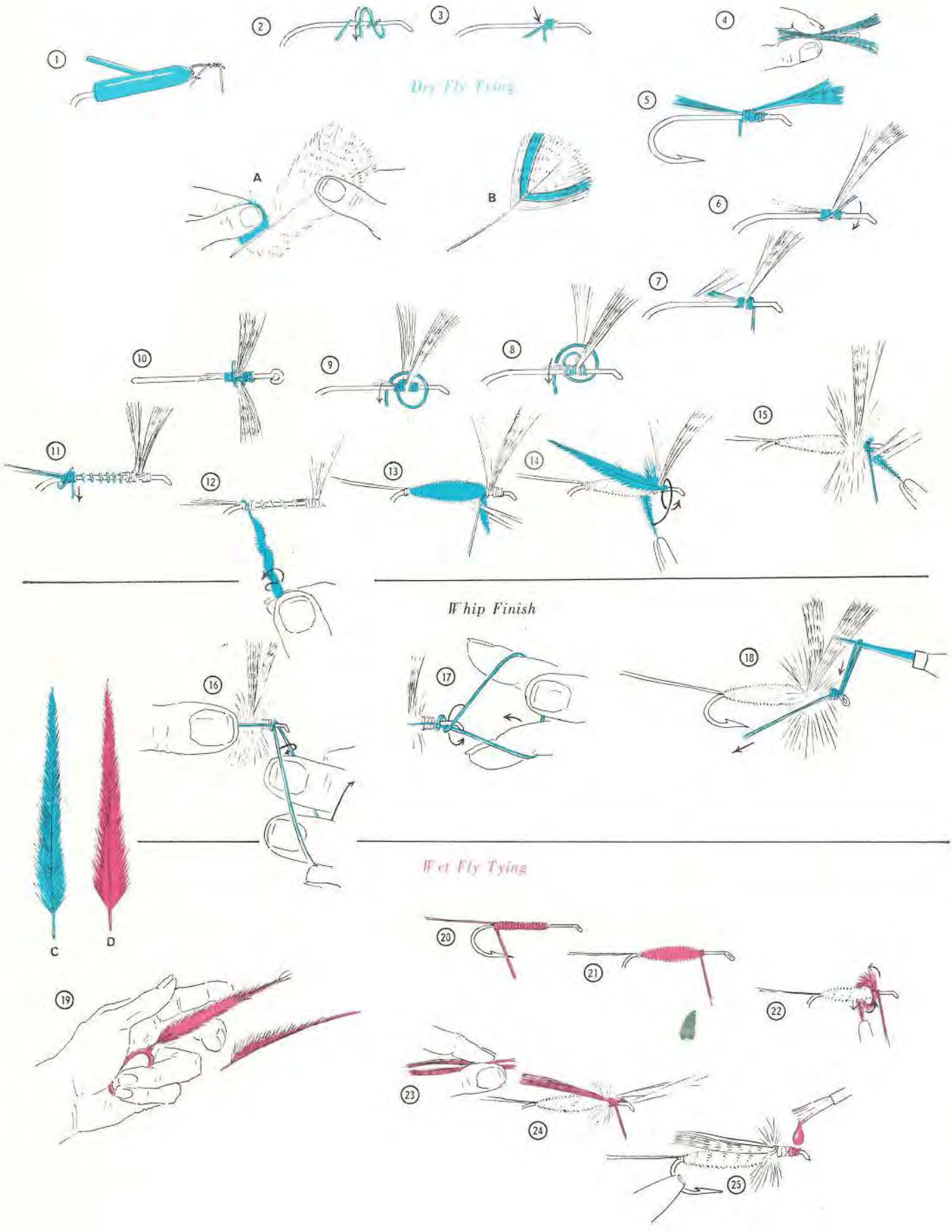
Michael, Wm. W.—*Dry Fly Trout Fishing.* McGraw-Hill. N. Y.

Ovington, Ray—*How to Take Trout on Wet Flies and Nymphs.* Little Brown. Boston

Schwiebert, Ernest G.—*Matching The Hatch.* MacMillan. N. Y.

Skues, G. E. M.—*The Way of a Trout with a Fly.* A. & C. Black. London

Sturgis, Wm. B.—*Fly Tying.* Scribner's. N. Y.



Long Island Sound at Southold

(Kodachrome by Conservation Officer Frederick Pradon)