

Springtime at Sargent Pond

Outdoors in New York

Fifteen years ago, the Division of Conservation Education published an Outdoors Map of New York—a round-up of hunting, fishing, hiking, camping, boating, swimming, and what have you, information all tied together in a how-to-get-there-to-enjoy-it guide. It was an instant success—one of the most popular publications ever produced by the Conservation Department.

Demands for this original outdoors map almost swamped us and the supply was soon exhausted—all this long before New Yorkers (all Americans, in fact) were swept up in the spectacular outdoors trend that has changed our pattern of living so radically since the war. Today we have millions more people, more money, more leisure time, more cars, more roads, more boats—more of everything to attract us to the out of doors.

What is needed, obviously, is a new outdoors map of New York, bringing up to date all the progress that's been made in the acquisition and development of public lands, fishing rights, boat-launching sites, winter sports centers, campsites, game management areas, State forests—all the thousand and one things which the Conservation Department's programs and facilities offer to the millions of New Yorkers, and our neighbors who love the outdoors. Well, now we have it, or will, at least, upon receipt from the printer sometime in June, this year.

First to receive the new Outdoors Map will be subscribers to THE CONSERVATIONIST. You'll find it tucked in the June-July issue as an extra, and if we're not mistaken, you'll count it worth the subscription price alone.

Which reminds us (as though we weren't thinking of it all along), wouldn't this be a fine time to remember a few friends, relatives and kindred souls with gift subscriptions—starting them with the June-July Outdoors Map, special issue?

This, of course, is an unabashed plug for new subscribers. We want them, not only to help make THE CONSERVATIONIST a completely self-supporting publication, but, more important, to make new friends for conservation; to bring to many more citizens an awareness of the importance of our natural resources.

We can't think of a better introduction to the wealth of these natural resources in New York, nor a more useful invitation to get outdoors and *live* than the new Outdoors Recreation Map of New York. We are sure you will like it—and so would our hoped-for new subscribers.—
Editor

THE CONSERVATIONIST

State of New York Conservation Department



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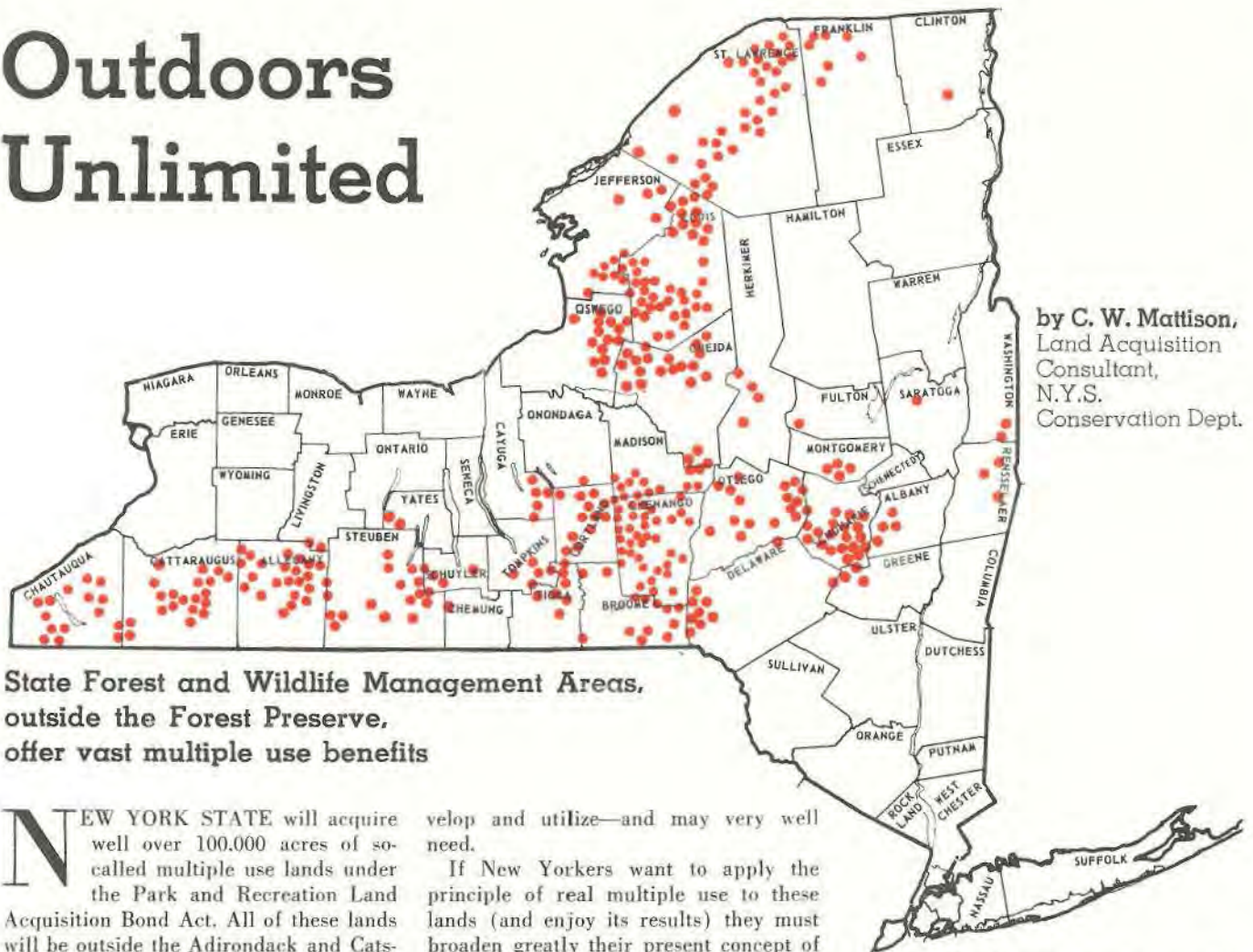
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Outdoors Unlimited



by C. W. Mattison,
Land Acquisition
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State Forest and Wildlife Management Areas, outside the Forest Preserve, offer vast multiple use benefits

NEW YORK STATE will acquire well over 100,000 acres of so-called multiple use lands under the Park and Recreation Land Acquisition Bond Act. All of these lands will be outside the Adirondack and Catskill parks. Therefore, the limitations applying to the Forest Preserve are not a factor in planning the actual *management and use* of these areas, and they must be *used* if they are to meet the objectives of the Bond Act. Section 381 of the Act lists these standards for acquisition of State lands other than Parks:

"Lands acquired for other than state or municipal park purposes shall consist of lands desirable for outdoor recreation, including public camping, fishing, hunting, boating, winter sports, and *wherever possible, to also serve multiple purposes involving the conservation and development of natural resources, including the preservation of scenic areas, watershed protection, forestry and reforestation.*" (Italics are the author's.)

State acquisition of these lands and other properties acquired under the Bond Act together with existing reforestation areas and wildlife management areas, will have a significant effect on the State's social and economic life. In addition to their recreational potential, many of them will have resources, assets and values which private endeavor might de-

velop and utilize—and may very well need.

If New Yorkers want to apply the principle of real multiple use to these lands (and enjoy its results) they must broaden greatly their present concept of this fundamental of sound land management.

In the opinion of this writer, very few of our 16 million New York State citizens have a clear understanding of multiple use land management. They do not know that their State will have, upon completion of Bond Act acquisitions, about 750,000 acres of public land, outside the Forest Preserve, where real multiple use management can be applied. Actually, this is all too little public land of such nature for a State like New York. Right now it represents little more than 5 one-hundredths of an acre or 1,400-square feet per capita. That's about equal to the space in a modest two-story home. As population increases, this per capita share will shrink even more. Moreover, there will be very little similar land available for State purchase after the current acquisition program is completed. It behooves each New Yorker to understand and support the Conservation Department's plan for the sound use and management of these lands.

The term "multiple use," while sounding complex, is actually simply defined as it applies to the management of State land. Under it, the land manager co-

ordinates land uses to get as many benefits in the public interest as possible without harm to the land and its natural resources. This does not mean, however, that all uses will occur on the same acre.

The leading advocate of multiple use land management in the United States is the U. S. Forest Service, a conservation agency of the Department of Agriculture. It manages your 155 National Forests which include more than 181 million acres of American land in 39 states and Puerto Rico (there are none in New York State). On these public properties, multiple use approaches its nearest perfection. Under edicts laid down in 1905 and subsequently formalized by Congress, the Forest Service has consistently strengthened the multiple use policies governing the management of the National Forests. In the management of its multiple use lands, New York State can well emulate the Service.

Most of the State's multiple use lands contain five major renewable resources—recreation, water, soil, timber and wildlife. On some areas not planted to trees, there is a sixth resource—forage for domestic livestock. Among all of these

natural resources, recreation takes first place because New Yorkers need it and because under the Bond Act, all lands acquired must have a recreation potential above all else.

Each of these resources is related to the other and no one can be managed or developed without consideration for the others. That's where "co-ordination" shows up as a basis for multiple use management. The land manager must have the broad vision to harmonize the several desirable uses of the resources.

The Conservation Department has an obligation to manage the major resources on the State's multiple use lands to meet the needs of the State's people best. With its highly decentralized organization of able personnel, the Department is admirably prepared to do it—and do it well. Policies and objectives are formulated by the Commissioner, assisted by his professional staff. The field men, however, are those who make multiple use work by putting its principles into practice right on the ground. The biologists, the foresters, the rangers, the game protectors, the engineers, the custodians and the office staffs—they are the ones who do that job. Through training and experience they are well qualified for it.

When interrelated resources, such as recreation, water, soil, timber and wildlife are managed under multiple use, the land manager must expect conflicts among users. Every user has his own selfish interest and feels that his particular use should have preference at all times. The recreationist, whether he be camper, picnicker, horseman, hunter or fisherman, may resent the activities of the logger—and *vice versa*. The community that draws its water from State land, may urge elimination of all other uses. The land manager's problem is to recognize the conflicts and resolve them in the best interests of the people of the State. He may not be able to please everyone, but his responsibility is to reconcile the several uses for the public good.

In addition to conventional use of the major resources on New York's multiple use lands, many special uses are possible. Following are some examples of special uses which can be undertaken under existing law: installation under permit, of oil and gas pipe lines and power lines; sites for radio and TV communication towers; livestock grazing rights; mineral extraction; quarrying; skeet and archery ranges; use of gravel deposits; and locations for honey-bee colonies. Moreover, while not the State's responsibility for development, there are added uses which private interests could undertake subject to regulations and con-



Overnight shelters can be a feature of multiple use areas

ditions prescribed by State officials. These might include such things as organization camps, winter sports facilities, riding stables, group hunting camps, restaurants and the like—many of which provide legitimate services to the public, with a cash income to the State.

Across the Nation, competition for land makes it difficult for public or non-profit agencies such as the Scouts, churches and YMCA's, to acquire land for group camps. New York is no exception. Where there are desirable sites for organization camps on State lands—and no greater public use is foreseen—the granting of long-term permits to non-profit groups for the construction and operation of their camps fits right in with the multiple use plan of management. Of course, the State must prescribe certain standards of construction, sanitation and maintenance and must insist on compliance with them.

Power lines and pipe lines are necessary to our economy and standard of living and they are here to stay. In addition to fees paid to the State for rights-of-way where they must cross State land, they provide narrow strips of improved

wildlife habitat in the shrubs and plants on the clearing edges. Utility lines are often helpful to hunters in orienting them in their hunts and in cross country travel.

In some sections of New York, State lands may contain the only desirable sites for TV transmission towers. Where they can be permitted, they will require access roads and rights-of-way for their power supply. In addition to income to the State for such special uses, the public will get "fringe" benefits in year-round access to the areas and improved wildlife habitat at clearing edges, both at no public expense.

The Conservation Department frowns on State development of winter sports areas on its multiple use lands. Located on these lands, however, are some areas well suited to winter sports. Why not private development of the necessary facilities under state permit? It's another possible recreational use of State land. Fees to the State could be at a set rate or on proportion of income.

Certain resort-type installations, while not a State responsibility to develop, may be considered for private development on State land where there is public demand for them and where they would

Small marsh development adds appeal and wildlife value





Family camping can be an important recreation resource

not interfere with other public uses. Envisioned here are not elaborate, plush facilities but conservative private developments such as restaurants, overnight cabins, swimming pools and riding stables. Permits would reserve State control to insure reasonable prices, services and accommodations to meet public needs. They would also specify health and safety standards. Facilities such as public swimming areas and picnic grounds might be developed and maintained on State land by local government units. In some instances, desirable private or local government developments on State lands may forestall undesirable and uncontrolled installations on adjoining private lands.

Hunting is a major recreational use of multiple use areas where, unlike Forest Preserve lands, wildlife management and habitat improvement can be practiced. Even so, on State lands there will be many small areas not adaptable to other uses where group hunting camps might

be constructed under paid permits. They would, of course, be required to meet State standards of construction, operation and maintenance. Similar special uses are rifle, pistol and archery ranges and skeet and trap shooting fields.

Many multiple use areas are not too far distant from dairy or beef cattle farms which may need summer pasture for young livestock. Some of these lands at the time of acquisition contain reasonably good pasture. If the land is not planted to trees, these pastures could be maintained or even improved and then leased under paid permit to local farmers who need the forage. Of course, numbers of animals could not exceed the forage available. Keeping certain parts of multiple use area as open lands suitable for grazing would help to maintain scenic values which are often lost as plantations increase in height. At the same time, wildlife habitat around clearing edges can be improved. As an example, controlled grazing has been demonstrated to

Connecticut Hill Game Mt. Area—site of '57 National Archery Tournament



be a most valuable game-management tool in the maintenance of good woodcock habitat. Watershed values can be protected and maintained on open lands with good plant cover just as well as they can on forested lands.

Leasing of oil and gas rights is already a permissible use on existing State lands which qualify as multiple use areas. There are, however, other minerals under the surface of these lands which might be extracted by private industry under paid mineral leases. In certain areas, salt brine, gravel deposits, flagstone, shale and perhaps other products could be sold under terms which would require reclaiming of the area by the operator upon completion of the extraction process. In most instances, resulting scars are not extensive and could be obliterated by water impoundments, tree planting or other reclamation processes at the expense of the permittee.

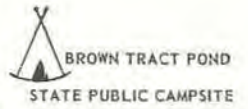
Certain properties being acquired contain buildings in good repair and for which there may be little justification for dismantling. Some of these buildings may be suitable for such private use as riding stables or other conservative recreational use. Others could conceivably be used as key facilities for organization camps. Perhaps still others might be adapted to group hunting camps or even private residence. Where private use could be permitted, the fees would, of course, be determined with due regard to the cost of maintenance and protection responsibilities which the lessee would have to assume under terms of the permit.

Honey bees require adequate "range" just as do domestic livestock. Such range exists on some multiple use areas and might be rented to local apiarists who need summer locations for their bee colonies. They would not interfere with other uses of the land.

Some properties now in State ownership or in the process of acquisition contain sugar maple trees in such size and quantity to warrant sap extraction for maple products. With the maple season occurring in late winter and early spring, leasing of sap rights to local producers is a special use which is not in conflict with other uses.

What do all these special uses add up to? Simply this—an opportunity to manage State multiple use lands for their maximum benefits to the greatest number. Without doing harm to the land or its resources, they can also return money to the State treasury. Adding them to conventional uses such as timber cutting, Christmas tree production, watershed protection, camping, hunting and fishing, they can make a big contribution to the social and economic life of our State.

Brown Tract Ponds

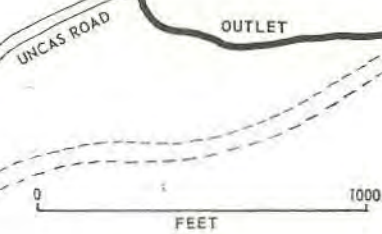


by Robert G. Zilliox,
Regional Supervisor
of Fish and Game,
N. Y. S.
Conservation Dept.

MAP BY IRVING



Use of
Mechanically Propelled Vessels
is Prohibited



TO EAGLE BAY

Fish Present

Brook trout (occasional)
Smallmouth Bass
Yellow Perch
Brown Bullhead
Sunfish
Suckers
Minnows

Hunting in Vicinity

Deer
Bear
Grouse
Snowshoe Rabbit
Bobcat
Coyotes

Fur-bearers in Vicinity

Beaver
Otter
Mink
Fisher
Raccoon
Muskrat

General

Site of new Department campsite; tourist accommodations available in vicinity
Use of mechanically propelled vessels prohibited
Open during hunting season but without running water and sanitary facilities

Location

Western Hamilton County along Uncas Road between Villages of Raquette Lake and Eagle Bay

Physical Features

Area: Lower Pond, 146 acres
Upper Pond, 46 acres
Maximum Depth: Lower Pond, 32 feet
Upper Pond, 27 feet
Elevation: 1,766 feet

Chemical Characteristics

P.H.: Acid
Transparency: Light brown

The Fight to Save Niagara Falls

by Marvin W. Kranz. Assistant Professor, Social Studies,
State University College at Fredonia

ALTHOUGH the movement for the preservation of the Adirondacks, 1868-1885, was a pioneering step in New York's conservation activity, and Fish Commissioner Seth Green was busily planting fry in the State's lakes and streams, the idea of conservation was not limited to these areas. Combining the philosophies developed by these two programs and paralleling the Adirondack agitation was the movement for the preservation of Niagara Falls. Its objective was first to save the natural wonder of the Falls, and second to restore them to their pristine condition.

Before the opening of the Erie Canal in 1825, the land around the Falls was State-owned and served as part of an important pathway to the West Improved wagon roads and the canal soon supplanted this route and New York disposed of its holdings adjacent to the Falls.

The Falls area developed slowly, however, because it was located on the frontier, far removed from the main line of travel, and also because the great land proprietor, General Peter B. Porter, was chary about selling water privileges. The former Congressman, who spent his last years at Niagara Falls, had recognized the region's power potential and wanted to hold onto what he had.

Speculators, too, appreciated the water power values of the upriver rapids and of the cascading falls. They bought up each and every parcel that Porter hesitantly relinquished. And as the years passed, despite the protestations of visitors and writers from all over the world, the beautiful scenery gave way to grist mills, storehouses, sawmills, and other types of industry as well as amusement park areas.

As early as 1873, the metropolitan press became interested in Niagara. It protested when rumors reached it that the Falls were to be shut from public view by the erection of a high wall. A group of promoters were reported to be buying up land alongside the banks in order to establish a Coney Island-like tourist attraction. They planned to charge an admission fee to all who wished to go beyond the wall.

While the matter appears to have been neglected by the New York press during the next few years, the seed which would sprout the movement for a free Niagara

In the years 1924-25, the State Reservation at Niagara was one of several scenic and historic sites in New York to become a part of a unified State Parks System through amendment to the Conservation Law establishing the State Council of Parks.

Today, the Falls is the focal point of interest in the Parks' Niagara Frontier Region which includes, in

addition to the 425-acre Niagara Reservation, Whirlpool State Park below the Falls, Devil's Hole State Park in the lower gorge, Buckhorn Island State Park at the north end of Grand Island above the Falls, Beaver Island State Park at the head of Grand Island, and Fort Niagara at the lower Niagara gorge where the river flows into Lake Ontario.—Editor

had already been planted. It was Earl Dufferin, the Governor-General of Canada from 1872-78, who first publicly called for the creation of an international park. Speaking before the Society of Artists that met in Toronto on September 28, 1878, Lord Dufferin advocated that New York and Canada buy up the rights around the Falls and create a small public park. He urged that it be "carefully preserved in the picturesque and unvulgarized condition in which it was originally laid out by the hand of nature," and told his audience that he had already communicated his plan to and received encouragement from Lucius Robinson, then Governor of New York.

Charles M. Dow, in his "The State Reservation at Niagara, a History," points out that while Lord Dufferin may have been the first statesman to press publicly for the creation of a park, the prime movers were a group of Americans who, beginning in 1869, resolved to work for the preservation of the Falls. After laboring for ten years to build up interest in the project, they appealed to Lord Dufferin by enlisting William H. Hurlbut, editor of *The New York World* to communicate with him. Then, the reservation-minded Governor-General met with Governor Robinson who, in turn, brought the Niagara question before the New York Legislature in 1879. The Governor asked that an investigating committee be appointed since the area around the Falls was being "appropriated for purposes of private profit while the shore swarms with sharpies, hucksters and peddlers who perpetually harass all visitors." The Legislature responded by joint resolution on May 19, 1879 and instructed the Commissioners of the State Survey to consider what measures ought to be taken.

During the summer of 1879, when the Commissioners began making their survey, *The New York Times* launched a publicity campaign. A *Times* correspondent sent home reports about abuses characteristic of the Niagara resort area. Whereas the hotels ought to have made large profits, he said, their incomes were falling off because of the sins of Niagara Falls' residents. "The curses of swindled thousands have smote upon its ears, and its name has become a reproach and a warning throughout the land." Fees and charges had risen so high said the reporter that "extortion and Niagara have become synonymous terms."

In the meantime, James T. Gardner, director of the State Survey, and Frederick Law Olmstead, the noted landscape architect, worked hard in the preparation of their detailed report which was emphatically endorsed both by the Board of Commissioners of the State Survey and by members of the ministry of the Ontario government. In a series of carefully written descriptions, illustrated with amazingly detailed photographs, the report made vivid the destructions and defacements which prevailed.

Since it was the "clearly recognized duty of governments" to reserve special natural features, Gardner and Olmstead regretted that the State had ever sold the land near the Falls. They pointed out, however, that much of the damage could be rectified if the State purchased the river islands, plus a narrow belt of shoreline along the river-front of Niagara village and restored the area so that it would approximate its previous condition as closely as possible. In the case of Goat Island, situated between the American and Canadian falls, the report urged that



the State act with dispatch to purchase it. Otherwise it was feared that this last natural area would be sold, stripped of its timber and made a place of amusement or manufacturing.

The Commissioners' views were reinforced by including in the report a memorial urging public ownership of the Falls area. It was signed by hundreds of distinguished citizens including Vice President William A. Wheeler, Secretary of War Alex Ramsey, Chief Justice Morrison R. Waite and seven Associate Justices, U. S. Senators and Representatives and important artists, writers, scientists, churchmen and educators. *The New York Times* was quick to endorse this idea and commented on the fact that such an aesthetic sentiment had state-wide appeal and support.

Despite the enthusiasm generated by the publication of the report, no major attempt was made to secure passage of

a Niagara Reservation bill before 1882 because of the known opposition of Governor Alonzo Cornell. The Niagara Reservation advocates settled down to a public education campaign using newspapers, pamphlets and public speakers. In 1881, Frederick Law Olmstead and Charles Eliot Norton of Harvard University arranged with several newspapers including *The New York Tribune*, *The New York Herald* and *The New York Evening Post*, to print a series of descriptive letters written from Niagara Falls by Henry Norman to call public attention to the dangers inherent in obliterating the scenery. The same technique was used the following year when Jonathan B. Harrison wrote a series of eight letters, from the Falls.

When Grover Cleveland was elected Governor in November, 1882, the Niagara Reservation movement was given a new lease on life. Believing that Cleveland

would favor the movement, a group of about twenty Niagara enthusiasts gathered on December 6, 1882, to lay the foundation for a Niagara Falls Association. They appointed a committee that would make further plans. Soon thereafter the "enthusiasts" began circulating petitions and pamphlets in an attempt to stop what they termed "the vandalism" being practiced at the Falls.

At a meeting in Municipal Hall on January 11, 1883, a group of fifty persons pledged themselves to work for the preservation of Niagara and officially organized the Niagara Falls Association. D. Willis James, one of the leading Adirondack advocates, acted as chairman, and a slate of officers as well as an executive committee were selected. James Gardner, director of the State Survey, who had written the special report on Niagara almost three years before, gave the principal address. He described

the history of the Niagara agitation and urged the group to pressure the Legislature into passing a Niagara Preservation bill since the incumbent, Grover Cleveland was certain to support one.

A \$10 fee collected from each member, enabled the Association to print and circulate a great deal of literature and to sponsor the travels of Jonathan B. Harrison, the enthusiastic corresponding secretary who went from town to town throughout the State, drumming up interest and circulating petitions. When the proponents believed that enough enthusiasm had been generated, the executive committee drafted a bill which was introduced in the Assembly by Jacob F. Miller on January 30, 1883. While the proposal was being considered, the Association's petition containing the support of important citizens throughout the State was also placed before the Assembly. In addition, letters poured in from such notables as President Arthur, Senators Thomas C. Platt and Warner Miller, ex-Senator Roscoe Conkling, Oliver Wendell Holmes, William D. Howells, President White of Cornell, President Eliot of Harvard and President Porter of Yale. At hearings before the Ways and Means Committee, representatives of the Niagara Park Association spoke in favor of the bill. After it was reported to the Assembly, its chief supporters on the floor were Erastus Brooks, an Adirondack advocate, and Thomas V. Welch, later the superintendent of the State Reservation.

Cleveland Approves

The bill had bi-partisan support and, according to *The New York Tribune*, was opposed primarily by mill owners at the Falls. The leading opponent in the Legislature appears to have been Assemblyman Benedict of Ulster County, who rallied rural votes on the plea of economy. This opposition was unsuccessful, however, and on April 30, 1883, Governor Cleveland gave his signature as final approval.

Providing for the creation of "The Commissioners of the State Reservation at Niagara," the law set up a method by which those appointed could condemn and have appraised such lands as they found necessary for the reservation. If within two years the Legislature failed to provide funds for the creation of the reserve, all prior steps taken were to be null and void. That is, if the Legislature failed to vote the monies that the Commissioners had decided upon, all condemnation proceedings were to be forgotten.

Governor Cleveland then appointed five commissioners to ascertain what holdings were desirable and what kind of a park

was practicable. They abandoned as impractical and too costly any idea of extending the Reservation beyond the limits set in Gardner's and Olmstead's plan. There was also a good possibility, they realized, that an expanded plan might be defeated by the Legislature's refusal to provide funds and then all possibility of establishing the Reservation would be scuttled. In general, they followed the plans which had been prepared by the State Survey, but they recommended a somewhat smaller tract.

Even though the proposed Reservation was smaller, the initial claims made for the tracts of land involved were larger than anticipated. The riparian owners wanted compensation for the potential but unused water power which was being appropriated, thus claiming ownership of the river's bed. This claim was rejected for all except those who had already acquired such rights from the State or through long and established use. In addition, as is always the case, those who owned condemned land spoke of its inestimable aesthetic value and asked the State for approximately \$4,000,000. The Commissioners agreed upon \$1,433,429, but by the terms of the enabling act, the Legislature was still not committed to purchase the Reservation for this or any other price.

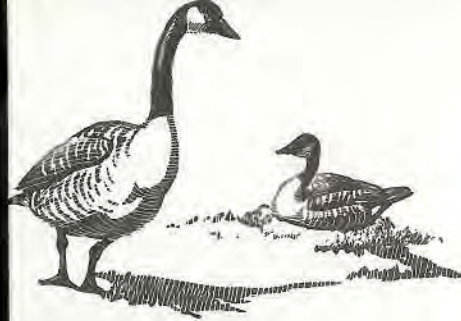
Once again the Niagara Falls Association went into action and at one meeting forest preservation champions Erastus Brooks and Morris K. Jesup urged that members enlist the support of newspapers in rallying opinion behind the purchase. Corresponding Secretary Harrison was subsequently dispatched on a state-wide tour to attract enough popular support to force Legislative action.

Because Grange-sponsored protests against the proposed purchase had begun streaming in from rural districts, the Association realized that it would have to conduct an active campaign to secure passage of the bill. It enlisted ex-Assemblyman Thomas V. Welch to take charge of the fight. Welch, in turn, called a meeting of Niagara Falls citizens, and, after discussing the situation, the group decided that the propagandizing activity would be more effective if carried out from that spot, rather than from New York City. Organizing as the Niagara Falls Citizen's Committee, they wrote to all Senators and Assemblymen requesting the names of 200 or more men in their districts. Upon collecting some 4,000 totally, the Committee asked each individual to write to his Senator or Representative in support of the Niagara Reservation. Later, when additional support seemed necessary, the Committee sent letters to those 1,500 who had responded most enthusiastically on the

first appeal, asking them to collect signatures for a petition. Pamphlets were distributed and newspapers were filled with enthusiastic appeals. Papers like *The New York Tribune* argued that the State was in excellent financial health and that it was a wise and economical move to make an immediate purchase instead of waiting for costs to increase.

Early in 1885, the Commissioners submitted a bill calling for an appropriation and bond issue to meet the costs of the proposed awards. At the same time, the popular agitation continued unabated and, as a result, the Legislature was flooded with petitions. It took the clerk a full hour to receive and announce these on the floor. *The New York Times* reported that opposition to the bill was relatively weak and that it largely centered in those groups seeking to woo farmers by promises of economy. It further stated that "so far as the sense of rural communities has been authentically collected and presented, it seems to be as much in favor of the rescue of Niagara as that of cities and villages." This report is questionable, however, since ex-Assemblyman Thomas Welch claims to have done a great deal of maneuvering merely to get the bill reported from committee and it was not until it was actually on the floor that opposition ceased. On March 25, the Assembly vote of 84-24 demonstrated that the pro-Niagara forces were finally in command. In the Senate, forest oriented Henry R. Low of Sullivan County and Edward B. Thomas of Chenango, who spoke against the Niagara bill, were only able to amass a total of four votes against the measure. Governor Hill's signature on April 30, meant that the State had committed itself to carrying out the plans for creating a Reservation.

To provide for management of the Reservation, the Commissioners' powers were enlarged so that they might have full control. For a time the State's acquisition of the property was hampered by administrative difficulties such as delays in the paying of awards, but on July 15, 1885 all was in readiness for a gala celebration. The communities on the banks of the river (since combined as the City of Niagara Falls) made elaborate plans. An arch bearing a motto to the effect that, "Niagara has been redeemed from the hackman and other birds of prey and is henceforth to be free to the world," was constructed across the main street. Brass bands played and fourteen balls were scheduled. The dedication took place before a vast assemblage of Canadians and Americans, and Governor Hill accepted the Reservation in the name of the State, declaring it open to the public.



The Goose and the Gander

by Dirck Benson, Supervising Wildlife Biologist, N.Y.S. Conservation Dept.



Canada geese over Oak Orchard Game Management Area

THERE'S something about wild geese "v-ing" their way north that stirs the imagination of country folks and city dwellers; primitive man and modern alike. And that which stirs imagination, often brings a touch of romance and myth. One such which crops out time and again in folklore is that the goose mates for life—not just our Canada goose but the gray-leg, white-fronted, pink-footed and others, as well. Some waterfowlers, in fact, will not shoot geese for fear of breaking up a happy home.

Well, what do we really know about geese and their domestic life? Not really as much as one might expect. Geese have been held captive for hundreds, no, thousands of years, but under artificial conditions geese behave differently, giving only partial clues to what normal behavior in the wild would be. This is not unusual—other species, too, change their behavior under artificial conditions. As an instance, mallard ducks in the wild are good, loyal monogamists; just one mate, normally, for one season. In captivity, however, crowding, excitement, and opportunity seem to stimulate polygamy, polyandry or just free love as the situation may allow.

But back to geese. Wild geese. Canadas anyway, usually do not breed until they are three years old, even though, on game

farm diets, they may breed at two years. Returning to the breeding range the first summer, the yearlings are not too much in a hurry and seem to represent the largest proportion of the birds that linger along the way until May at places like the Department's Oak Orchard Game Management Area in western New York. Once back north, with no special purpose and no driving restlessness, the yearling flocks loaf out the summer near their native rearing grounds.

Come the second spring flight, our observations suggest the teenagers are more restless and more anxious to get north. Once there, few if any will breed, but pairing is common. Some pairs remain in loose flocks but others break away and select territories. The selected home lot may be visited daily by some pairs, others may set up full-time residence—not exactly companionate marriages but fairly heavy dating. It is not known how many of these pairs will be together the next season, but some will, we are certain.

The third and future spring flights are much more purposeful and time is of the essence, especially for those birds going up toward the Arctic Circle where the summer is short. It takes a little time to get settled, rig up a nest and lay a clutch of eggs. Incubation requires some

28 to 30 days. Then the rearing job—fortunately for the more northern nesters, the longer day means more eating time and more rapid growth, so fewer weeks are needed to get the goslings on the wing than for those hatched further south. But if the ice doesn't melt until late June and things start to freeze in early September, and this happens some years, the geese have a pretty short season at far north spots like Kovik and Povungnituk on the Ungava Peninsula. As an aside, nearly all the Canada geese that pass over New York breed to the east of a line drawn through the middle of James Bay and Hudson Bay.

About the social order or structure of the adult Canada goose community, we have no real statistics to go on but the little tidbits of lore suggest that it is not too different from that of the human beast. The vast majority select their mates and stick by them for life. Just on rough observation it appears that some are nearly idyllic couples and most are just average happy pairings. In the annual renewal of courtship in the spring around the home territory one can observe signs of cantankerous, domineering males and of aggressive, nagging females. Occasionally a lustful eye may be directed at a neighbor's spouse. One instance comes to mind where the female invited in a neighbor's mate and kept house for two males until the original male quit in disgust and retired to bachelorhood. Meanwhile, the forsaken female sought out a steady old widower who had lost his mate and this couple set up new living quarters on the far side of the community. Signs of errant behavior have been observed on the part of both males and females so that neither sex can claim to be complete angels.

Normal circumstances and opportunities dictate that most pairs will be the same age. In the wild, however, when mates are lost or, in captivity when moving birds from one area to another disrupts family units, the birds neither revert to celibacy nor insist on finding mates their own age. Two-year-old females have been known to pair off with old ganders and a female in her prime of life, about five or six, selected a three-year-old kid of a gander. Furthermore, the only indications we have seen of reluctance or disinclination to remate have been among very old geese that probably no longer have strong biological urges.

As long as we are on the subject, it should be noted that some geese seem to be a little confused as to what it is all about. Once on the game farm, two females selected a territory, built a nest, laid eggs and incubated them for something over six weeks. No, they never hatched.



Fisheries biologist "interviewing" a walleye

The Walleyes of Lake Champlain

by Robert G. Zilliox, Regional Supervisor of Fish and Game,
N. Y. S. Conservation Dept.

IN Lake Champlain, as elsewhere, the walleye swims under a variety of names. Not discouraged one whit, apparently, by its jaw-breaking scientific handle, *Stizostedion vitreum*, the species appears just as happy under such common and more easily pronounced monikers as walleyed pike, pike perch, yellow pike and doré, the last an Indian name and not to be confused with a flat bottomed boat.

By whatever name, the walleye has a host of angler friends who think highly of its sporty qualities and no less highly of its standing as a table delicacy. A lot of these friends of the walleye fish Lake Champlain and no wonder—there's a lot of Lake Champlain to fish and a lot of walleyes there to catch. As an aid to this fishing and, we hope, catching, let us digress a moment to suggest that among the best guides to likely walleye waters are the navigational charts of Lake Champlain (Numbers 171-174 inclusive) prepared by the U.S. Lake Sur-

vey, Corps of Engineers, U.S. Army, 630 Federal Building, Detroit 26, Michigan. These may be purchased at \$1 per chart.

No discussion of Lake Champlain walleyes would be complete without mention of the Canadian seine fishery for this species in Missisquoi Bay, which over the years has engendered considerable discussion.

Most of this heat has been generated by the commercial fishery operated for many years in that northerly part of the lake lying above the Canadian border and known as Missisquoi Bay.

This fishery, purportedly dating back to seigniorial rights of the early settlers of that area, has been investigated, either on its own merits or in conjunction with other problems pertaining to Lake Champlain by joint commissions, international commissions, conferences, fact finding commissions, *et al* in the years 1892, 1908, 1918, 1931, 1957 and 1958. Briefly, this seine fishery involves the annual removal from the lake of varying

numbers of walleye in the Canadian portion of Missisquoi Bay.

The various meetings on this subject show that some New York and Vermont residents believe the seine fishery has virtually eliminated or has caused a decline in the walleye fishery of the entire lake.

A quick glance at the map of Lake Champlain will show that New York and Vermont share portions of the broad lake, that the large area of water in the northeast portion of the lake known as the Inland Sea is entirely within the state of Vermont, with the exception of a portion of Missisquoi Bay lying in Canada. In reviewing the minutes of various of these investigative conferences and commissions, some questions immediately come to mind: Why should the Canadian seine fishery be labeled "villain" over the past seventy years, if, as is the case, it has been in existence since early settler days and has showed no set pattern of increased removal? With recurring statements since the latter part of the 19th Century that walleyes were virtually eliminated from the lake or seriously depleted, how could there have been any walleyes left to become seriously depleted in recent years? Do the fish removed by the commercial fishery from Missisquoi Bay come from the entire lake? Do walleyes from the broad lake frequent the Inland Sea and Missisquoi Bay? Has the Canadian seine fishery been unwittingly used as a whipping boy, with eyes closed to the scars that the steady march of civilization has left upon the spawning streams and shoals in the American portion of the lake? With these and other pertinent questions concerned and with very little concrete information available to either support or contest these suppositions, it was time to get some facts about the walleye.

Fortunately, there has long been excellent co-operation and interchange of information between Vermont's Fish and Game Dept. and our Department of Conservation in all phases of conservation matters. This has greatly aided the fishery study on this boundary water. In addition, close co-operation and liaison exists with Quebec Department officials. Vermont inaugurated an intensive long term study of walleyes in 1953. We initiated our study in 1958. Vermont has tagged thousands of walleyes at West Swanton, located in the northern portion of the Inland Sea, a few miles south of the Canadian seine fishery in Missisquoi Bay. The movement of fish tagged in the West Swanton area by Vermont involves fish that are in part heading for or returning from Canadian waters and are vulnerable to their seine fishery. Vermont has also tagged walleyes in the Lamoille

River. New York's tagging has centered about the spawning run of walleyes in the Great Chazy River with some additional specimens being tagged in the Plattsburgh area in 1958. Tagging was also undertaken in 1961 at South Bay, Vermont's and our studies to date begin to unfold this picture:

The walleyes tagged by Vermont researchers south of the Canadian seine fishery at West Swanton (35,000) make a negligible contribution to the sport fishery in New York and Vermont waters of the broad lake. Based upon about 1,800 angler tag returns, less than 10 per cent have been reported caught outside the confines of the Inland Sea. Of the walleyes tagged in the Lamoille River, all angler returns have been from that immediate area. No New York tagged fish have been captured in the Vermont research netting program or reported captured by the Canadian seiners, while only one tagged fish to date has been caught by anglers in Missisquoi Bay. Three New York tagged walleyes, two from the Chazy run and one from South Bay, have been caught by anglers near the mouth of the Lamoille in Vermont. This area, originally part of the broad lake, is now separated by a land fill and drawbridge pass. None of the Chazy River tagged fish or the Vermont tagged fish were captured in our 1961 South Bay netting operations. Here is the emergence of a pattern of discrete stocks of fish, showing little interchange between areas of the Inland Sea and broad lake. Information derived from tagging fish of these stocks indicates that the Canadian seining has little effect upon the walleye sport fishery in the New York and Vermont waters of the broad lake. The effect of the seining on the Inland Sea sport fishery would have made its mark many years ago.

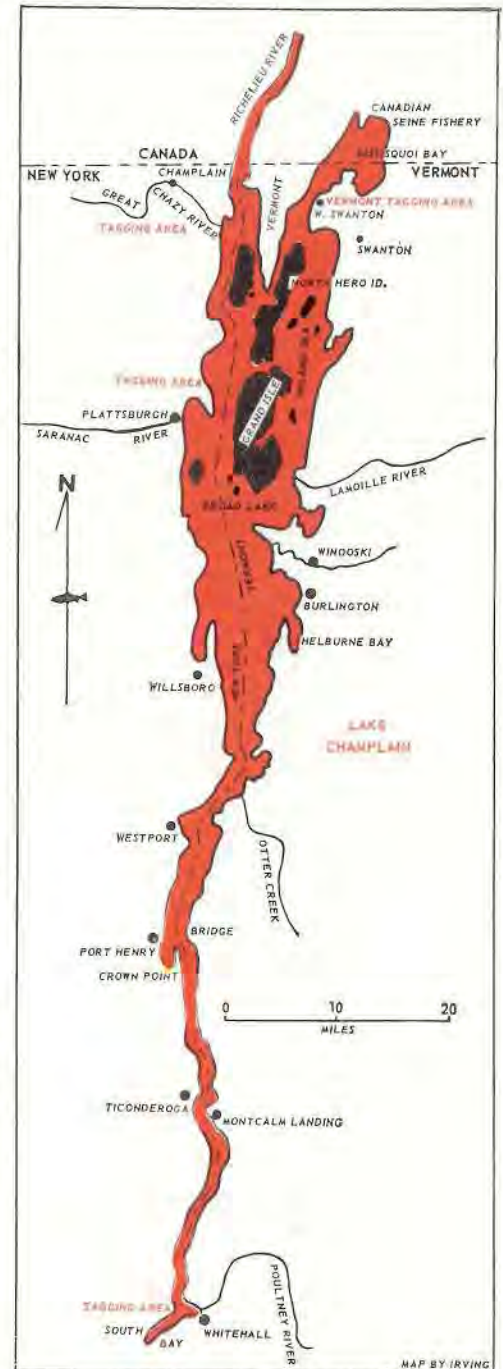
The movement of walleyes throughout the lake following spawning and tagging is of interest. Angler returns show that better than 50 per cent of the Chazy River fish are caught at distances ranging from 20 to 80 miles from the area

where tagged. Data for the South Bay tagged walleyes, show that 45 per cent are caught from 40 miles up to 80 miles distant from the tagging area. The boldest adventurers from these populations, some going south and some going north, mingle in the broad lake waters, possibly swapping the latest gossip. No tagged fish from any portion of the lake were captured in the April, 1961 South Bay netting operations, and no Chazy River or Plattsburgh tagged fish have been reported caught by anglers south of the Crown Point (Champlain) Bridge. One of the Chazy River tagged fish was reported caught at Lachine Rapids on the St. Lawrence River. This international voyageur, after arranging for his Canadian passport, took off northwards down the Richelieu River for an 80-mile tour. About 35 per cent of the Chazy tagged fish have been caught in Vermont waters of the broad lake. It is evident that a continuing exchange of fisheries data among New York, Vermont and Quebec biologists is highly desirable.

Information pertaining to growth and longevity of walleyes shows, in general, that the females exhibit better growth and live longer than the males for the several New York and Vermont stocks studied. Minor differences appear to exist for growth among the several populations, but these have not as yet been statistically analyzed for validity.

Angling exploitation or the harvest to the creel of the total crop in the lake is an important consideration in fisheries management. Tag returns by anglers, both in New York and Vermont waters of the lake, show that less than 5 per cent of the walleyes are being harvested each year, an angling return considerably lower than for New York's famous Oneida Lake walleye sport fishery. The data indicates a relatively low rate of natural mortality existing for walleyes four years or older. Hence, for any given year class (age 4 years or older) we might expect total angler exploitation to attain 30 per cent.

(Continued on page 34)



Trap netting Champlain walleyes for tagging



Owls Are For The

OWLS are frequently caricatured perched on a dead tree limb silhouetted against a big, orange moon across which a scary figure in a black-peaked hat is navigating a broomstick. Of course, it is partly true that owls hunt under the cloak of forest darkness, but owls do not limit themselves wholly to night time hours nor to forest habitats. Not many persons, however, would think of going to the beach and shore to find these odd appearing predators. Yet owls are there—just ask the birdwatchers, binoculars dangling from their bundled up necks, whom you will find during winter weekends trudging across the dunes at places like Jones Beach State Park on Long Island.

They are hoping to find upwards of at least five species of owls. Walking across the marshy areas and outer beaches, they might scare up a flock of what look like brown moths, grown hugely oversized to stand off the decimating snow and freezing winds. These would be short-eared owls. Anything that appears like a stump of snow on a dune could turn out to be a snowy owl. Or stooping among the little clumps of dwarfish shoreside pines, pushing the scratchy needled branches from their chilled cheeks, it's the saw-whet owl they're looking for. However, if the bird should rise up, flapping its wings heavily as it adjourns to a nearby tree, chances are they have flushed a long-eared owl, or even a barn owl.

The tiny saw-whet owl sticks tight to its perch as though the circle of gaping birdwatchers were just so many trees. About the only motion it concedes is to rotate its head as it checks on the stealthy photo enthusiast stalking up from behind. Actually, he could pluck the bird off and place it on another branch where there is more light for the camera.

The saw-whet owl is often caught in the hand. Thus, it is reputed to be extremely tame. If the truth be known, it is probably dead tired from having been out all night. Bird biographers usually describe it as being in a torpid or sluggish state during daylight. The little owl's apparent submissiveness will inspire the cooing sympathies of the ladies present. But come nightfall this pygmy assumes a ferocity way out of proportion to its diminutiveness. Besides the mice it feeds on, it has been known to attack animals larger than itself, even small rabbits and squirrels.

Yet, the saw-whet is the smallest owl in eastern America. The size is a tip-off to its identification. White "eyebrows" or patches forming a V pattern between the eyes are also telltale. For an owl, its head appears perfectly round. This is because it lacks the horn-like protruding ear tufts we associate with owls.

The long-eared owl, as its name suggests, has these "horns." When alarmed it can elevate them stiffly as it flattens its plumage and takes on the fixed appearance of a piece of bark. This and its reddish face probably present something of a fearsome sight to any creature perceiving that it really is an owl.

The barn owl has a white face that is shaped like a downward pointing heart. This gives the illusion of pulling down on the facial features so that the bird looks perpetually sleepy. It earned its name because it has adapted its living habits to barns, church belfries and deserted buildings. Its demoniac sounding shriek from inside these edifices has frightened generations of children and given rise to plenty of "haunted house" legends.

Maybe the one found around the "Jones Beach Tower" three years ago was trying to stir up stories for the cred-

ulous about this tall building. Otherwise these birds, when found in the area, have also been in the pines a few hundred feet from the ocean's edge. Alexander Sprunt Jr., author of "North American Birds of Prey," reports having observed a barn owl arrive in a strong offshore wind aboard a ship several miles off Hatteras, North Carolina. Perhaps it was a case of mistaken identity (on the owl's part). The vessel may have looked like a seagoing barn.

The short-eared owl is frequently seen by fishermen at sea. In 1960, during the South Nassau County (Long Island) Audubon Christmas census, Richard Ryan of the Linnanean Society of New York boarded a party fishing boat at Freeport to "log" the offshore birds. Three miles out he sighted a short-eared owl. Over the Long Island wetlands it is often mistaken for a low patrolling marsh hawk. Most people do not expect



Beaches

by Maxwell C. Wheat, Jr.



to see an owl hunting in the daylight. But the fact is that most owls, even those that are nocturnal in habit, are able to see at all hours of the day.

On closer investigation, the relatively large round head would give it away as an owl. Here is another owl whose name has the ring of accuracy. The short-eared owl's feathered ear tufts are so small as to be invisible as far as the observer is concerned. It appears to lack any neck. The big head looks as if it had been screwed tight directly on the trunk. This, together with wings spreading twice the length of the body, effect the mothly illusion. If you came upon a group, you would think you had flushed a "hive" of giant moths. Not long ago I was walking across the grassy flats leading to the bay in Brooklyn when more than a score of these birds fluttered up and flew further away in their low and silent flight.

Owls are often mentioned with regard

to the noiseless quality of their flight. This is because they do not have the stiff wing feathers of birds like the ducks that swish or whistle through the air. Owls have a soft, downy plumage that renders their flight noiseless. Indians called them "hush wings."

The short-eared owl is considered a true migrant. This is not said of owls generally. Many species are irregular in their southward dispersals. The snowy owl gets its picture in the papers during winters when it moves south to invade the United States. It is forced out of its tundra home in the Arctic by thinning food resources, particularly the lemmings. These chunky, stubby-tailed, meadowmouse-like rodents every few years undergo "population explosions" increasing their numbers tremendously. These phenomena results in an increase of predators which prey on the lemmings. When the lemming numbers sud-

denly diminish, the snowy owls, for example, are left to travel or starve. Since few are thought to return, the owl-rodent balance is probably redressed for a go at another cycle.

We don't mean to suggest that the ornithologist can't hope to find one of these owls any year. One was found this November at Jones Beach. But in 60's winter there was, what was termed in the Audubon Field Notes, as a "fair invasion." There were at least seven or eight snowy owls at Jones Beach.

On a Sunday afternoon there, I was hailed by an enthusiastic member of the Baldwin Bird Club, Miss Hazel Sullivan, of Freeport. Her surf-hued hair, tucked neatly under a heavy winter's cap, could have compared favorably with the owl she excitedly wanted to show me. She had been with the club's members who earlier that morning had found an immature "snowy," a dusky colored bird. Miss Sullivan was elated because she had trekked out on her own independently of the "experts" (as she put it) and had found another. Hers was a prize—an adult bird, deeply white although close-up it did reveal a characteristic mesh of dark flecks.

The nerve endings of one's brain are hard put to grasp the uncommon image of a big (it stands two feet tall) white owl perched on a sand dune. Mine were certainly clogged in the impression that I was gazing at a torn sheet twisted by the wind around a piece of driftwood sticking up from the sand. When we had inched closer the "sheet" swiveled its full moon-shaped white head—about a 270-degree turn—while its torso remained front and center like a soldier at attention. Thus, its feline fierce eyes, fixed immovably in the sockets so that the bird is able to stare only straight ahead, could zero in on us from over its back. An approaching gull squealed and the owl's head sprung around—so quickly it might have snapped a kink out of its neck.

Like the short-eared owl, the "snowy" is a daytime hunter. In fact, these birds would have to be, since they both spend the summers on the tundra where the sun is visible throughout the day's 24 hours. Flying slowly and silently over the Jones Beach sands, the snowy owl appears every bit like some apparition that has failed to heed the cock's crowing.

Despite the forebodings and premonitions associated with owls through the centuries (Lady Macbeth heard the owl "scream" when the murder was done) these creatures are man's friends. They eat rodents and insects that, unchecked ecologically, could be excessively harmful. This is why all owls are protected in New York State.

Juke Box Fishing

by Louis R. Fendrick, Game Protector, N.Y.S. Conservation Dept.

AT TIC prowling can be an exasperating experience—aggravated by assorted contusions garnered from low rafters, old bed springs and kindred hazards which may be lumped under the general heading of junk. Resolved: You'll get at this place and throw half of this stuff out (can't imagine why you ever bothered to save it anyway)—that murky atrocity that Aunt Sadie painted the summer she spent on the Maine coast; that table with the broken leg; the 18-tube super-heterodyne which once, through ear-shattering bursts of static, would bring in station KDKA; that old hand-cranked phonograph. Hold it, right there! Don't throw that out; not if you are a fisherman, for what you're looking at, simply converted, is the best copper line handling, automatic fishing reel ever used in taking lake trout from their cold water depths.

Copper, as any oldtime lake trout fisherman will tell you, is the answer for getting your trolling rig down where the fish are, but with 200 to 300 feet out, you've got a retrieving problem on your hands in hoating your trout or, more accurately, a nightmare of snarled copper

table spindle, mount the works in a box, fill the reel with a good pliable copper line and you're ready for the lakers.

By using the hand crank, proper tension is put on the spring to enable the reel to handle the line. As you let the copper trolling line out, you are actually winding up the motor. When a fish is hooked and you hand-over-hand the line into the boat, the juke box automatically spins the line back onto the reel. No muss, no fuss and a lot more fun, for line snarls and kinks are practically eliminated. That's juke box fishing.

The how-to mechanics of making one of these reels is relatively simple. Practically anyone with a little sense of know-how can accomplish the job of conversion in the workshop or garage.

To begin with, the early victrolas are just about all based on the same principle. Wind up a spring with a crank, release the tension on the spring and a system of gearing revolves a spindle which, in turn, spins a turntable.

Various manufacturers used gimmicks to get around patent problems. Some used a double spring drive, some a single spring drive. Others used direct

gearing to the spindle, and in a few models, a worm gear drive was used. With adaptations, just about any of these motors will work as a reel. I use a double spring drive and haven't had a bit of trouble with it in two years of pretty heavy use on the lakes.

The first step is to remove the turntable from the motor. This usually is friction fit, but in some cases a set screw locks the turntable to the spindle. The motor housing is then removed. This generally involves loosening four screws on the wooden mount, a sort of a platform on which the motor is secured. The motor and mounting then can be lifted free of the cabinet.

With the motor now on the bench you can see what type of drive you have to work with. In all cases, the speed mechanism is entirely removed; you won't need it. This is the device that makes the record play fast or slow—a governor with weights and springs that served as a direct means of controlling platter speed.

The object is to get a direct drive to the spindle with a minimum amount of gearing and excess controls. Test the drive out every once in awhile to see how you are progressing in the dismantling process. If you get a free drive to the spindle then you're on the right track.

The next step is to obtain a 16 mm film reel about seven inches in diameter. This is fitted to the spindle in place of the turntable. On my motor I have a steel insert that fits through the arbor of the reel and snugly on the spindle. A notch or slot is cut in the insert and this slides over a stud on the spindle which eliminates any slip to the reel. A snug rubber washer placed over the spindle holds the reel in place.

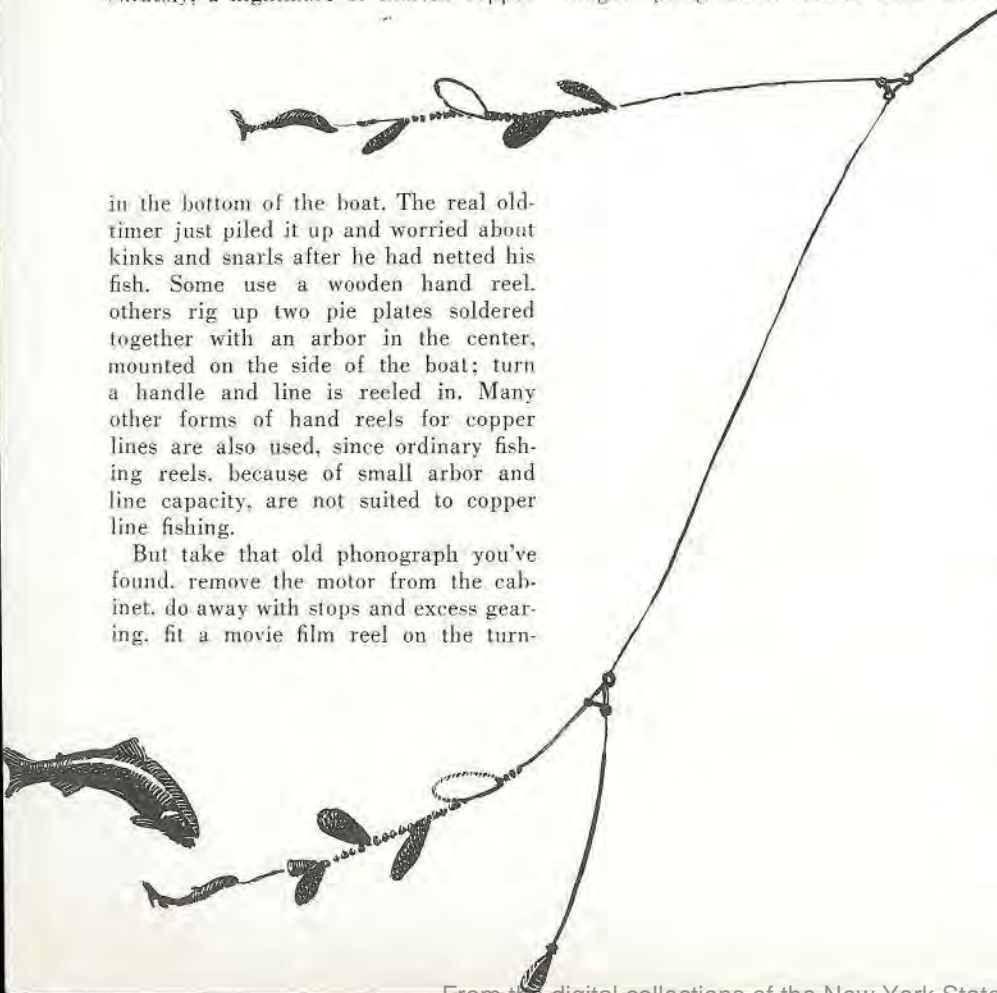
In working at this point, other adaptations can be made such as friction fit for the reel or threaded spindle and lock nut to hold the reel firmly.

Once the film reel assembly is completed it should not be permanently fitted to the spindle until the motor is mounted on a 9x10 inch piece of 1/2 inch marine plywood. Figure the mounting so that the reel will have at least an 1/2 inch clearance at the bottom of the box. When fitted into the box the reel will be in a vertical position, just opposite of the position of the turntable on the victrola. (Fig. 1.)

A box is then constructed to house the reel assembly and motor. Cut four pieces

in the bottom of the boat. The real old-timer just piled it up and worried about kinks and snarls after he had netted his fish. Some use a wooden hand reel, others rig up two pie plates soldered together with an arbor in the center, mounted on the side of the boat; turn a handle and line is reeled in. Many other forms of hand reels for copper lines are also used, since ordinary fishing reels, because of small arbor and line capacity, are not suited to copper line fishing.

But take that old phonograph you've found, remove the motor from the cabinet, do away with stops and excess gearing, fit a movie film reel on the turn-



of $\frac{1}{2}$ inch marine plywood to make a bevel cut corner fitting $10\frac{1}{2}$ inches square and $8\frac{1}{2}$ inches high. Cut bottom of box to fit using the same material. Do not assemble the pieces until $\frac{1}{2}$ inch slots are cut into the front and back of the box. This forms a channel to slide the motor mounting into the box. When this is done, the box can be put together with screws and glue, after a hole is drilled in one panel to accommodate the detachable hand crank.

A cover (the top of the box) is then made out of $\frac{1}{2}$ inch marine plywood, cutting four pieces to measure $10\frac{1}{2}$ inches square on a bevel corner cut, $1\frac{1}{2}$ inches in height. Use same material to form a top, then assemble. Brass cabinet hinges are then fitted to the cover and box. Brass clasps are fitted to permit locking the box when closed. A brass drawer pull is attached to the top of the box for a carrying handle. (Fig. 2.)

A stopper can also be placed on the inside of the box so that the cover when open, will only swing back so far. Inside the top of the cover, clamps can be made to house the hand crank when it's not in use. The crank is used only to put tension on the spring when necessary. (Fig. 3.)

When the reel is fitted into the box, a line guide is made in front of the film reel. I use an electric cord spring from an old steam iron. The line when payed in or out, goes through this line guide.

Attach a good pliable copper line through the line guide and fasten to the arbor of the film reel. Hold the reel with one hand and crank the motor until it will spin the reel. Then fill the reel with about 300 feet of line. If the reel slows down, give a few more turns with the crank. When all the line is on, you can readily see how the reel reacts.



There should be just enough spring tension so that when you pull line off the reel, on releasing, it will bring the line in. Temporarily, tie the line to the box so that it won't spin the reel when the line is released.

There are a raft of tricks to be learned in using this juke box trolling rig but they'll come to you on the lake when you're using the rig. In fitting the line for trolling, I use a barrel swivel on the end of the copper. To this I attach a 20- to 30-pound test leader, usually from four to fifteen feet long. I tie the leader directly to the lure to be used. Do *not* use a snap swivel from lure to leader, as this tends to destroy the true action of the lure.

When your line is rigged with leader and lure, set the juke box on a boat seat and start trolling. Some conversions are fitted out with rubber suction cups on the base of the box at the four corners. These serve to hold the unit firmly on the boat seat. When you let line out, feel for bottom every now and then. When you hit bottom occasionally — you're fishing. Pick up a little line so that you can feel the action on the flatfish or lure you are using. If you are in good lake

trout territory, action should start any minute.

When you've hooked a laker, if you're fishing into the wind, keep the motor going at slow speed as you bring the fish in to the boat. The reel will pick up the line as you bring it in, so all you need to concentrate on is a landing net and the boating of your trout.

In the event you get your rig hung up on bottom (and who doesn't?) either cut the motor and drift back, picking up line until you get to a spot where the lure is fast, or back down picking up line as you go. You will find usually that with a little side maneuvering, you can shake the lure loose.

Fishing Cayuga and Seneca lakes in the Finger Lakes Region of New York State, I find the F7 Flatfish works rather well with the juke box rig. However, I have taken many lakers on Brooks Reefers, Lazy Ikes and other bottom lures. It is possible, also, to lead off your line at selected intervals to fish several lures at various depths, much as with the old Seth Green Rig. Again, I stress the point that on these types of bottom running lures, do not attach lure to leader with a snap swivel; tie to the leader.



Figure 1

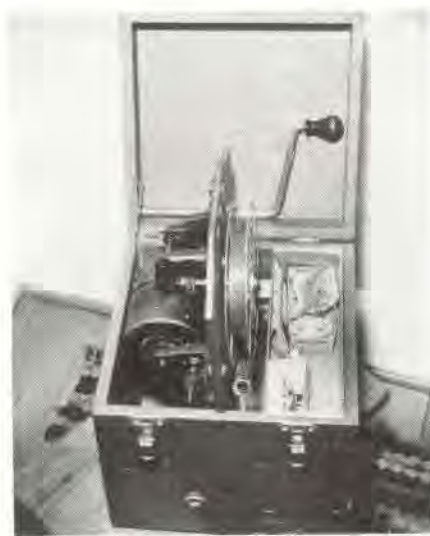


Figure 2



Figure 3

One of the most popular lures used by the oldtimers is the "ole meathook" the Pflueger Record #4. This can be used on the juke box rig but in this case the leader is eliminated and the copper is attached directly to the lure swivel. A different action is also used with this lure—an up and down motion with the arm, picking the lure up and off the bottom with each move.

Although you seldom get kinks in the line with this rig, care should always be taken in fishing with copper to avoid them. If a severe kink is on the line and can't be smoothed out with the fingers, the best bet is to cut the line and splice together or throw away the short portion of the line beyond the bad kink. And it is far better to take care of such items *before* you get a big fish on.

Another little hint is to check the leader every once in awhile, especially where it is attached to the lure and about two to three feet up the material. In the event you've dragged bottom quite a spell, this material may become frayed. If the leader becomes frayed, cut it off and shorten up or attach a new leader. With a little foresight you'll lose fewer lures and spend more time fishing. Use a reef knot to attach leader to lure in all cases. This knot pulls against itself and again will save loss of lures.

There is really little care to be taken in the upkeep of your new fishing rig. The mainspring housing should never be taken apart unless you experience some trouble with the spring. This casing, or housing, is packed with graphite grease and under normal conditions never requires lubrication. A few drops of oil on pivot parts and a light coating of vaseline or thin grease on gear parts is about all the care or lubrication problem you'll have. Since the box is made of marine plywood and properly painted, there should be little trouble on that score, no matter how many times you're caught in a rain squall. All in all, you'll find the juke box a fool-proof rig (well, almost), depending on who uses it!

Another handy item can be added to the box—a small tackle tray. This secondary tackle box will enable you to carry your more successful lures and other equipment right in the juke box. Many times I have left my tackle box behind and just put the juke box and landing net into the boat when I was in a hurry to be out fishing. Carrying your fishing gear all in one box is really a pretty handy thing.

There you have it—a form of fishing that may be new to you, but one that will give you a great deal of pleasure once you've learned the finer points of fishing this rig. So get busy. Soon you'll be enjoying the sweetest music a juke box ever played.

The Blue Jay

—Buccaneer of the Bird World

by Rosemary Clarke

OF ALL the songbirds in the State—and we have songbirds galore—the one that has the shadiest reputation seems to be the blue jay. While some people consider him as just an engaging rascal, he's regarded in other quarters as a scoundrel and a thief, a sort of feathered version of Morgan, the Pirate, that takes fiendish delight in robbing other birds' nests, eating their eggs and even their young ones. In short, he's sometimes accused of being the buccaneer of the bird world and a raucous loudmouth, to boot!

Is the blue jay really as bad as all that? Well, let's not convict him without a fair trial. First of all, let's consider the lesser charge—that the blue jay is a loudmouth. Most of the time, he is. Blue jays, after all, are second cousins to the crow and this noisy streak seems to run in the family.

But they're not always raucous. When the blue jay is in or near his nesting area, he goes around on tiptoes, because he doesn't want to give away the location of the nest and its precious contents. Just let anyone or anything intrude the forest after the blue jay has arrived and you'll hear a screaming rage that would make a fishwife green with envy. You see, he's the self-appointed watcher of the woods—a burglar alarm, with wings—and the bane of just about every hunter. When other birds, and even the animals, hear the blue jay screeching, they know they'd better be on the lookout for danger. Believe it or not, when he's off by himself and nobody's bothering him, the blue jay will sing a song so sweet you'd think he was a mockingbird!

Now, what about the more serious charges, that the blue jay is a bully that goes around stealing eggs from other birds' nests, that he likes nothing better as a *pièce de résistance* than a plump baby robin. Of course, where there's smoke, there's nearly always fire, but in the case of the blue jay, it would seem to be a mighty small fire. On the basis of one scientific study, less than one per cent of the blue jay population goes in for that sort of diet. Seems that out of 292 blue jays examined, only three had eaten birds' eggs and only two out of these 292 had eaten baby birds. Most of

the blue jay's menu is made up of harmful insects, like beetles, grasshoppers and caterpillars. The blue jay sometimes eats spiders, snails, tree frogs, mice and fish, too, as well as apples, acorns, hazelnuts and many kinds of wild fruit, which he often stores for future use. In fact, name it, and chances are, the blue jay will eat it, because, like his relative, the crow, he's omnivorous. All in all, ornithologists agree that the blue jay, in spite of his reputation, does far more good than harm and his nest-robbing is probably negligible.

He does seem to like a good scrap. Blue jays will get together to attack an owl or a hawk every chance they get and they'll keep up the brawl for an hour or more, screeching all the while. And we're sure that whatever it is they're saying, shouldn't be repeated.

As nest-builders, blue jays are just about tops. The outside of the nest is made mostly of small twigs, with some bark, moss, paper, string, leaves, dry grass or old rags woven in for good measure. The inside is lined with very fine rootlets. Not any old twig will do for the blue jay's nest. Each one has to be tested for strength, and the weak ones are discarded. Dead twigs lying around on the ground are usually ignored. The bird prefers to get his own, right from the tree, seizing them with his bill and snapping them off.

It's believed that the jays raise only one brood a year, with four or five eggs the average. Up to seven eggs have been seen in one nest, but that's very unusual. The young are hatched in about 17 days, and are really a sorry-looking bunch, limp little creatures, without a feather to their name. But after about two weeks, they begin to resemble their handsome Mom and Dad. Their voices develop early. If a fledgling is caught, he'll give out a terrified screech that sounds as if he were being murdered, and the parents come flying to the rescue.

Yes sir, he's raucous right from the start and as an adult bird, he'll also be brash, loud, colorful, crafty, alert, hot-headed, always ready for a fight and forever the opportunist. Call him a buccaneer, if you insist. The blue jay is still one of our most interesting birds.



Crab Apples for Wildlife*

by Ralph H. Smith, Senior Wildlife Biologist, N.Y.S. Conservation Dept.

Certain Varieties Provide a Winter-Long Cafeteria for Wild Birds and Animals

THE first heavy snowfalls of winter may bring joy to the skiing enthusiasts but, to wildlife in general, they initiate a period of great stress. For those species that must travel on the ground, the available cover may be reduced suddenly by 90 per cent and any food that lies upon the ground must be dug for. The departure of most of our birds for warmer climates is a tribute to the icy hand of winter. The "silence deep and white" in upstate New York usually lasts from December to April, so wildlife that is with us during these winter months has a hard time indeed.

Bird watchers attempt to alleviate the wildlife food shortage by setting up feeding stations, which also serve to bring the birds close enough to the house so they may be watched in greater comfort. Sportsmen may set up chains of feeding

stations for the species they are interested in but unless widely distributed through the range, close to suitable cover and maintained through the severest weather, the purpose and value is defeated. A somewhat more elaborate and safer program involves planting food patches of corn, sorghum, etc., which can be left standing overwinter adjacent to shelter and escape cover.

The ideal food patch would be one that is perennial in nature, so that wildlife could become accustomed to it, and so that it would have to be planted just once. Among the grain crops, a perennial wheat already is being evolved by plant breeders and a perennial corn may not be beyond the realm of possibility.

Meanwhile, certain of the crab apples come fairly close to providing an ideal perennial, winter food for wildlife. (A crab apple is generally considered to be one with fruits less than two inches in diameter.) First of all, crab apple trees,

when given reasonable care and protection are long-lived. Moreover, the fruits of certain individual crab trees have been found to persist on the branches until early spring, so that they are readily available during the period of snow cover. They produce abundant crops of fruits each year with a minimum of pruning, unlike the commercial apples which must be pruned, fertilized heavily. Finally, of these individual selections, many have already demonstrated their value by being eagerly sought after by many species of wildlife including, pheasants, grouse, bobwhites, squirrels, cottontails and deer and a host of overwintering small birds. Even when the fruits have been frozen so that the pulp is rotten, the seeds are eagerly sought.

Perhaps the first crab apple to gain recognition for its attractiveness to wildlife was the clone named "Bobwhite." (A clone is an individual plant which

*This article is based on studies conducted by the Conservation Department under the P.R. Federal Aid in Fish and Wildlife Restoration Program.

must be propagated vegetatively, so that all the "Bobwhite" crab apples are actually pieces of the original tree.) This was a chance hybrid seedling of Asiatic crab apples that originated before 1876, near Boston, Massachusetts. It was so named because Bobwhite quail were attracted by its fruits. The original tree still grows and fruits profusely in the Arnold Arboretum at Jamaica Plain, Massachusetts.

The writer's attention was first called

to the "Bobwhite" crab in January, 1955 in a Rochester park, where it was noted that pheasants were feeding on the small, yellow fruits. Closer inspection showed that there was a maze beneath the tree of tracks of pheasants, squirrels and cottontails, as well as bluejays and other smaller birds. The story was the same each succeeding winter and elsewhere wherever "Bobwhite" has been observed.

Even before this, the possibilities became apparent, when two seedling crab

apples were observed in January, 1950, in a pasture north of the Mohawk River near Niskayuna. These were crabs of the type once grown in home orchards for the production of crab apple jelly. Each winter, the snow beneath these trees was crisscrossed by the tracks of pheasants, grouse, squirrels, cottontails and even deer. The birds and the squirrels were seen feeding either in the trees or on the snow, while the cottontails and deer had to depend on the slow but steady fall of the crab apples. Only once was there a crop failure, when late May frosts halted pollination, in an eleven-year period of observation. The June, 1960 tornado toppled these two trees, but not before a fair supply of scion wood had been taken for budding and grafting.

Search for other persistent fruited crab apples was started in earnest in the fall of 1956, when it was discovered that there were many clones or individuals among the crab apples that held their fruits all winter. Some were later found to fruit well only every other year; others, although their fruits persisted well into late winter, never were used by wildlife. The large, fruited apples of commerce had to be passed over because they were produced well and consistently only after an annual pruning and heavy fertilization.

Collection of scion wood from the most promising clones was started in 1957. At first these scions were grafted by topworking them onto the numerous wild apple trees in the abandoned pastures on the Partridge Run Game Management Area, Albany County, to get them out of reach of the mice, rabbits and deer. Subsequently, a small group of stock plants was started at the Conservation Department's Painted Post Nursery to supply additional scion wood. More than 80 different clones or individuals were so grafted to study compatibility of scions with the understocks, rapidity of growth and fruiting, and use of the fruits by wildlife. So far, perhaps 17 clones seem to be outstanding for consistent fruit production, persistence, and (the ultimate test) use for food by wildlife.

The crab apples originally attracted attention for economic and esthetic values. They flower profusely at an early age, with blossoms that are white, pink or even deep red. Many are delightfully fragrant. Most of them originated in Asia, a few in Europe and North America. The fruits of most are under an inch in diameter, and range in color from dull brown to deep red. A few retain this color all winter long.

From the wildlife standpoint, although the entire fruits may be eaten, apparently it is the seeds that are most eagerly sought. This was brought out when a



captive gray squirrel that never had encountered such fruits, was offered fresh fruits of several selections. In each case the squirrel rapidly bit away and discarded the pulp until he reached the seeds, which were the only parts eaten. When the pulp has decayed, then the picking out of the seeds by the birds is very obvious.

Unfortunately, few of the crab apple clones that are being tested and which show the most promise of value for wildlife are available commercially. Many are of hybrid origin, so that they cannot be expected to come true from seed. The persistence of fruit and its attractiveness to wildlife is a characteristic of the individual plant and can be perpetuated only by vegetative propagation, usually by grafting. The following crab apple clones, some with brilliantly colored flowers, like "Almey," "Hopa," "Dorothea," "Katherine," "Liset" and "Profusion" are available commercially, so that plantings can serve a dual purpose. With the exception of "Bobwhite" these can only be rated as fair for persistence and use by wildlife:

"Almey"	"Katherine" (a)
<i>arnoldiana</i> (a)	"Liset"
<i>baccata</i> <i>jaeki</i>	"Profusion"
"Bobwhite"	
(outstanding)	<i>sargenti</i> (a)
"Dorothea"	<i>sieboldi</i>
"Hopa"	"Winter Gold"
<i>hupehensis</i> (a)	<i>zumi calocarpa</i> (a)
(a) signifies alternate year bearing	

The following clones, outstanding for fruit persistence and use by wildlife, are not yet commercially available. With one exception, each existed as a single tree, so that getting new plants for further testing has been a slow process. The number and name indicate the designation where each was found:

<i>baccata</i> #33985	— Rochester parks
"Ellwangeriana"	— Rochester parks
<i>floribunda</i> #3433	— Rochester parks
"Niska Nugget"	— found in Saratoga County
"Niska Gold"	— found in Saratoga County
<i>prunifolia</i> <i>rinki</i>	
#516	— Rochester parks
<i>robusta</i> #22338-c	— Arnold Arboretum
<i>robusta</i> #22665	— Arnold Arboretum

Still others have been grafted out and are being observed, but are not yet sufficiently tested. A few have been observed with fruits that not only persisted until early spring but even maintained good color, but these apparently are left untouched by wildlife. They should have considerable ornamental value, for this reason.



The crab apples, like the other apples, have their troubles. They are subject to various fungus diseases, like scab and rust, bacterial disease (fire blight), virus diseases and insect pests like tent caterpillars, leaf rollers and aphids. They respond to fertilization, but our plants grafted onto wild apples have fruited well without any fertilizer being added. Grafts of crab apples start flowering and fruiting the next year after grafting, whereas the commercial apples may take four to five seasons to flower, but the latter grow more vigorously and take

command of the tree sooner.

All apples must be protected from mice, rabbits, woodchucks and deer. Top-working the crab apples high on old, volunteer apple trees has put the scions out of reach of these except when winter snows are three or four feet deep. The stems of budded trees must be protected with hardware cloth, preferably 4x4 mesh. The gnawers and browsers will often attack freshly-planted stems the night after they are set out, apparently because they can recognize a strange plant or one from fertile soil.

BAR ROOM BIOLOGY	POOR MAN'S COUNTRY CLUB	LIP SERVICE	PLATEAU DO-NOTHING	COMMUNITY SERVICE	HANDS DIRTY, FEET WET
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Yardstick for Sportsmen

“LET’S see, sonny.” The gribbled sporting goods dealer peered over his glasses at me. “How old be you—sixteen? Yup, you must be sixteen to join the rod and gun club. Therefore, you *must* be sixteen!” He chuckled, grabbed my crumpled dollar, signed the green membership card and shook my hand. I gulped my gratitude, clutched my treasure and fled into the night, member of a rod and gun club—at the age of ten!

Many membership cards and clubs later—I am still amazed at the endless variety in the character of sportsmen’s clubs. One has merely by-laws and a barn, another a plush clubhouse and full-time bartenders. One I discovered lately even owns an operating coal mine!

But for all their variety and color, most sportsmen’s clubs have two things in common: (1) Five per cent of the members do 95 per cent of the work. (2) They could do a productive conservation job, but more often they don’t.

In fact, excepting youth organizations, sportsmen’s clubs probably make the largest amateur contribution to fish and wildlife conservation. Although their range of activity is wide, much of it is haphazard. For sportsmen lack, from a central organization, the type of leadership that Boy Scouts and the 4-H take for granted.

Do these efforts vacillate? Look at the inspiring jobs some of them do—work completed in a year’s flurry of activity, only to be followed, in many cases, by a decade of idleness. Some clubs have learned the sustaining value of an unfinished project in keeping alive member interest. Such outfits have an unfinished job at all times. Using this technique, one club has had some conservation project or other on the fire for over fifty years. Their contribution to conservation in the locality has been incalculable.

But many sportsmen’s clubs fluctuate in numbers and leadership. Where lead-

ership is good, membership is high. In one case, a club lost most of its members overnight because the “spark plug” was ousted by a rival faction. In another instance, a vote was taken to increase annual dues from \$1 to \$3 to finance a large job of basic conservation. Membership plummeted from 3,000 to 1,000.

Never suppose that these members suddenly lost their interest in conservation; no, they simply never had it. Many joined the club, not because they were solicitous for wildlife, but because they were solicited for membership. It is unrealistic to expect such donors to follow the b-u-c-k with w-o-r-k.

Not until sportsmen (like 4-H and Boy Scouts) have organization that will furnish leadership, materials to work from and with and technical advice to aid projects in their own area, will they

make any consistent contribution to conservation on a large scale. In the meantime, outstanding clubs will go on working until leadership undergoes an unfortunate change.

Even then, many will keep plugging. Because—and this is significant—most sportsmen’s clubs are doing something. For good or for bad, energy is being used. Some projects entail an enormous amount of work which could be channeled into more constructive directions. Projects, for instance, in raising ruffed grouse; in raising pheasants by the thousands to be liberated in habitat that wouldn’t carry a crow; in predator control programs; in heckling Conservation Departments to plant more trout in streams unsuitable or already overstocked waters.



Sportsmen-constructed stream improvement

How to Measure Your Club, Your Country, Your State and Yourself in this Conservation Criterion

by John D. Bulger,
Northeastern Field Representative,
National Wildlife Federation

Leadership Needed

But right or wrong, clubs are doing something. Conservation personnel in some states are partially responsible that more of the work is wrong than right, through failure to point out what's right. In one county, sportsmen's activity involved 100 per cent of the clubs, because by happy coincidence, a sportsman leader was also a professional conservationist. In Wanamingo, Minnesota, working with an S.C.S. technician, sportsmen developed odd corners for wildlife in a program that may be unequalled anywhere in the country. Cholame County (Cal.) sportsmen, with sound technical help renovated a whole township and restored California Valley quail to the San Joaquin Valley. There were blisters involved!

Some wildlife professionals take the sportsman seriously only at the polls. And they have reasons. Many a game or fish manager has organized a sportsmen's project only to find himself the only one to show up when the work was scheduled. Even the most loyal club leaders will admit that 10 per cent of their club would be a very high turnout at a work "bee;" that the majority have more won't power than will power. This is perfectly understandable. Many people who happily contribute to a rod and gun club have no intention of getting involved in a work project.

What has your club done for conservation? What could it do? Here are six basic areas in which to measure achievement and a few concrete examples of activity you can use for comparison.

Leadership

Recent experiments have turned up surprising support for conservation clubs, available all along from outstanding civic leaders, but no one thought to ask them before. Leaders in finance and industry frequently have a big stake in local resource conservation and are willing to help, especially with financial



This club built brush fish shelters

aid. One important way of insuring continuity of leadership is to invite youth to meetings. The average rod and gun club attendee is over forty years old. *How is your leadership?*

Inventory

A high school girl named Katy was walking home with a classmate. They paused on a bridge and looked down into one of the best trout streams in the area. Just then, a mechanic at a stream-bank garage dumped a barrel of used crankcase oil into the water. Katy suddenly realized the streambanks were lined with beer cans, old tires and junk accumulated over the years (a 1915 license plate was found in the cleanup). Indignant, she got girls to help and they raked the refuse into such embarrassing piles that the red-faced village fathers sent municipal trucks to haul it away.

How is the view from the bridge in your town? Does your club recognize the community's conservation problem?

Communications

Once you assemble information on community conservation problems, you'll want people to know about them. A newsletter to members, to the press, radio, and television is helpful. *How are your club's communication lines, especially to the county and state levels?*

Action Programs

If you want to cause consternation at your next meeting, ask how many of those assembled have, in the past year, gotten their hands dirty and their feet wet to help their sport. Regardless of the answer you get, there is a great deal of this work that can be done, that is being done. How many of these areas of basic conservation activity can you measure in your club's record of achievement:

Habitat Improvement

A club's planting program is often the backbone of its conservation work. This program can be rich and varied, like that of the Woodbury-Southbury Rod and Gun Club in Connecticut. Under the dynamic leadership of George Bennett (he's known as "Mister Conservation") the club has transformed the whole countryside into wildlife habitat.

The Groton (N.Y.) Rod and Gun Club set a record for action when they built a 22-acre marsh and a half-acre pond, grafted fifty trees for wildlife food and planted miles of shrubs as well as several thousand trees, all in one year.

In sportsmen's action programs on the land and in the water, the potentiality is as great as the accomplishment is small. *Has your club, through member efforts, been directly responsible for an increase or improvement in the production or*



How is the view downstream in your village?

availability of soil, water, forests, fish, or wildlife?

Community Co-operation

The Sandy Creek (N.Y.) Rod and Gun Club maintains a community park to which the public is invited. The Groton group has a clubhouse, built with member labor, which is the scene of more than a hundred community functions yearly ranging from bridal showers to Girl Scout gatherings.

The Angelica (N.Y.) Conservation Club came to the rescue when the local school lacked a place to feed its children, pending the construction of a new school cafeteria. School buses ran a shuttle, children ate lunches from the ample club kitchen. The clubhouse is used for many community activities. As the club president remarked, "Yes, we even get to meet there ourselves once in awhile—if the 4-H or somebody hasn't spoken first!" *How has your club helped your community?*

Landowner-Sportsman Relations

If the sportsman doesn't seek some

Sportsmen made this good pond better with woodduck nest boxes



way, directly or indirectly, to reimburse the landowner for hunting and fishing privileges, he may one day find himself without a place to exercise what a selfish few have apparently come to consider a divine right. The Hancock (Wisconsin) Conservation Club for many years planted windbreaks for farmers. Other clubs have posted areas adjacent to farm buildings, built stiles for fence crossings, and sponsored annual dinners where area farmers were guests of sportsmen. *How much has your club done to improve landowner-sportsman relations?*

Pollution Abatement

This is one of the most pressing and serious problems on the conservation front today. If a club did nothing but help clean up its own area pollution, it would more than justify its existence. *What has your club done to combat this creeping menace?*

Conservation Department Co-operation

In New Hampshire, recently, sportsmen turned out one thousand strong to

crush a measure which might have deprived the Division of Fish and Game of its entity. In Michigan, a bill was introduced to remove the discretionary power to set the deer season from the Department of Conservation and hand it to political personnel. Over five hundred sportsmen from all over the state jammed the State House hearing on the bill which met stunning defeat at the polls.

At the other end of the yardstick is a self-styled deer expert. When asked what he thought of the Department's new doe policy, he snarled, "I ain't made up my mind yet. But when I do, I'm gonna be danged bitter about it!" Many clubs furnish invaluable help to the Conservation Department. *How does your club co-operate with the Department? Baiting or aiding?*

State Council Co-operation

Most rod and gun clubmen spend more money on the way home from one meeting than they give in a year to their state organization. Until they break the dollar-a-head barrier—and few do—they won't have a fully functioning state organization. Anyone who thinks a sound state conservation council can be built with part-time help is dreaming. You need full-time personnel on the job and an adequate office. These things cost money and sportsmen should be willing to provide it. *What financial support does your club contribute to the state organization? And how willingly?*

The sportsman (including the writer!) is an incredible critter. He'll spend his money and priceless vacation time to attend meetings. His tolerance to hazy hotel rooms would make a smoke jumper envious. He'll sit through programs that are long and sometimes tedious, and keep coming back for more, because, fortunately, he is genuinely interested in conservation. One of these days, he may do something about it in a big way. Something with an enthusiasm that doesn't crawl behind the stove with the old bird dog when hunting season is over.

Maybe the sportsman shouldn't be expected to do anything about conservation. After all, he joined a club to enjoy the camaraderie, the skeet, the dog runs, not to work. He pays for these pleasures and he's entitled to them.

But if he wants to make a real contribution to conservation, the time has come when a program of raising birds, shooting skeet and stocking trout can and must be augmented with a more basic conservation effort that will make a brighter tomorrow—for fish, for the wildlife and for himself.

Some Architects of the Insect World

by John A. Wilcox,
Associate Curator of Entomology,
New York State Museum*

INSECTS rank high among the builders in the animal kingdom. Some of them are extremely proficient in constructing shelters for themselves. This is not to say that they are intelligent, but rather, that there is within them the capacity to respond in a very definite, complex way to certain stimuli occurring both within the insect itself and in its environment. The method of inheritance of these responses, sometimes called instincts, is still one of the great mysteries of biology.

Eggs of most insects are deposited on the surface, in cracks or crevices or inserted in the plant or animal which will become host to the hatching young. Immature and adult insects usually live with no specially constructed protection. It is the few which do construct, directly or indirectly, some shelter that will now occupy our attention.

The Paper House Builders

The best known and perhaps most ambitious of the insect architects are the wasps and hornets. They construct paper nests in which to rear their young. These are made with bits of soft wood or bark from twigs, chewed, mixed with a salivary fluid and molded to form the thin, paper-like layers of the nest. *Polistes*, the slender, brown paper wasp, builds a nest consisting only of cells with a thin stalk for support. Its nest hangs from ceilings or eaves of buildings and is shaped like an inverted mushroom. A single egg is laid in each cell. The young larva hatches, adheres to the side of the cell and is fed by the mother wasp. When the larva is fully grown it covers the cell with a cap of silk within which it takes shelter while awaiting transformation to a pupa. After a week or two the final stage is reached and the newly-developed adult cuts its way out.

Hornets, including yellow jackets, are quite close to paper wasps in actions. Their nest is basically the same as that of the paper wasp, but they also construct thin paper walls around the cells

and thus form a closed oval structure which may be much more than a foot long. Some kinds of hornets build their nests in trees or bushes, some in the ground and some in enclosed spaces such as hollow trees or within the walls of a building. Not all hornets are industrious. A few species move into the nests of other species and seem to live in harmony with their hosts, rearing their young without offering any assistance in building or enlarging the structure. Interestingly enough, the guest species is nearly identical with its host in size and color pattern although the two may not be closely related.

These paper nests are strictly nurseries and usually the result of the efforts of a single female and her progeny. The hornets leave in autumn to find some other protected niche for the winter hibernation. In spring each female begins the task of building a new nest for her young ones.

The Mud House Builders

Not all of the hornet family are paper makers. Some types work with mud. The potter wasp, for example, makes a delicate little jug, more or less spherical, with a narrow neck and flaring mouth. Although the hornet larvae are given chewed food (usually insects) by the adults of their colony, the young potter wasp is not so pampered. Its mother does provide for it by provisioning the nest with caterpillars before depositing the egg. These caterpillars are stung so that they remain alive but in a dormant state.

The dark metallic blue *Sceliphron* and black and orange *Trypoxylon* are also mud daubers. The former builds its mud cells side by side or piled several cells deep. The finished nest is rather irregular in appearance. The latter, sometimes called the organ-pipe mud dauber, constructs a nest consisting of several rows of cells, the cells in each row placed end to end. Mud is carried from a nearby puddle in the form of a pellet about the size of the wasp's head. Mud daubers provision their cells with paralyzed insects or, more often, with spiders before they deposit the egg and seal the cell.

The Wax House Builders

Although a large number of different insects secrete waxy substances, only the bumble bees and honey bees mold it for their special use. Beeswax, a product of the bee's abdominal glands, is shaped into cells similar to those of wasps. These cells are storage pots for honey and bee bread, a semi-solid mass of pollen and nectar. They are also used to hold the developing larvae.

Bumble bees, like hornets, leave their nest in autumn. A fertilized queen overwinters in some protecting nook. In spring she constructs a new nest, usually in a deserted mouse nest or bird nest and rears her first brood. These are all sterile, female, workers which take over the job of maintaining the nest, collecting food and caring for the young larvae. The queen retires to a life in which her only duty is egg production. Later in summer more queens and males are produced.

The honeybee queen is more helpless. She cannot start a colony alone but must have a retinue of workers to produce wax and construct cells. These sterile workers also construct special, larger cells in which to rear males from unfertilized eggs and still other large cells for future queens. Both worker and queen bees develop from fertilized eggs. The difference in form and function of these adult females is due to the food given to them while in the larval stage.

The Wood House Builders

Large carpenter bees look very much like dark, shiny bumble bees, but their nest-building activities are quite different. They excavate galleries in solid wood. The tunnels, which are a half-inch in diameter and may be three feet long, usually are not branched. The bees do not eat wood but do the excavating only to provide protection for the developing larvae. When the excavation is complete the queen bee places a ball of pollen and nectar in the end, deposits an egg on it and seals it in with a cross wall about an inch from the end. The cross wall is made of wood fibers or
(Continued on page 26)

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SOME INSECT ARCHITECTS

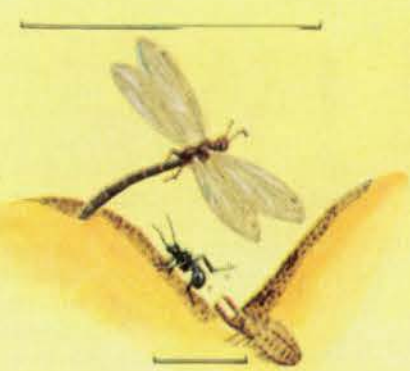
(Length of insect indicated by horizontal black lines)



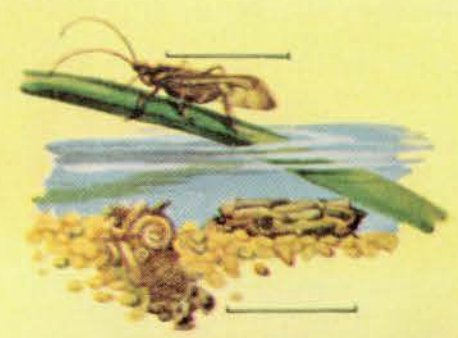
WAX MAKERS
Honey Bees



Mud Dauber Wasp
Potter Wasp
HOUSES OF CLAY



TRAP IN SOIL
Ant Lion



UNDERWATER DECORATED HOUSE OF SILK
Caddis Fly

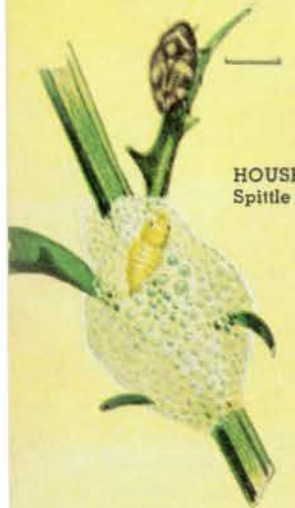
EGG MASS (Spumulin Covered)



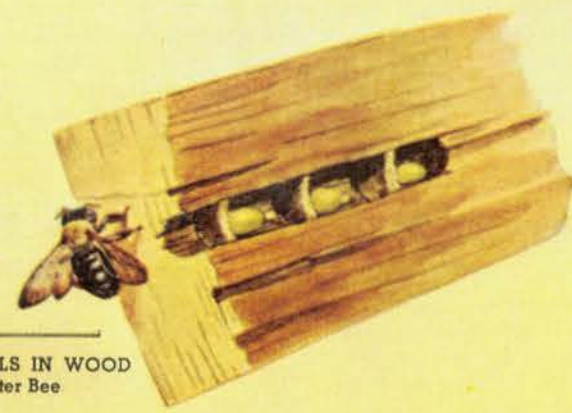
SPUMULIN MAKERS
Tent Caterpillar



HOUSE OF PAPER
Bald-faced Hornet



HOUSES OF BUBBLES
Spittle Bug



TUNNELS IN WOOD
Carpenter Bee



GALL OR LIVING HOUSE
Spruce-Cone Gall (Aphid)



GALL OR LIVING HOUSE
Goldenrod Gall Fly



HOUSE OF LEAVES
Leaf Cutter Bee



HOUSE OF SILK
Cecropia Moth



DECORATED HOUSE OF SILK
Bagworm



GALL OR LIVING HOUSE
Oak Spangle Gall (Midge)



HOUSE OF LEAVES
Leaf Roller Moth

Wool Sower (Wasp)



GALLS OR LIVING HOUSES
Oak-Apple Gall (Wasp)

Wagon Train

(Continued from page 23)

mud. She then repeats the process until the tunnel is filled with cells.

One other group of bees holds our attention in this tale of insect architecture. These are the leaf-cutter bees. Leaves from which extremely neat, circular pieces have been cut often attract attention. The bees responsible for this feat are rarely recognized. They are medium-sized, fairly stout and usually black or dark colored. They form their nest cells in some natural cavity in wood, under loose bark or in the ground. They line the cells with the circular pieces of leaves, thus producing a nest which looks like a small, poorly rolled cigar. The enclosed larvae feed on pollen and nectar placed there by the mother bee.

The Bubble House Builders

A spittlebug can produce one of the strangest nests of all. These small members of the order Homoptera, which includes cicadas and leafhoppers, are called froghoppers. Adults are strictly dry land creatures but the nymphs spend most of their time surrounded by a mass of moist bubbles. They can travel over dry parts of their host plant and do so until they find a suitable spot. A drop of fluid is then voided from the anus and rapid motion of the abdominal appendages whip the fluid into a froth which completely covers the insect. The fluid is mostly sap sucked from the host plant, but also includes a mucilaginous substance which is excreted from glands near the end of the abdomen. The resulting "spittle" is very persistent, remaining moist in the dry atmosphere and holding its form even when washed with light rain. In addition to providing the necessary moist environment, it probably protects the young hopper from enemies, although predatory wasps have been observed removing nymphs from their nests.

The Silk House Builders

Silk is a fabulous substance used by many different kinds of insects, spiders and mites. It is produced as a liquid, in a gland usually situated below the mouth of the insect. It is ejected and almost immediately hardens to form the tough, durable strand of silk. An insect is able to build a very practical structure by proper placement of these strands. The most frequent use of silk is found in spinning cocoons for the protection of the helpless pupal stage. These enclosures may vary from a very open network, which barely holds the pupa, to intricate double walled cocoons.

Cecropia moths construct the largest cocoons found in eastern North Amer-

ica, but their size is deceptive. The caterpillar begins the task by spinning a thin outer wall, then a sparsely filled middle portion and, finally, a very tightly spun, hard, inner wall. The air spaces between the inner and outer walls provide an excellent insulation against sudden changes in temperature which are so dangerous to an insect.

Eastern tent caterpillars exemplify the larvae which live on a silk carpet. These caterpillars usually select a crotch in the branches of a tree as a base for their activities. They construct a tent of silk in the crotch and remain in it at night and during cloudy and rainy weather. When the weather is favorable they travel to the foliage, spinning a thin path of silk along the way. The tent is enlarged as they grow until it becomes quite large, sometimes two or three feet across.

Ugly nest caterpillars and the hymenopterous webworms draw the leaves or needles of their host plants together in a mass of silk, leaves and debris from their feeding. Since they have incorporated their food in the nest they can remain within the nest. In fact many of them pupate within the nest and need not leave it until they are winged adults.

The caterpillars mentioned above work together, but many of their relatives are not so co-operative. Several families of small moths are called leaf-rollers because their larvae form individual shelters by pulling opposite edges of a leaf together and "sewing" them in place with a few strands of silk. They then feed on the inner surface of the sheltering leaf. Since they are small, they may spend their entire larval life in one leaf. A few, like the trumpet maple skeletonizer, build a silk tube within the leaf as an added protection.

These stationary shelters are a little too confining for some caterpillars. They construct a tighter, more compact tube or case around their body, leaving only the head and legs free. With such a case they need no specific nest but can wander about, hauling their shelter with them. When time for pupation comes, the casebearers have their cocoons already made. They merely anchor the case firmly and cap it with a few more strands of silk.

The bagworm has carried this way of life to an extreme. Its case is built of silk with bits of leaf or sand woven in for effective camouflage. After pupation, the adult male emerges from his cocoon and flies in search of a mate. Females do not leave their cocoons. Mating takes place while the female remains in her cocoon and the eggs are deposited within the bag.

Caddisflies, distant, aquatic relatives

of moths, also construct silk cases. Their use of other materials is fascinating. Items from the floor of their watery home are added to the case until it blends with the background. Each species uses its own blue print in case construction. One caddisfly may select small sticks or long pieces of plant material and place them lengthwise along the outer walls. Another may use similar objects but place them perpendicular to the long axis of the case and so build a rough "log cabin." Species living in smoother areas may use only sand or small pebbles. Small snail shells are used in areas where snails are common. Most species make long cylindrical cases but one group builds spiral cases shaped like coiled snail shells.

The Living Plant House Builders

Many insects provide shelter for themselves or their young by producing a plant gall. Certain beetles, moths, wasps, flies and aphids produce galls. A gall is typically an abnormally swollen, hollow portion of a living plant. It is plant tissue stimulated to unusual growth by some secretion of the insect. Gall shape may vary from a slight swelling to a very ornate organ which does not appear to belong to the plant at all. A single gall may contain a single insect larva or dozens of individuals, both adult and immature. Also, a gall may contain not only the insect responsible for its development but also several other species of insects which may feed on the plant or on other insects dwelling in the gall.

One of the most easily found galls is the ball gall of goldenrod. This nearly spherical gall is produced by a fly which is a little larger than a housefly, dark brown with wings mottled with brown. It spends the winter in the larval stage in the gall and can be found as a round, headless, legless maggot throughout the colder months. When warm weather returns the larva changes to a pupa and in a few days emerges from the gall as a winged fly. Eggs are then laid in the stems of young goldenrod and the cycle starts again. A similar but more elongate goldenrod gall is produced by the caterpillar of a small moth.

Not all galls are produced by insects living within the plant tissues. Development of some, like the spruce cone gall is initiated by insect feeding on the surface. The instigator of the cone gall is an aphid which feeds by inserting its mouth parts into outer layers of the young spruce needles. The feeding retards development of the twig, but stimulates growth of the needle base. The result is a rather compact cone-like gall

produced by the overdeveloped needles. There is a pocket at the base of each needle in which about a dozen young aphids may be found. The aphids depart in summer as the gall dies.

Damage done by gall insects is usually not serious and many plants can carry a heavy infestation of such insects without apparent injury. However, in some cases, such as on spruce, death of affected parts may make control measures worth while.

For some unknown reason, oak trees are hosts for far more species of gall insects than any other genus of plants. Three diverse types are illustrated. The oak apple is a large spherical gall attached to the leaf. The outer surface is smooth but the space within may be filled with a thick cottony mass or with only a few fine threads. The tiny wasp grub lives in the small, hard central kernel. Some of the small cynipid wasps produce very different galls. The wool sower produces a composite gall made up of a number of hard cells, one for each larva, and an irregular fibrous mass over them all.

Cecidomyid gall midges make up the largest family of gall producing insects.

There are hundreds of species of these minute, fragile, long-legged, dull-colored, two-winged flies. Identification of the adults is very difficult. Identification of larvae is nearly hopeless. But very similar species may produce dissimilar galls.

The Trap Builders

Nearly all of the structures discussed so far provide some form of protection to the insect. The ant lion is one of the few insects which constructs a trap to capture its prey. The flattened, spiny ant lion larva, sometimes called a doodlebug, is found in loose, dry, sandy soil. It digs down into the sand, then flips its head upwards. This action tosses the sand up and eventually forms a funnel-shaped pit which leads down to the insect. Other insects walk into the pit, slide down the sides and find themselves in the jaws of the ant lion.

Caddisflies, mentioned before as case bearers, use their silk in constructing nets. One type forms underwater webs set where the water flows swiftly. These webs are crude models similar in form to those of spiders. They lack the sticky strands found in most spider webs but the force of the flowing water is enough to hold the victims until the caddisfly larva can capture them. Another species of caddisfly constructs a funnel-shaped net on stones in swift-flowing streams. This silk net is placed with its wide mouth facing upstream. The larva waits in the small end for its prey to be washed into its jaws.

Rainbow Trout Derby



"Boy! I wish I could catch one like this."

Once in a while a picture comes to light that really deserves the oft-repeated rating — "better than a thousand words." Here is one of just a few of the nearly 4,000 fishermen on hand April 1, 1961 at Naples to inaugurate the first annual Naples Creek rainbow trout derby.

There's admiring inspection going on in the background of several good fish checked in at the weighing station, but the center of attraction—and first prize winner—is the 10-pound, 11-ounce rainbow and the only slightly larger boy,

Stevan Wilson, of Rochester, front center.

It's a magnificent fish, to be sure, but there's lots of these big rainbows in the spring waters of our Finger Lakes tributaries. What's rare is Stevan's wistful intensity, so clearly saying, "Boy, I wish I could catch one like this."

He will be back again this spring, we're sure, for the second annual opening-day affair and we hope he will catch one as large as this one has grown in his dreams.

Hunting Accidents and Hunter Training in New York—Season of 1961

by Bryan E. Burgin,
Supervisor of Hunter Training,
N.Y.S. Conservation Dept.

DURING the season of 1961 in New York State there was a total of 140 hunting accidents—three fewer than during 1960.

These figures are heartening, particularly in view of the fact that there were some 50,000 more hunters in the field last fall than during the preceding hunting season. Unfortunately, this gain is somewhat offset by the fact that the '61 tally shows two more fatalities than during the previous year. However, as will be noted from the summary table of hunting accidents, the ratio of accidents to licenses issued dropped from 1:6,463 to 1:6,948; the best record in the last three years.

The accompanying tables provide an analysis as to the causes of these accidents and the manner in which they occurred, determined by an investigation of the circumstances involved in each. It is impossible, however, by any recitations of statistics to present the whole truth. For instance, the record shows that 21 of the 140 accidents during 1961 were a consequence of carelessness. Actually, a good many more of these categories could be classified in the same manner. How, for instance, are we to interpret accidents resulting from the victim being in the line of fire to anything other than carelessness or negligence on the part of hunters who inflicted the injury? Certainly, a little more care would have revealed the presence of a fellow hunter between the shooter and the target. And how can we interpret the wounding or killing of another hunter for a deer, a bear or what have you except on the basis of carelessness on the part of the shooter? The same is true of those that suffered injury from the discharge of a gun which toppled over from some insecure prop. And so it goes almost all the way down the line including the tally for "other and unknown," most of which, if the truth were known, could be pinned directly to carelessness. This gets us back to an observation which we have made many times—hunting accidents do not just happen—they are caused, almost all of them by the failure of some to respect the simple principles of hunting safety. For instance, it has been unlawful, not to mention hazardous, to possess

a loaded shotgun or rifle in an automobile for the last 25 years. Yet two accidents were caused last year by this very thing. And much attention has been given in advocating and instructing in the proper method of crossing fences while hunting; two men were injured last fall by failure to heed such precautions. An equal amount of time and effort has gone into pointing out the foolhardiness of holding guns by their muzzles; five persons lost various parts of their anatomies, mostly fingers, last fall by this form of Russian roulette. And some hunters, believe it or not, still use loaded guns to club small game to death. Fortunately, only one hunter paid the pen-

alty for that particular act of stupidity during 1961.

However, as pointed out above, progress is being made and the record proves it. During the 12 years from 1938 through 1949 there were 1,744 hunting accidents, including 239 fatalities. License sales during that 12-year period ranged from 375,000 to 500,000 annually. Then from 1950 through 1961, the next 12-year period, during which New York's Hunter Training Program was in effect, accidents dropped to a total of 1,432, including 153 fatalities, yet the license sale during this second 12-year term approached, and in some instances, exceeded 1 million annually.

Causes of Accidents

Causes	1958	1959	1960	1961
In Line of Fire	11	28	33	33
Carelessness	31	13	20	21
Ricocheting	11	15	18	14
Mistaken for Game	16	14	14	7
Loading or Unloading Gun	4	3	3	5
Falling or Tripping	?	14	16	30
Gun Falling	?	2	1	5
Crossing Fence, Loaded Gun	?	2	1	2
Loaded Gun in Car	?	2	0	2
Clogged Gun	?	1	3	4
Other & Unknown	38	41	34	17

Accidents re Game Hunted

Game Hunted	1958	1959	1960	1961
Big Game	35	19	17	26
Small Game	80	70	80	60
Other & Unknown	26	46	46	54

Manner of Accidents

How Injured	1958	1959	1960	1961
Self-Inflicted	39	44	34	47
Shot by Companion	87	69	76	80
Shot by Known Hunter but not Companion	?	5	11	*
Shot by Unknown Hunter	15	17	22	13
*Unknown				

Hunting Accident Summary

Year	Fatal	Non-Fatal	Total	Licenses	Accident to License Ratio
1955	12	118	130	972,399	1:7,480
1956	11	132	143	1,016,577	1:7,209
1957	12	113	125	1,077,825	1:8,624
1958	13	128	141	1,231,618	1:8,735
1959	15	122	137	895,017	1:6,630
1960	15	128	143	924,231	1:6,463
1961	17	123	140	972,640	1:6,948

Hunter's Vision Screening Tests

by Dr. Richard P. Crinigan, Jr.
Optometrist, Albany



EACH fall, as inevitably as there will be frost on the pumpkin, newspapers will headline stories of hunting accidents. Nothing will be said, unfortunately, to point out that, despite such accidents, hunting is one of the safest of outdoor participant sports and recreations, nor that the record has improved as a consequence of such training programs as that sponsored by the Conservation Department in co-operation with volunteer, certified hunter training instructors. But while the ratio of fatalities and accidents to the number of hunters has been good in recent years, improvement is always desirable.

The relation of vision to hunting is obvious, yet there have been few good studies to determine just which visual abilities are most important to safe hunting. Many hunting accidents happen at short range but visual disturbances have not been ruled out as a factor even in this type accident. Good vision is not a substitute for good judgment. However,

when the judgment must be based on visual information, good vision is an obvious and essential part of good judgment.

To gather more information on the relationship of hunting and vision, the New York State Conservation Department and the New York State Optometric Association will conduct a series of vision screenings in 26 of the more populous counties of the State this year. Volunteer teams of optometrists will conduct these tests in conjunction with safety training courses at the invitation of the hunter training instructors. Since the purpose of the tests is to gather information, they will be voluntary and will not affect the granting of a hunting license. The trainees thus screened will receive notification of the results, but again, any further action on their part will be voluntary.

A brief description of each test and its purpose will acquaint the layman with the type of information we seek to gather:

1. Visual Acuity—A test to measure how clearly the subject can see at a distance.

2. Retinoscopy—A test to tell us how much effort the subject uses to focus his eyes.

3. Ophthalmoscopy—An inspection of the physical structure of the eye. It will uncover any who may suffer serious and rapid visual loss in the immediate future.

4. Color Vision—As the name implies this test measures the ability to distinguish various shades of color. It will alert those who are color deficient to be especially careful when in the field on a colorful autumn day.

5. Field of Vision—A measurement that tells us how well you can see "out of the corner of your eye."

The balance of the tests are optional to be given at the discretion of the examiner if time and conditions permit.

6. Cover Test for Far—A test of the muscle balance and the co-ordination of the eyes for far seeing.

7. Convergence Test—A test of the ability to follow an object as it comes close to you. We seek to find with tests 6 and 7 if the lack of good muscle balance and good control of eye movements is related to safe hunting.

8. Dominant Eye and Dominant Hand—We want particularly to find those with "crossed dominance;" for example, right handed and left eyed. This can have a serious effect on aiming a weapon. A person who is unaware of his crossed dominance probably will not be a successful hunter, but we are more interested in those who may hit the wrong target than in those who miss the right one.

9. Depth Perception—The ability to judge distances. This, too, has a bearing on successful hunting, but we seek to find if a relationship exists with *unsafe* hunting.

The findings will later be analyzed to determine the results of each test. We then hope to gather information on hunters who are involved in accidents. We do not want to penalize them. We want to compare their visual abilities with those of a cross section of hunters. From this we will determine what visual weaknesses are factors in hunting accidents.



Figure 1. Left, Sugar Maple, *Acer saccharum* Marsh
Right, Black Maple, *Acer nigrum* Michx. f.



Figure 2. Left, Red Maple, *Acer rubrum* L.
Right, Silver Maple, *Acer saccharinum* L.

The Maples of

AMONG the one hundred species of forest trees native to New York State, none are more intimately woven into the history, economy and folklore of our people than the maples. Woodsmen and laymen alike recognize the characteristic leaves of maples and are familiar with one or more of the various species, either as shade trees gracing city streets or timber trees standing in wood lots or forests. Yet, although most people are acquainted with maples as a type of tree, not everyone can identify the several species. Our purpose here is simply to give a few pointers on recognition of the seven species of maple occurring naturally in New York State.

Before discussing the different species we should note that all maples bear their leaves in pairs along the stem and branch rather than in the more common alternating arrangement seen on most trees. Moreover, regardless of the variation in leaf shape displayed by each species, every maple produces characteristic fruit, commonly called "key," consisting of paired seeds, each with a wing extending outward.

Sugar Maple

Without question, sugar maple is the most abundant and best known of the maples. Valued as a timber tree, favored

as an ornamental and famous for its sugary sap, sugar maple is now the State tree of New York. Indeed, sugar maple is the aristocrat of our northern hardwood forests and in large measure is responsible for the beautiful autumnal coloration of eastern American forests.

Sugar maple leaves (*Fig. 1, left*) are 4 to 6 inches long and have three prominent lobes in the forward portion of the leaf and two smaller lobes toward the base. Each lobe has several lesser points along the margin but otherwise the edge is smooth. The sinuses between the lobes are broad and rounded. Sugar maple leaves are rather thin textured in contrast with those of most hardwoods. In color the leaves vary from a bright, light green to deep yellow-green, but in all cases the lower surface is slightly paler than the upper surface.

The seeds of sugar maple are an inch to an inch and a half long and ripen in the fall; paired along their seed cavities, the maple keys are broadly U-shaped in outline.

Black Maple

Black maple is a very close relative of sugar maple. In fact, it is often considered a variety of sugar maple rather than a distinct species. The two often hybridize and the intermediate forms

thereby produced are difficult to separate. Typical black maple leaves (*Fig. 1, right*) have only three main lobes; the lesser points on the lobes are poorly developed, or in some cases practically absent. Much thicker and darker than sugar maple, black maple leaves are very hairy along the margin, underside and leaf stalk. The blades of black maple leaves tend to droop, as if wilted, in contrast to sugar maple leaves which are held stiff and flat. The fruit of the two species are indistinguishable.

Red Maple

The leaves of red maple (*Fig. 2, left*) are 3 to 5 inches long and have only three main lobes. Although lacking prominent points along the margin, the edge of the leaf is irregularly jagged with sharp teeth that tend to point forward. The terminal lobe is broadest at the base; the sinuses between the lobes are shallow but sharply angled. The upper surface of the leaf is similar to sugar maple in color but the lower surface is distinctly lighter colored or whitish. The leaves turn bright red or scarlet in the fall; even in the summer months red coloration is visible along the leaf stalk.

The fruit of red maple matures in the spring. Less than an inch long, the wings of the seeds point downward and nearly touch along their inner margins.



Figure 3. Left, Striped Maple, *Acer pennsylvanicum* L.
Right, Mountain Maple, *Acer spicatum* Lam.



Figure 4. Boxelder, *Acer negundo* L.

New York

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

Silver Maple

The leaves of silver maple (*Fig. 2, right*) resemble red maple in having sharp teeth along the margin. Silver maple leaves, however, are 4 to 6 inches long and 5-lobed. Moreover, the sinuses are much deeper and, as a result, the terminal lobe is narrower at the base than above. The leaves generally are lighter green than red maple; in addition, the lower surface is very silvery. In the fall silver maple leaves turn golden yellow, rarely showing any red pigment.

The fruit of silver maple ripens at the same time as red maple but is two or three times as large. The wings of silver maple seeds spread in a V-shaped angle.

Striped Maple

Striped maple is one of two shrub maples occurring in New York State. The leaves (*Fig. 3, left*) are very large for maples, averaging 5 to 7 inches long and nearly as broad. The three main lobes end abruptly in long points. The margins are very sharply but finely toothed. Striped maple leaves, thin and membranous in texture, turn pale green in the fall and fade without trace of coloration.

The fruit of striped maple matures in the late summer and resembles red maple in size; the wings, however, are widely divergent.

Mountain Maple

Our second shrub maple is mountain maple. The leaves of this species (*Fig. 3, right*) are 3 to 4 inches long and obscurely 5-lobed. The teeth on the margin are large as maples go and tend to point outward. The leaves resemble red maple but are more prominently veined and lack the whitish coloration on the lower surface. In the fall mountain maple leaves take on a deep orange or reddish brown coloration.

The fruit of mountain maple is quite similar to striped maple and differs only in minute details.

Boxelder

Boxelder, or ash-leaved maple as it is often called, is one of the few maples in the world with compound leaves rather than the simple, lobed leaves we in North America tend to associate with this group of trees. The leaves (*Fig. 4*) consist of three, five, or seven leaflets attached to a long leaf stalk. The individual leaflets are oblong or egg-shaped and have several large teeth or small lobes along the margin, in a way resembling the leaves of poison ivy! The pale green leaves turn a bright yellow in the fall.

The fruit of boxelder resembles silver

maple but is thinner, smaller in size, and matures in the fall.

Most of the maples are widely distributed throughout the State, although none occur in the spruce-fir belt on high mountain slopes. Sugar maple and red maple are the most abundant species, both in number of trees and in geographical distribution. Black maple and silver maple, rarer species, have similar ranges but do not occur naturally in the Catskill and Adirondack uplands. Striped maple and mountain maple, in contrast, are frequent in the mountains and elevated portions of the State but gradually disappear in the southeastern counties. Boxelder is native in the lowlands but has escaped from cultivation in all areas of the State except the higher mountains.

Several other species of maple, especially Norway maple and planetree maple, have been introduced into the State as ornamentals. These species may also be easily identified by leaves and fruit but therein lies another tale!

So whether we admire the soft glow of firelight reflected from a drop-leaf maple table; hunt deer that have browsed fat on tender maple sprouts; called for seconds of wheatcakes, mostly as an excuse to swim them in real maple syrup; or climbed among their branches as kids—we all owe much to our maples.



Key To Wildflower Covers

- | | | |
|------------------------|------------------------|-----------------------------|
| 1—Violets | 12—Flowering Dogwood | 23—Bunchberry |
| 2—Columbine | 13—May Apple | 24—Alternate leaved dogwood |
| 3—Fiddleheads | 14—Dandelion | 25—Foamflower |
| 4—Mt. Laurel | 15—Spring Beauties | 26—Rue Anemone |
| 5—Red Maple | 16—Dutchmen's Breeches | 27—Ghost Pipes |
| 6—Canada Mayflower | 17—Hepatica | 28—Hobblebush Viburnum |
| 7—Skunk Cabbage | 18—White Violet | 29—Tooth Wort |
| 8—Yellow Lady Slippers | 19—Fringed Polygola | 30—Aspen Catkins |
| 9—Painted Trillium | 20—Jack-in-the-Pulpit | 31—Shad bush |
| 10—Adders Tongues | 21—Pussy Willow | 32—Marsh Marigolds |
| 11—Trailing Arbutus | 22—Blue Flag | 33—Pinxter |

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Jay N. ("Ding") Darling

Jay Norwood ("Ding") Darling, 85, nationally-known cartoonist and conservationist, twice a Pulitzer Prize winner, died February 12 at Des Moines, Iowa. The famous cartoonist who retired in 1948 continued his interest in conservation to the very end of his life.

He was honorary life president of the National Wildlife Federation and, with Walt Disney, had been appointed co-chairman of this year's National Wildlife Week, sponsored by the Federation.

Known to millions of newspaper readers, he was an Iowa-bred minister's son who made a fortune by cartooning—when he felt like it. Beloved and respected for his talent in producing what he once called a "humor-coated capsule" of editorial judgment and "an illustrated figure of speech," he was one of the most effective conservationists the country has ever known.

Throughout "Ding's" life, his ire was aroused by waste and spoilage of the Nation's resources. He put away his anti-New Deal pen and became chief of the Biological Survey of the Department of Agriculture under Franklin D. Roosevelt but resigned in 1935, after a year and a half, when he decided he could do more for the cause of conservation as a cartoonist than he could as a civil servant. But in that short span of time he wrung nearly \$20 million in appropriations from Congress for programs to convert sub-marginal farm land into wildlife refuges. To supplement appropriations, he designed the \$1 duck stamp. Shortly after leaving Washington, he helped found the General Wild Life Federation and was chosen president. One of his greatest blows struck for the cause of conservation was a cartoon called "Going the Indians One Better," which showed "civilization" scalping the entire continent of North America.

His first Pulitzer Prize was in 1924 for a cartoon called "In the Good Old U.S.A." depicting the opportunities offered to youth in this country. The second, for a cartoon that appeared in

1943, "What a Place for a Waste Paper Salvage Campaign," showing mountains of reports almost burying the city of Washington.

A farewell cartoon, which "Ding" drew four years ago, for publication after his death, was issued February 13. It showed him leaving a cluttered office and telling his readers, "Bye now; it's been wonderful knowing you."—R. B. MILLER

Ed. Note.—Please look in "Letters to the Editor" for another tribute to "Ding" by an old friend and fellow cartoonist. —Cargill.

Mid-winter waterfowl survey

Since 1948, the states of the Atlantic Flyway annually have conducted a January count of waterfowl. The counts in nearly all instances are made by air and follow the same route every year. These are sample counts, not 100 per cent counts of the birds present. Obviously, in the northern states with the only open water being in the deeper lakes and bigger rivers, nearly all the ducks present will be seen. In the southern states, the marshes and wooded swamps are still open and only a small proportion of the ducks present can be seen.

Furthermore, the reports from one state alone cannot be considered significant. In mild winters, many ducks stay as far north as there is open water. In more severe winters, some of these birds must go further south. Therefore, the total winter waterfowl population in the Atlantic Flyway can only be evaluated when the records from Maine to Florida are put together.

In New York, 271,742 birds were observed—the second highest number in 15 years—yet the Atlantic Flyway waterfowl population as a whole is down. This year we have roughly 10 per cent more birds than in 1961, while the Flyway as a whole has 15 per cent fewer than in 1961. Attribute the conflicting pictures to the vagaries of weather, but it's mighty hard to convince the next guy that he is seeing

the back of the book

fewer when he is counting more. There is no question, however, that for the Flyway waterfowl, as a whole, are down from 1961; we knew it from the flights we didn't see and didn't harvest last fall, and from age ratios determined from samples of wings sent in by sportsmen. The latter showed that production in most species in 1961 was below average.

Eastern New York's key species, the black duck, was up slightly in the Flyway, and nearly 10 per cent locally. In western New York the mallard is more nearly our key hunting species and it was down some 35 per cent in the Flyway. Like the pintail, its decrease reflected the serious summer drought in the Prairie States and Provinces. Scaup, including both species, showed no change Flyway-wide but were "up" during January in New York. The scaup, the most abundant duck species wintering in New York and the Flyway breeds to the north of the drought area and thus were fortunate this past year.

Geese had a tough time last summer, too, due to flooding of their far northern breeding grounds. The brant, down nearly 50 per cent, reflected almost a complete bust in reproduction. Here is one place where our figures agree with Flyway totals, but then about one-fifth of the Flyway brant population winters regularly around Long Island so we have a good sample in our aerial flights. Both the Canada and snow geese and the whistling swans had similar problems but not quite as severe. This may be seen in the Flyway totals but we don't winter enough of these last three species to measure anything alone.

Water diviners

The water diviners of Ireland are now organized in the Irish Divining Research Association. It has a total membership of more than 50 "dowsers." Although the discovery of underground water is their principal purpose, some claim to be able to find metal deposits, coal, oil and gold. Others have even tried to locate missing persons and lost objects.

The Walleyes of Lake Champlain

(Continued from page 11)

Presently rather liberal seasons, size limits and creel limits exist for this species in both New York and Vermont waters. The annual rate of angler exploitation would undoubtedly be increased by opening New York's Chazy River and South Bay spawning concentration to angling. Actually, this does not appear advisable for several reasons: (1) Any new attempt to exploit New York spawning populations might be expected to have an adverse effect upon the broad lake sport fishery. (2) Exploitation of spawning populations in April in New York waters would be confined to a few and not in the interest of most anglers who fish the lake. (3) For the Chazy River spawning stock, population estimates place this between 2,400-6,000 fish in 1960. We know this not too large population provides angling success for distances about 50 miles away in the broad lake and presently cannot predict what effect a reduction of this population would have on this angling success. (4) We do not know the exact ecological role the walleye plays in the broad lake. Fortunately we expect to add to our knowledge in the future.

A peculiarity concerning the susceptibility of the walleye to trap netting in Lake Champlain is worth mentioning. Normally, this species is readily trap-

netted during spawning concentrations. In the northern portion of the lake, both in New York and Vermont waters, the walleye will not enter trap nets in any appreciable numbers, necessitating other methods of capture. On the other hand, the walleyes in South Bay can be captured in quantity using trap nets.

It appears logical to assume that Lake Champlain will rapidly develop its recreational and fishing potential, as the Northway and other modern high speed highways are constructed. This development can be expected to be accompanied by an increase in fishing pressure with an attendant increase in angler exploitation. It is also evident that wide fluctuations in population due to natural causes are to be expected, somewhat complicating the exact regulation of catch.

Incidentally, the southern portion of the lake presents the challenge for another member of the pike perch family known as the sauger or sand pike. This kin, while not attaining the size or age of the walleye, evidences all of its eating qualities. Some saugers are also tagged. PLEASE return all tags caught in Lake Champlain and other waters. Remember, the fishery to which you contribute knowledge could be the one that will supply the greatest enjoyment for your children.

Salmon tagging gun

Fisheries scientists are now shooting fish to tag them. Their gun is a spring operated plunger about six inches long that shoots tiny steel strips. The gun has a pronged hypodermic needle hooded with a small plastic bonnet that fits over the head of a two-inch salmon.

A group of two-inch fish are anesthetized preliminary to tagging. The hooded bonnet places the "barrel" of the gun at exactly the right place and as the operator's thumb presses the plunger, a minute steel bullet is fired between the eyes of the salmon, just ahead of the brain and at just the right depth. The bullet is only one thirty-second of an inch long and carries several plastic marking strips.

When the marked fish returns to its birthplace after two to five years wandering in the ocean, and, if it escapes its natural enemies along with commercial and sports fishermen, it is hoped that electronic devices installed in the fish canning and freezing plants will spot the marked fish. The tag can then

be removed and microscopically examined to determine the markings and the record of the fish's travels.

If this device works out, it will be a considerable improvement over the fin clipping method presently being used.

First reprint

Having been privileged several years ago to have had the loan of Harold K. Hochschild's "Township 34," a privately published (1952) tome on the central Adirondacks, we're interested to learn that the Adirondack Museum (at Blue Mountain Lake) which we knew was planning to reprint some of the most popular chapters of this big volume, has come out with the first.

It's "Dr. Durant and His Iron Horse," a revision of the account of the Adirondack Company's railroad. Says Miss Dorothy Plum of Vassar College, book review editor for *The Adirondack*, publication of the Adirondack Mountain Club, "Mr. Hochschild's work is well documented, full of interesting details and fine illustrations." This is available from the Museum at \$2.—R. B. MILLER

Camp Drum Co-operator Area

The third successful year of operation was chalked up for the Camp Drum Co-operator Area, affording increased fishing and hunting opportunity for North Country sportsmen.

A survey showed that 1,802 hunters were afield on this area for 6,548 days and harvested 3,077 pieces of game. Deer hunters made up over 60 per cent of the total of those hunting the area. They harvested 28 deer. The snowshoe hare was the most popular small game species with 1,936 animals taken. In addition, the harvest included 454 cottontails, 492 ruffed grouse, 138 squirrels and 29 woodcock.

During the entire period of the gunning season, a Game Protector was assigned to patrol the area to see that hunters obeyed the special regulations in effect.

Nature centers



A NATURE CENTER
For Your Community

The National Audubon Society has just released its new publication, "A Nature Center for Your Community." This fine publication sets up a readily understandable, step by step program for the establishment of nature centers.

Heretofore, many individuals and groups were convinced of the need for such centers to further the understanding of people in natural resource conservation but no organized approach was available to them.

This publication handles, in easily understood terminology, such important items as what it is, the values, objectives, elements, plans and costs on a question and answer basis. The text is profusely illustrated with excellent photographs and drawings and is well worth the \$1 charge. It can be secured from Nature Centers Division, National Audubon Society, 1130 Fifth Avenue, New York 28.



Conservation award winner

Among the winners in the ninth annual American Motors Conservation Awards was Charles E. Baker of Norwich, District Director of Lands and Forests (formerly District Forester) who has been associated with the work of Conservation Department, with brief interruptions, since 1924. The award was presented to Mr. Baker at the banquet held in connection with the annual meeting of the New York Section, Society of American Foresters, at Utica, on February 1, 1962. The presentation was made by E. W. Littlefield, Assistant Commissioner for Lands and Forests.

The awards program, as explained by "Bud" Powers, New York manager of American Motors Corporation, was inaugurated in 1953 as a public recognition of outstanding individual achievements in the conservation of natural resources. Annually, it honors the work of ten professional and ten non-professional conservationists. Each winner receives an engraved bronze and walnut plaque; in addition, \$500 goes to each recipient in the professional category. The only member of the Conservation Department to previously receive one of these awards was Dr. E. L. Cheatum, who was a winner in 1955.

In his 37 years of practicing forestry, Mr. Baker has made notable contributions to the management of white pine and red pine plantations in his district, where more than 75 million trees have been planted under the State Reforestation Program. Mr. Baker's accomplishments also include a successful assignment in the elimination of the white pine blister rust disease from the commercial nurseries of the State and the establishment of white spruce as an important Christmas tree species in New York State. In the '30's, his efforts led to a state-wide forest management training program in the C.C.C. camps, and in 1956 he had charge of initiating conservation work in the first of the Youth Conservation Camps maintained jointly by the Conservation Department and the Department of Correction.

In presenting this award, Commissioner Littlefield pointed out that Mr. Baker's high level of accomplishment was gained not only through his technical competence and administrative skill but even more, as the result of a never-failing enthusiasm and a quality of imagination which enabled him to recognize opportunities, organize programs and project ideas into the future. "The accomplishments in reforestation cited for Charlie Baker," he said, "can be shared in some degree by all the District Directors of Lands and Forests who have participated in these programs. The honor of this award, likewise, is reflected on the Division of Lands and Forests and the entire Conservation Department, as well as upon the forestry profession represented here by the Society of American Foresters."

Piles of paper

If a whole fleet of trucks rolled up and parked in front of your house, each truck loaded with neat stacks of paper, letter size, would you be surprised? You certainly would—if the truckmen started stacking the paper just outside your window. Let's pretend they did. Up and up goes the stack and the workmen level it off at 35 feet—that's a little taller than a three-story building. Now they build more stacks, one for each member of your family, of the same height. That is how much paper your family, on an average, used last year.

Build a similar stack of paper for every man, woman and child in the United States—185 million of them—and you begin to get an idea just how much paper and paper products Americans used last year; 441 pounds per person! With the increase in population, there is every reason to expect the use of paper will be even higher this year and next.

Fish's-eye view

Fish No. 5B297, a smallmouth bass hatched in 1951 at Ogdensburg, saw a great deal of history made in the 10 years it lived before being caught by Joseph Toff of Massena.

Late in the summer of 1951, a Department biologist marked this smallmouth bass fingerling by clipping off a fin and then released it in the St. Lawrence River below Waddington. In 1958, it was netted, used as a hatchery breeder at the Ogdensburg Hatchery, tagged with No. 5B297, and again released in the river. At that time, it had grown to 11.8" in length. When caught by Mr. Toff in 1961, it had reached the age of 10 years and was 14.5" in length.

The relatively slow growth shown in some of its years, may well have been due to the great upheaval of its home habitat. Number 5B297 had a "fish's-eye view" of some of man's greatest achievements—construction of the St. Lawrence River Seaway and Power Projects. Unfortunately, No. 5B297 died before Mr. Toff or a linguistic ichthyologist could interview it but one thing is certain, No. 5B297 lived through some really tremendous environmental changes.

Duck traps?

Besides ducks, New York duck traps have also caught mink, raccoons, snapping turtles, weasels, great horned owls, a red-tailed hawk, a mute swan — and more carp than the game technicians care to remember.

New P.R.O.



The Conservation Department has a new Public Relations Officer in Irwin H. King who has been appointed to fill the vacancy created by the resignation of Miss Rosemary Clarke.

Mr. King has been working in the Department of Agriculture and Markets since 1958 and his experience includes newspaper work, radio, television, magazine writing, public relations work and, while in the Armed Services, specialized work in radio and communications. He is a graduate of Cornell University with a major in journalism and training in science, including conservation.

In his position as Public Relations Officer for the Conservation Department, Mr. King will continue the close working relationship with press, radio and television so ably begun by Miss Clarke during the past year.

Oyster drill treatment

Certain chemicals, mixed with sand, effectively repel oyster drills according to a field experiment carried out by the Milford Laboratory in co-operation with the Bluepoint Oyster Company of West Sayville, Suffolk County.

In Long Island Sound, a five-acre plot was treated with five cubic yards per acre of sand mixed with orthodichlorobenzene and Sevin in the summer of 1960. Examined in November, there was no detectable depredation by oyster drills on the 1,000 bushels of laboratory-grown oyster set which had been planted on the plot soon after treatment. Previous plantings on this same plot without treatment resulted in a loss of nearly the entire set within a few weeks after planting.

A check of the adjacent untreated area showed extremely heavy losses from drill activity and numerous egg cases.

Wood-crete

A new concrete, utilizing wood shavings instead of sand, is under development at Washington State University, Industrial Division. The new building material is designed for use in walls of small homes and small farm buildings. It is two-thirds lighter than conventional concrete and has a strength of about one-fourth that of standard concrete.

Albino muskrat



An albino muskrat trapped by Wilbur Brink of Hyde Park turned up during the recent muskrat season. Albinos of this particular fur-bearing species are relatively rare. Oddly enough, however, several albino muskrats have been taken over the years in western Dutchess County.

The fascinating fern

About 390 million years ago, scientists say, some small leafless and rootless plants became able to live entirely on land. During the next 60 million years, many of their descendants developed into a wide variety of specialized types. Among those newfangled plants were various types of ferns.

They were the first plants to have true roots, stems and leaves with a system of channels, even though quite primitive, for conducting mineral-laden water from the soil to the leaves; and food, manufactured in the chlorophyll-bearing cells of the leaves, to all parts of the plant.

The true ferns and the tree ferns dominated the landscapes for the next 175 million years. Those we see today in the United States are the smaller, hardier forms that managed to survive violent disturbances of the earth's crust and drastic changes in its climates. They retain many of the primitive features of their ancestors; they do not have flowers, followed by seeds. Flowering plants, which bear seeds protected by a fruit or shell, did not appear until the Cretaceous Period, less than 95 million years ago.

Ferns reproduce by means of spores that are contained in tiny sacs called sporangia. On many kinds of ferns, groups of these sporangia appear as brown dots on the under side of the fronds (leaves); on others they form clusters in berry-like masses on separate stalks. Each sac is filled with hundreds of microscopic spores that resemble dust. When the spores are ripe, the sac opens and those that fall or are borne by wind to shaded, damp soil develop into flat, heart-shaped, green organisms about 1/10th the size of a dime, each called a prothallium. On the under surface of it are male and female organs that produce sperm and "egg" cells. If water is present, dew, for example, the sperm swims to an egg and enters it. From this union the leafy fern plant develops.

Most of the true ferns are thin in texture and thrive best in moist shady places. Of several thousand species in the world, by far the greatest number occur in tropical forests. They attain their greatest size and luxuriance in Brazil, Ceylon and New Zealand. Some of the tree ferns become 30 or 40 feet tall, with fronds 15 feet in length. In our country, most kinds occur in deep moist woodlands, ravines, rock gorges and on ledges near waterfalls. Thanks to "progress" and plundering people, several of those have become extinct.—NATURE BULLETIN, *Forest Preserve District, Cook County, Ill.*

Raymond J. Burke

Raymond J. Burke, 68, a former game protector and veteran of World War I, died January 5 in the Veterans' Administration Hospital, Syracuse. A resident of Raquette Lake for 40 years, he was a game protector from 1927 to 1945 when he retired to become director of the Veterans' Service Agency in Hamilton County. He retired from this position in 1957.

He went to Raquette Lake in 1920 where he was employed in the operation of the Raquette Lake Transportation Co. which ran a narrow gauge railroad and a boat line.—ROLAND B. MILLER



New duck stamp

The design chosen for the 1962-63 Duck Stamp features pintail ducks—a pair of drakes coming in for a landing. This is the 29th in the series of migratory bird hunting stamps and the theme for this series is "Let 'em Come in Close; Be Sure Before You Shoot."

The winning design was prepared by Edward Morris of Minnesota. He is the first artist to win the annual contest for two consecutive years.

Jet ports vs birds

Questionnaires concerning bird hazards to aircraft were distributed to managers of 190 western airports which handle turbojet or propjet aircraft or expect to handle such craft in the near future. The Fish and Wildlife Service has received replies from 83.7 per cent of the airport managers and 44 per cent of those replying indicate some type of present or potential bird hazard. Some airport managers listed more than one bird species as being troublesome.

The birds identified as hazardous include gulls at 134 airports, starlings at 11, blackbirds at 9, waterfowl seasonally at 18, pheasants, quail and grouse seasonally at 7; shorebirds at 6, doves and pigeons at 10, crows and ravens at 2 and other miscellaneous species at 11.

Teacher training in conservation

This summer, a new study opportunity in conservation will be available to thirty-five elementary school teachers in New York State: "Field Studies in Natural Resources Conservation," a three-week course to be offered at Cornell University's Biological Field Station on the south shore of Oneida Lake near Bridgeport, July 9th through 27th.

The development of this course stems from recognition of the great need to inspire and to better prepare the teacher to include conservation subject matter in his classroom. That objective will be implemented by an intensive program of field trips, lecture-demonstrations and discussions, designed to inform teachers of the scientific nature and properties of our natural resources, their interrelated character and the ecological, governmental and legal bases for their use and management. Experiences applicable to the students' teaching situation will be emphasized. The course will carry three hours of credit, either graduate or undergraduate.

The development, sponsorship and conduct of this course is very much a cooperative affair. The State Departments of Conservation and Education, the State University of New York and several of its units, as well as Cornell University, have all worked to bring this long-needed opportunity to reality. Further, in recognition of the event's importance and potential, the State Education Department and Conservation Department are furnishing scholarships that will cover *in full* the cost of tuition, fees, meals and lodging for the 35 teachers accepted.

Who's eligible? Teachers or supervisors at the elementary level through grade 8, certified to teach and currently employed in New York State. They must be planning to teach during the 1962-63 school year. Application forms are available from Prof. Harlan B. Brumsted, New York State College of Agriculture, Fernald Hall, Ithaca.

Do a "conservation good turn" and inform a qualified teacher in your community of this opportunity.

Forest fires

The number of fires in National Forests increased from 12,823 in 1960 to more than 15,000 in 1961 but, fortunately, the total area burned dropped 424,300 acres in 1960 to 237,000 acres in 1961.

Helijumpers, used for the first time as a major force in firefighting, leaped to 213 forest fires. Smoke jumpers parachuted to 1,221 fires—55 per cent more than in 1960—and thereby established a new record.



Rainbow management

Because of the expensive nature of stream improvement work in "fishin' size" waters, the Conservation Department's work is mainly on streams where the State owns or leases the fishing rights. A new approach to small stream improvement work is operating in Region No. 3 under the Fish and Wildlife Management Act program.

Nine years ago, Lebanon Reservoir, a deep water pond, was cleared of a miscellaneous assortment of warm-water fish and was then stocked with rainbow trout. Two small inlets were considered adequate for spawning areas to permit a self-sustaining trout population. Although some warm-water species have again invaded the reservoir, the trout seem to be holding their own in the deeper, cooler water.

Like many small water courses, the inlet stream beds here are too wide for the normal summer water and are divided into two or three channels. The objective of stream improvement here is not to produce fishing water, but to im-

prove these tributary streams as spawning areas.

Four landowners who own the majority of the two streams have signed up as F.W.M.A. co-operators and are permitting work to be done on their lands. The work consists primarily of channel blockers to eliminate extra channels, channel deflectors to concentrate the stream in narrow sections and log dams to create pools where spawning trout can rest and hide.

Normally, rainbow trout will spend a year in the stream after hatching before they drift downstream to a lake. A notable exception is Catharine Creek where poor summer water conditions caused the fish to start for Seneca Lake soon after hatching. This early arrival at the lake of the fry is considered to be one of the reasons Catharine Creek has especially large trout. The Lebanon Reservoir inlet pools are small, thus the fingerlings should move down to the lake where they can put on better growth.

Waterfowl patriarchs

The oldest banded duck on record in New York State is a drake black banded at Rochester in December of 1933 and bagged by a hunter in Pennsylvania in the fall of 1953. He lived 20 years, compared with the average age of 3 to 5 years, and probably flew a total of more

than 100,000 miles during his lifetime, according to waterfowl biologists.

Another long-lived black duck was reported banded on the Penobscot River in Maine as an adult in September of 1940. This bird was shot in Maryland in December of 1960, at which time it must have been more than 21 years old.



Forestry scholarship

One of the six national 4-H forestry \$400 scholarships offered by American Forest Products Industries was won this year by Bernard J. Naber of DeRuyter. Bernard won the award for forestry work on his family's land and for his leadership abilities displayed in seven years of 4-H activity. He planted some 8,000 pine, larch and spruce trees on land his parents bought especially for his use when he displayed a strong interest in forestry. At the tender age of 15, he got a summer job at full pay with a Madison County work force band planting 40,000 trees and, because of his forestry knowledge, he was made head of a planting crew. This year, he helped two neighboring farmers plant 28,000 trees.

For three years, Bernard attended the 4-H Conservation Camp at Arnot Forest near Ithaca where instruction is given in forestry, wildlife management and soil and water conservation. This past year, he served as an instructor there teaching other youngsters such things as tree identification, timber stand improvement and the proper use of axes and other forestry tools.

Banded waterfowl

During 1961, a total of 10,300 ducks and 410 geese were banded with U.S. Fish and Wildlife Service bands in New York. The trapping and tagging program was conducted by Conservation Department personnel with the assistance of the Canandaigua Duck Club, Seneca Lake Duck Hunters' Association, Oswego Waterfowlers' Association, Fur, Fin and Feather Club of Niagara Falls and the U.S. Fish and Wildlife Service.

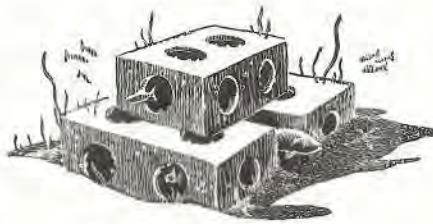
If you have any bands from last season's hunt, please send them in.

Nutria damage

The depredations of wild nutria are reported increasingly serious. Texas and Louisiana landowners' damage complaints included habitat depletion seriously affecting waterfowl hunting and muskrat harvest, extensive damage to rice and sugar cane, damage to water structures and culverts and destruction of cypress plantations. The heaviest infestation is in a belt about 100 miles wide from Galveston Bay to the Mississippi River.

About 1 million pelts are marketed annually from Louisiana in spite of low prices but the animals continue to increase and expand their range. Research on wild nutria ecology and control methods has been limited, but is sufficient to clearly indicate a substantial, comprehensive research program is going to be necessary to bring a successful solution to the depredation problem.

Present depredations control methods are limited to slow and expensive hunting and trapping. It appears improbable the heavy infestations can be reduced by these methods. One hunting club reported removing 19,000 nutria from an 1,800-acre lake during a five-year period without satisfactory result.



Fish apartments

Most every fisherman who operates on the Great Lakes or even the smaller inland lakes has his favorite "boat wreck," shoal area or weed bed that produces especially good fishing.

Some of New York's lakes have vast expanses of shoreline where bottom conditions are devoid of any physical features that meet the requirements of food and cover for fish populations.

A new type of "fish apartment" is being used by the Japanese in their salt water fisheries management and similar patterns have been used by several of our coastal states. There seems to be no reason why it would not work with freshwater species, too.

Each shelter is a 5x8x2½ feet and the holes are 15 inches in diameter. The side walls taper from 2 inches at the bottom to 1½ inches at the top and there is a partition in the center for strength.

Versatile wood

Late developments in wood technology show that man's age-old ally—wood—has joined the most complex chemicals in helping scientists to reach the moon. A promising wood-derived rocket fuel is nitro-cellulose, made from one of wood's basic building blocks, according to Prof. Alex Dirckson of the New York State College of Agriculture at Cornell University.

Some other examples of wood's amazing uses, not all of them new, are certain drugs, dresses, disinfectants, plastics, paints, perfumes, rayon, cellophane, photographic film, shatter-proofing, imitation leather, artificial hair, phonograph records and a host of other items. Raw materials derived from wood include cellulose, gum and resins. Cellulose is composed of large, relatively rigid molecules that give it a structural sturdiness unknown to many similar compounds. This is one reason for its usefulness in the manufacture of plastics. Gums and resins are used in the production of varnishes, soaps, thinners, shoe polish, drugs and explosives.

Unlike many other natural resources, wood can be renewed but a person can't plant new minerals as he plants new trees.

Liberal arts and the biologist

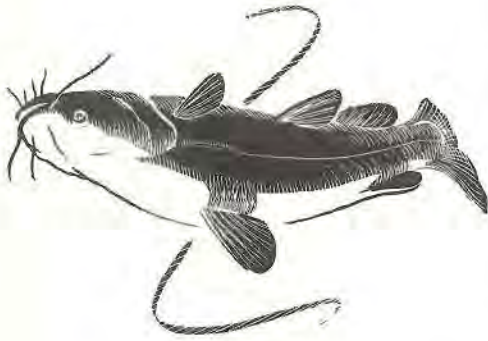
Most wildlife students need extra preparation in composition and in speech, including practice in article and report writing, according to a recent study of the Employment Committee of the Wildlife Society. The responsibility for this discipline lies with students and teachers alike, and if weakness in English goes back to secondary schooling, as it often does, much ground must be made up. Unfortunately, the formal training of wildlife biologists often underrates the importance of this area of learning.

In a 1957-58 poll of employers, 56 per cent said that a major fault of technically trained conservation personnel was their inability to express themselves orally and in writing. Some administrators indicate that writing and speaking skill in their biologists is often preferable to technical versatility.

A broad liberal arts approach at the undergraduate level would help correct the situation, according to the Committee.

Long haul

A Venezuelan sent in a band from a blue-winged teal that had been banded in Wayne County, N.Y.



Channel cats

An experimental planting of 86 channel catfish was made by fisheries biologists of the New York State Conservation Department in the Chemung River, near Waverly, and in the Susquehanna River in the vicinity of Barton during May, 1960 to determine if the species could be established and furnish fishing in these areas. The fish ranged in size from 15 to 32 inches and weighed up to 15 pounds. Each was marked by placing a numbered metal tag on the back, just ahead of the adipose fin.

Anglers were surprisingly successful in taking these fish and 29 tags were returned, which indicates that 34 per cent of the catfish from this planting were caught. Eleven of the "cats" were caught during the same month planted and all but two were caught during the first five months following stocking.

These catfish, once placed in their new home, apparently developed a wanderlust. Information returned as to locations where caught, revealed that 16 of these fish traveled a total of 745 miles for an average of 47 miles per fish. One went up the Susquehanna River and then up the Chenango River to Greene, while another journeyed west to Elmira. Seven of the tags were returned by Pennsylvania anglers and it was in this group that the star traveler was recorded. A Harrisburg fisherman reported taking one of the tagged catfish in the Susquehanna, a minimum distance of 207 miles down the river from the stocking point.

All except one fisherman reported that the "cats" gave them a great battle that lasted from 15 minutes to 1½ hours. They likened the rushes of these fish to carp except that it was more difficult to bring them up near the surface. The reports on eating qualities were not so uniformly enthusiastic, but the majority were very satisfied. Possibly the difference can be explained by the individual's like or dislike of fish in general or maybe it is partly in the preparation and cooking.

Although some fishermen didn't think much of these catfish as food, there was nearly unanimous agreement that they furnished good sport. It is felt that this

rather simple experiment was worthwhile from the standpoint of information obtained and fishing opportunity provided.

"Outdoor Recreation for America"

The long-awaited report on the outdoor recreation wants and needs of the American people and recommendations for meeting them has been filed with the President and Congress by the Outdoor Recreation Resources Review Commission. Entitled "Outdoor Recreation for America," the report was prepared by the Commission, known as ORRRC, which was created by Congress in 1958 to determine the needs and wants of the people to the years 1976 and 2000 and to inventory available resources of land and water and to suggest necessary policies and programs.

The simplest outdoor activities were found to be the most popular. Pleasure driving headed the list, followed by swimming and picnicking. Mass outdoor recreation opportunities seem to be needed most urgently near metropolitan areas where three-quarters of the population will probably be concentrated by the turn of the century. Although considerable land already is available for recreation, much of it does not meet current needs because of location or restrictive management policies. The far off places are of little use to most Americans who, by practical necessity, are week end outdoorsmen.

According to the report federal, state and local governments are spending about \$1 billion annually for outdoor recreation purposes, but much more will be needed. Outdoor recreation is often compatible with other uses of land and should be given greater consideration in planning for such things as urban renewal, highway construction, water developments, and forest and range management.

Copies of "Outdoor Recreation for America" are available from the Superintendent of Documents, Government Printing Office, Washington 25, D.C., at \$2 each.

Note: The findings and recommendations of the ORRRC were reviewed in a feature article which appeared in the February-March, 1962 issue of THE CONSERVATIONIST.—Editor

Bear take off in '61

The third poorest "take" of bear in a decade fell far short of the all-time record for New York of 622 set in 1960. The 1961 big game season netted only 311 animals.

According to wildlife biologists, a sparse crop of beechnuts in many sections of the State forced the bruins to range over a wide area in search of food and, as a result, bears were well scattered in feeding areas not usually hunted.

A regional survey shows that 255 bruins taken in the Adirondacks is the third lowest in the last ten years. The Catskills reported the lowest harvest in a decade with 36 bears taken by successful hunters during the legal season. In the Central and Western regions, 20 bears were recorded for the fourth highest season on record.

Four bowmen were numbered among last season's successful bear hunters. They reported taking two bear in Hamilton County and one each in Clinton and Franklin, all in the Northern Zone. The five counties showing the highest bear-take were: Hamilton, 58; St. Lawrence, 48; Herkimer, 37; Essex, 29 and Franklin, 29.



Don't overload the boat

The Water Safety Congress has come up with a formula for the mathematically-minded mariner to use in figuring the safe load capacity of his boat. Here, with reference to the boat pictured above, is how it goes: Multiply length (in feet) times maximum width (in feet) times maximum depth (in feet) times 0.6 divided by 12, multiplied by 150, except where beam measurements are 48 inches (4 feet), use 1.6 feet as maximum depth; 49 to 55 inches (4.1 to 4.6 feet), use 1.7 feet as maximum depth; 56 inches or over (4.7 feet or over), use 1.8 feet as maximum depth.

For example, for the boat pictured:

$$\frac{12 \times 3.5 \times 1.5 \times 0.6}{12} \times 150$$

This boat has a safe capacity of 473 pounds.

Important!—all boat measurements must be designated in FEET when using this formula!

Remember, to make adequate allowance for the weight of your motor and equipment.

ED. NOTE: *If you bog down with the math., there's another pretty good system—use horse sense.*



Fishbones and optimism

Dear Editor: While doing a little research on the beginnings of fish culture in the United States, I came upon what is to me a rather interesting statement concerning age determination of "scaleless fishes" by counting the rings in the vertebrae. I am enclosing a copy of my notes in which the statement appears (see below).

Perhaps someone on the staff or connected with the Department could enlighten me as to whether or not the method has any scientific foundation in fact or is still in use.

Excerpt from "Spirit of the Times," Vol. 24, No. 7, Pg. 77, April 1, 1954:

... Remarks at a meeting in New York of the Farmer's Club of the American Institute by Robert L. Pell of Pelham, N. Y. In the talk he describes artificial fish culture—an experience with propagation of shad from the Hudson river—mixing sperm and eggs in a pail, planting in a pond and covering with gravel—recommends planting the Hudson above Troy with Atlantic salmon. Of special interest is his statement of starting to propagate fish about 1844...

"On my farm at Pelham I have eight artificial fish ponds averaging fourteen feet deep, in which there are forty-five different varieties from our lakes and Europe. They are so divided that harmony is established between them all. For the past ten years, I have been enabled to call my fish by ringing a bell; they approach the hole in large quantities, eat bread out of my hand, and permit me to stir them around in every direction. There are several gentlemen now present who have witnessed this, and who have seen full grown shad and sturgeon of great size in my ponds. I know of no pets more confiding than fish, or more easily tamed; even the notoriously wild pickerel and tyrant pike come instantly to the ringing of the bell, and consume small fish with consummate pleasure.

"It would be an easy matter for gentlemen residing on the Hudson River, between New York and Peekskill, to stock the salt water coves formed by the Hudson River railroad, with fine English fish, by importing the spawn impregnated—for example, the famous sole, turbot, whitebait, coalfish, anchovy, etc. At the expiration of three years, our coast would produce an inexhaustible abundance of these delicious fish, many of which might hybridize with ours. The age of fish is indicated by the concentric rings on the scales, if scale fish; if

Letters to the Editor

smooth, by the rings in the vertebrae of the back bone. I propose to apply to the Legislature this winter for the enactment of a law, making it incumbent on all persons in the State, who derive their livelihood from the capture of fish, to plant each season, a certain quantity of impregnated spawn on their respective fishing grounds, under the direction of the Magistrate of their respective district in which the fishery may be situated."—*Albany Country Gentleman*

Austin S. Hogan, Cambridge, Mass.

• *Counting the rings on fish vertebrae is recognized as a useful method of age determination. This is not always the easiest method and scales are the most generally used structures in this field of research. Ear stones (otoliths) are also used for age determination, also cross sections of fin rays. If properly degreased, almost any bones of a fish may show winter marks.*—John Greeley, Chief Aquatic Biologist

Smallest mammal

Dear Sir: In the April-May issue, 1958, page 36, you say, "The dusky shrew, found over much of North America is the smallest mammal in the world."

In an article on moles and shrews of New York, Feb.-March, 1959, you say of the pigmy shrew: $3\frac{1}{4}$ to $3\frac{1}{2}$ inches. This is the true mite of the shrew world, and probably the smallest mammal.

In this article, the dusky shrew is not even mentioned. Still later in the article you list the least shrew or small short-tailed shrew as 3 to $3\frac{1}{2}$ inches long, which would make it smaller than the pigmy. Can you clarify?

Martha Reben, Saranac Lake

• *The "dusky" shrew, or common shrew (Sorex cinereus) and the pigmy shrew (Microsorex hoyi) are both members of the general group of long-tailed shrews. These shrews are so tiny that it is easy to find individuals of either species that may measure or weigh less than individuals of the other species according to their age or condition when captured. When one considers that both species weigh on the average about as much as one dime, it is easy to see how small differences may result in one or the other species being referred to as "the smallest mammal."*

The least shrew (Cryptotis parva) has a shorter tail but a larger body than the long-

tailed shrews. In other words the average weight of this shrew is about twice as great as the long-tailed shrews referred to above, although its total length may be nearly the same.—W. Robert Eadie, Professor of Zoology, Cornell University

Happy frog

Dear Sir: Can you tell me what kind of frog we have and what to feed it during the winter?

It completely changed from a pollywog into a frog in one week this summer. It is only one inch large, brown with a green mouth.

Of course, it will eat live insects but we can't get them now; there's snow outside. The frog will not eat bread (once I read in THE CONSERVATIONIST about a man who rang a bell and the frogs came out of the pond and he fed them bread and they ate it). Once he did eat a piece of spaghetti. Right now I think he'll die from starvation.

Otherwise he should be very happy. My fish tank is balanced, plants, light, fish, etc. We would like to keep this frog; he actually seems to be quite intelligent.

Walter Sidorski, Ramsey, N. J.

• *The frog you describe is most likely a young green frog (Rana clamitans). The green color is typical of these frogs and the fact that it apparently is making no attempt to hibernate is a typical habit. If you are caring for the frog at this time of the year, we suggest that you buy a supply of meal worms at some local pet shop. You may be successful in raising some of these yourself by keeping them in a metal box with some tiny air holes and filled with loose cornmeal or other meal. This will keep the larval form, which we call "worms," alive and in good health until fed to the frog. Those which mature into beetles will lay eggs and start a colony for you. The Fish and Wildlife Service, Washington 25, D. C., at one time put out a mimeographed bulletin on raising meal worms, as these are a common, easily raised food for insectivorous animals often kept as pets.*

The green frog will also eat earthworms which are sometimes obtainable in pet shops and sometimes found in excavations beneath the frost line. Putting chopped meat on the end of a stick so that it may be wiggled as though alive may entice the frog to eat this. We wish you success in raising your pet.—Dr. E. M. Reilly, Jr., Curator, Zoology, N.Y.S. Museum and Science Service

All's not right with the world

Gentlemen: In the so-called Atomic Age in which we live, there is much to be desired and plenty that should, if possible, be eliminated. Man lives, with some exceptions, mostly for himself. His likes and dislikes come first. If he is driving, the road is his; if he is motorboating, the lake or water is his; if he is hunting, the fields and woods are his.

For years, many experts with news items, broadcasts and signs tried to make each individual see that his rights and desires end when they infringe on the other fellow's rights. I have been driving cars for 50 years and the only dents and scratches I have had were put there by the other fellow. I have hunted and fished the lands and waters of New York State for 40 years and from unbiased observation, have seen so many infractions of the laws and true sportmanship that it is almost unbelievable. To hunt, one must wear a suit of armor and never try to sit in a boat and fish unless you have all the safety devices against drowning you can buy. The lake speed demons own the waters and the uneducated gun carrier owns the field.

I have been criticized many times on my stand on land posting but with the brush shooters and the nervous trigger fingers, it is not safe to be afield unless these characters are excluded. I am president of a 250-member rod and gun club. We post our land and have it patrolled. Why? So we can live to hunt another day on our own land and the lands of our landowner members.

When something can be done to train men and women that the other fellow has rights and that the earth is not theirs, then we can begin to open all lands and waters for all to enjoy.

Cut fences, gates left open, litter left on lawns, shooting near buildings, killing large dogs and calves shows that the inexperienced hunter and poor sportsmen are the cause.

With all the publicity given these things, highway, waterway and hunting deaths mount with the years and prosecution to the full extent of the law for each infraction seems to be only a partial deterrent.

A moving "hush" is no excuse for shooting and perhaps killing another hunter.

Because you enjoy motoring in a fast speed boat is no excuse for spoiling another's fishing and perhaps drowning him. Because you must get there in a hurry is no excuse for running another car off the road and perhaps killing its occupants.

I would like to add a real solution to all of this but with the many different natures and dispositions, plus the like and dislikes of man, there seems to be none.

I would like to find an answer and know where it will end.

Harry C. Thomas, President,
Philmont Rod and Gun Club, Inc.

• The answer lies in education, plus wise laws and regulations, intelligently enforced. Statistics on hunting and boating accidents reflect downward trends as a consequence of the efforts in education and enforcement

under the Hunter Safety Training Program and the Young Boatman's Training Program—just two examples to demonstrate that there is hope to combat many of the abuses and unsportsmanlike behavior you have noted.

But none of this will be accomplished if we insulate ourselves within our own little private domains, posted or not, there to view with alarm and lament the ills of the world.—Editor

Party permit seasons

Dear Editor: With the deer season closed, I, for one, would like to protest to the Conservation Department, the issuing of a doe permit to groups of four or more. If the heads of the Department are trying to ruin the deer hunting, all they need to do is to continue the issuing of the doe permits. Yes, it does result in quite a substantial increase in revenue and that seems to be the reason for it.

If the heads of the Department are unable to take to the fields to get the true knowledge of the deer herds, instead of taking information from the special clubs and individuals who sponsor the slaughter, in my opinion, the game wardens from all over the State should be called in to report their findings in their sections. There are enough does killed by the hunters (?) who shoot and look afterwards to control the deer herds in some areas without permits; just look around after the first day.

I sincerely hope that more hunters will voice their opinion on this matter.

For better rules and better hunting.

Francis Karpp, Lyons

• The "party permit system," as it is called, permits the taking of deer-of-either-sex, not just doe deer. Please be assured that this system is initiated only in those areas of the State where we have an existing or potential deer population problem. This manifests itself in several ways. In areas of high human population, a high deer population causes a great deal of property damage by the destruction of crops, particularly truck crops, orchards and ornamental shrubbery. In other areas of the State, although there may be no extensive property damage problem, there are problems of winter starvation. In areas of this type the deer population may be high as a result of several mild winters and a reasonably good food supply. Along comes a severe winter with deep snows, the deer yard up and soon exhaust the available food supply before the winter is over. In times like these the stronger deer survive and the weaker ones perish. With a deer-of-either-sex season, by permit, the removal by hunting of those deer that are destined to die, is more humane, provides additional sport to the hunter and benefits the deer herd in general.

The areas selected for these special deer-of-either-sex seasons have been carefully screened by all of our game protectors and deer research staff before any recommendations are made to have the special season. These recommendations are based entirely upon the facts as they are found in the

woods and not upon the whim of any special clubs or other persons as suggested in your letter.—Walter B. Sabin, Conservation Biologist

Paddle fish

Dear Sir: Do you in New York permit snagging of paddle fish, otherwise known as spoonbill catfish?

Is there an open season in your state on this fish? If so, when and where it is? Is it exclusively for hook and line fishing or for commercial fishing?

Hank Bradshaw,
Des Moines, Iowa

• The range of the paddle fish (*Polyodon spathula*) does not quite extend to New York. In fact, since various impoundments of the Ohio River, the species has declined in abundance there and in the Ohio River tributaries.

Since the species does not occur in New York, we have no regulations concerning the taking of it.—C. W. Greene, Chief, Bureau of Fish



Old giant

Dear Sir: Can you identify the tree shown in the enclosed photographs? It is located in Letchworth Park near the middle falls, on the Glen-Iris Inn side of the Genesee River. Nowhere nearby could be found another tree or stump of this size. There are a number of large hemlocks in the vicinity but the bark on this fallen giant is much rougher and deeper cracked than the standing hemlocks; also, this fallen tree is extensively branched—not typical of hemlock.

The photographs were taken this past October at which time the lad in the pictures was about 54 inches tall.

Harold L. Hohenstein, Kenmore

• The tree is a tulip poplar (*Liriodendron tulipifera*). Tulip is not a tree that can be found just anywhere in our western New York area. It prefers deep soils that are moist but well drained and you could say it is a bottomland species. Tulip can be found in Letchworth, the Soar Valley area and the Lake Plains counties such as Niagara and Orleans.

The tree you photographed so well was cut for safety reasons. I was told by Park personnel that a careless park visitor had built a fire against the tree at one time. The fire scar and subsequent decay weakened the tree to the extent that it had to be cut.—Tom Breslin, Forester, Warsaw



Good hunting

Dear Sirs: Enclosed is a picture of two of three snapping turtles taken by bow and arrow on March 25, 1961. The larger of the two weighed 61 pounds; the smaller weighed 57 pounds; and the third one taken that day was 54 pounds. These turtles were taken from a small pond about two acres in size, located within New York City limits. Five other turtles were also taken after this ranging from 42 to 53 pounds.

These turtles were destroyed because of a drastic decrease in the wildlife in this pond as they came out of hibernation last spring. They were taken by bow-fishing. Over-all measurements of carapace of the largest was from front to rear 20¼ inches, and the width was 21 inches. More large turtles have been seen in this pond. It seems unusual to us that a pond this small could support so many large snapping turtles.

Paul E. Duplatre, Jamaica

- Archers please note.—Editor

Backyard pollution

Dear Sirs: The reason for this letter is my serious concern over the pollution and deterioration of creeks, streams, rivers and watershed areas, especially in central New York, and in other areas of the State as well. This concern is not triggered by the recent widespread appearance of articles about the national water shortage and pollution, although all of these things will inevitably merge. I like to hope that increasing government interest in water pollution will trigger even further assistance in city sewage control and some kind of industrial waste control.

Rather, my present concern is with what might be called "back yard" pollution and dumping. That is, a private homeowner's sewage disposal directly into a creek or on immediately adjacent to his land. Or the indiscriminate dumping of garbage and refuse

into a creek on his own land or where access to a creek on private or State land is found.

My feelings are not prompted by any particular incident but are based on many years of personal observation throughout central New York. I am discouraged by what I have seen and want to not only speak out against these things but to do something about it as well. My observations of stream pollution and littering have been predominantly in Tompkins and Cayuga counties, but it does not seem unreasonable to surmise that these counties represent at least central New York and probably the State, too.

First of all, are there any State laws governing the pollution of waterways either with sewage or with refuse? If there are such laws, do they pertain to private property, too? In other words, can State waterways running through private land be protected? How far into a watershed (and private property) can such laws extend; that is, can small yard-wide rivulets (capable of carrying sewage and refuse to a larger stream) come under protection?

The problem is, in less serious cases, one of unsightly refuse floating along on an otherwise attractive stream or of depositing debris on down-creek property. In more serious cases it can involve pollution, smell, destruction of fish, loss of land values and a generally unsightly, unpleasant and unnecessary condition. In both cases it is predominantly the few who blemish or ruin those waterways which belong to everyone.

Protective action can be of a private nature (an owner taking care of his own refuse properly, posting his land along creeks in a prescribed manner), but there are many instances where individuals are not able to protect their land and there is a great deal of State land unmarked and often abused. Protective action can also be in the form of laws that can be and are enforced. I know little about this area of protection, but I am extremely anxious to find out more.

Peter A. Curtiss, Etna

- The waters of the Finger Lakes region have been classified by the Water Pollution Control Board. The enforcement and rectification of standards violation is now the responsibility of the State Department of Health. These standards apply to all waters, either private or public. Standards include requirements for treatment of sewage in some classifications, in others they do not. Solids disposal, including garbage, is generally prohibited. Further information in relation to specific streams should be obtained from the Health Department.

Pollution that can result in killing fish is covered down to and including a "D" classification, and in addition this Department is authorized until 1965 to collect a penalty for fish kill under the Conservation Laws.

The Conservation Laws also cover the disposal of solid matters (refuse) into trout streams. However, the law cannot prevent it entirely, since it is necessary for someone to catch the party conducting the disposal. Since the Protectors cannot be everywhere at once, minimum effectiveness requires anyone observing such disposal to cooperate by reporting it and submitting a sworn

affidavit. It is much easier for an individual to protect his own land from disposal upon it and adequate laws to assist him are available.

No laws prevent a landowner from establishing a dump on his property (this is a property right), but in case of trout waters only, he must so protect it that the refuse is not carried away by the stream.—George E. Burdick, Senior Aquatic Biologist

Pumice feeder

Dear Sir: For the past years I have read different articles written by D. B. Cook for THE CONSERVATIONIST, and one I remember was on the "Pine Grosbeak."

I thought it might be of interest to you to tell you I have a vegetable garden about 18 miles from the New York City borderline and every winter for over 20 years I have been building up an apple pulp pile, the supply for which I obtain from a nearby cider mill.

Early this fall, I was surprised to find three grosbeaks working over the apple pulp and now it is visited by a little flock of 18 or more of these birds. This is the first time I have had the pleasure of being able to feed the grosbeak.

This pulp feeding idea has been the salvation of many a bird, squirrel, rabbit, etc., through the tough winter months and my feeding spot faces the south and is well protected from the north by heavy slash and three big green spruces. I also have a pile of sand and grit to one side of the pulp.

Jerome J. Seitz, Pelham

- It is a common occurrence for these birds to feed on apple seeds, either in the trees or on the ground. However, I have never heard of them working a pumice pile.—D. B. Cook, Leader, Nursery Section

Spotted turtle

Dear Sir: On June 22, 1961 I had a female spotted turtle which laid six eggs. In all the books and information I have read, they all say that the spotted turtle doesn't lay more than four eggs. Is this a record?

Incidentally, all the eggs hatched on September 11, 1961.

Edwin Horning, Fisher's Island

- A search of some of the recent herpetological journals has uncovered no records of the spotted turtle laying more than four eggs. Even if it has been recorded once before in some note, which I have not had occasion to see, it is still noteworthy. There is very little known about many of the habits of the spotted turtle. One of the most recent books on turtles, Carr's "Handbook of Turtles," Cornell University Press, 1952, lists only one report concerning the length of time it takes for this species' eggs to hatch and that refers to a nest made June 16 in which the eggs hatched on September 16. This record of yours helps substantiate the earlier one, even if yours is of a captive turtle.—Dr. E. M. Reilly, Jr., Curator, Zoology, N.Y.S. Museum and Science Service

The Ellises vs the bass

Gentlemen: I wish to inform you of a bass I caught on August 7. I am 14 years old. I caught it in the Mohawk River at Westernville. I used worms for the bait. What a struggle it gave! My brother took my pole while I went in the water (clothes and all) to net it. It almost pulled me over several times. Finally, two other brothers of mine came in to help me (clothes and all). We were overjoyed. Two of us fell in so we really had a wet battle. The bass weighed 4½ pounds and was 19 inches long. I am enclosing the ring that was in its mouth. I would be very appreciative if you would send me the life history of the bass. Thank you.

(Miss) Patricia Ellis, Westernville

• *Congratulations on your catch of that fine 19", 4½ lb. bass and thank you for reporting the tag.*

This fish was one of 330 smallmouth bass which were captured in several Utica City reservoirs, tagged and planted in the Mohawk River, August 9, 1961, near the place where you caught it. The purpose of planting these fish, which were mostly legal size, was to give a "shot in the arm" to the low bass population in Delta Lake, caused by the water being drawn down a few years ago for dam repairs.

When tagged, your fish was 19.4" long and 8 years old. Incidentally, your fish was the second largest one tagged in the 330 total. One was a little larger, at 19.8".

We were pleased to get this tag. Co-operative anglers like yourself help make our tagging studies a success and give us valuable information from which we are better able to formulate management policies for the fish and waters concerned.

There is still one bigger in there.—Thomas M. Joffiff, Conservation Biologist Trainee, Region No. 4

Morels

Dear Sir: Does anyone connected with THE CONSERVATIONIST or any of its readers know where I can pick some morel mushrooms this coming spring? I have tasted dried ones, but never a fresh one.

I shall be very grateful for any information as to a specific locality where I can find some.

Edmund B. McCarvey, Jackson Heights

• *The morel, as many other kinds of mushroom, appears to be local and sporadic. It appears in abundance in certain areas for one season and may not be seen there again for years. On the other hand, it may occur several years in the same place. In some places it is frequent about elm trees and it also appears in old apple orchards. The most productive colony I ever saw was in an aspen thicket on Connecticut Hill where we collected a ten-gallon pail full every day for several days. The other big colony was along outer Washington Avenue, Albany, in almost pure sand near low wet woods (mixed hardwoods). The largest specimens of the common morel which I have ever seen grew in sand under elm along a creek*

where it must have been flooded every year. Even larger specimens of the giant morel were found in rich soil over massive limestone in the Helderberg woods. I have even found them in openings in oak woods. The only definite suggestion I can make is to get out in the orchards, thickets and woods in May and hunt.—Stanley J. Smith, Curator, Botany, N.Y.S. Museum and Science Service

Boys and boots

Dear Sir: Having for years endeavored to interest boys in fishing, hoping to initiate them in what is one of the great enjoyments of my life and, in a fair number of cases succeeding, the short article, "Buddy Anglers," in THE CONSERVATIONIST (April-May, 1961, p. 34) is of special interest to me. I can testify that the system which it outlines is to be recommended, for I have used it—all except the chair or other seat for which there has never seemed to be much demand. I should, however, like to add one suggestion arising from my experience. Give the boy you hope to initiate a pair of rubber boots. Since several manufacturers, having at last seen the light, now make hip boots for boys, there is no longer any reason why a boy should be tantalized, as I was and as some of my first initiates were, by having to look at men in boots wading in the water while he must always stand on the bank. Only those who have seen it can know, as I do, a boy-fisherman's delight in a pair of hip boots. They help to make him a fisherman.

Walter MacKellar, Blauvelt

• *We'll bet that MacKellar's suggestion will strike a responsive chord with many a reader, recalling deep, fishy-looking pools just out of reach, and recalling too, a mother's parting admonition: "Now don't you get wet; do you hear?"—Editor*



From long ago

Dear Sir: Enclosed is a photograph I thought your readers might enjoy seeing. It is of hemlock bark, which I believe was peeled and piled about 1910.

Interestingly, it is so well preserved that the bark under the top protective layer looks as though it could have been piled there only last year.

This shows one of two piles near Duck Pond, located about five miles northwest of Beaver River Flow in Herkimer County.

Clifton Sitts, Ilion

Soft-shelled crabs

Dear Sir: Being an avid reader of THE CONSERVATIONIST, and always reading thoroughly the Letters to the Editor, I've finally got a problem that you may be able to help with.

Several of us are ardent smallmouth bass fishermen down here in the Niagara River. We always use soft-shell crabs which are quite expensive. Just recently we acquired a small farm on which there is a pond teeming with hard-shell crabs. We transferred some of these crabs to a tank in our yard and although we've had them about three weeks, they do not seem to shed their shells or get soft. We feed them raw potatoes and cornmeal.

Clarence P. Fahning, Buffalo

• *The following is quoted from Circular 12 U.S. Fish and Wildlife Service ("Propagation of Minnows and Other Bait Species"):* "There is but one satisfactory method of making hard-shelled crayfish soft-shelled. That is by feeding them and developing growth, causing the crayfish to shed the old shell frequently. When a bait dealer propagates his own crayfish for bait, he may sort out the soft-shelled crayfish from his pond every two or three days and have soft-shelled individuals on hand continually during the summer. These individuals may be kept soft for a week or more by keeping them on ice. If they are kept cold, metabolism will slow up and growth will be retarded, with the result that the shell will not harden very fast. . . . When they are removed from this cold storage to warmer quarters, it is best to do so gradually. They must be used soon after they are removed from cold storage, for the shell often hardens very rapidly after they warm up and become active. . . ."

Possibly the crayfish in your tank were too crowded to grow rapidly but in any case a period of three weeks may not be long enough for a good test of this method.

There are a number of species of crayfish varying considerably in hardness of the shell. It is not necessary to have soft-shelled individuals if one of the thin-shelled species is used.—John R. Greeley, Chief Aquatic Biologist

Credits

1st, 4th covers, see key, pg. 32; 2d cover, Larry Pringle; 2, 5, Roy Irving; 3, 4, Nick Drahos; 7, N.Y.S. Power Authority; 9, H. Wayne Trimm, Ed. Maunton; 10, Whitehall Times; 11, Times, Irving; 12, 13, 14, 24, 25, 29, 39, Trimm; 15, Trimm, Drahos; 17, Geneva Exp. Sta.; 18, 19, Mass. Hort. Soc.; 20, Trimm, J. D. Bulger; 21, 22, Bulger; 27, Ray Estes; 30, 31, Edwin H. Ketchledge; 34, Earl McGuirk; 35, Fred Chambers, McGuirk; 36, Robt. V. Niles, Edw. A. Morris; 37, Paul Kelsey; 38, Am. Forest Products, Trimm; 3d cover, Trimm, Carl A. Carlozzi.

Fellow Idiots

Gentlemen: It seems to me that archers are getting the best of the deer hunting—better weather, less wary deer. I have no desire to be an archer, lacking faith in the weapon in the hands of an amateur.

Why can't the benefits be extended to spear-carrying hunters? Each hunter provides a fee to the State, few would get deer and virtually no wounded deer would get away to die a lingering death. Yet carrying a spear would give point to wandering the woods in company with archers or fellow idiots with spears.

L. M. Harris, Fairport

P. S. I got a deer with bow and arrow five years ago.

• *The record indicates that the bow, properly used and at conservative range, is as lethal a deer hunting weapon as a gun. Even so, bow hunting gives the deer most of the advantage; spear hunting all the advantage. The idea will certainly have no appeal to the meat hunter.—Editor*

Virgin forest

Sir: In the last issue (Oct.-Nov., page 43) I read about the virgin stand of trees on Cornell and Wittenberg mountains. I have never seen a virgin stand of trees and would appreciate any information you could give me about these mountains. Can one walk through the forest or is it privately-owned and posted? Where are they located and can one drive to them? I am familiar with Route 28 from Kingston to Margaretville. Whatever information you can give me, I will sincerely appreciate.

Donald Richter, Rockville Center

• *With reference to your letter concerning the virgin stand of spruce timber between Cornell and Slide mountains, you are, of course, referring to Richard Crane's comments in THE CONSERVATIONIST on Alf Evers' article on Slide Mountain which also appeared in THE CONSERVATIONIST.*

This stand of timber is the only virgin stand in the Catskills and one of the few in the State. It covers an area of approximately 2,000 acres. As you probably know, a virgin stand of timber is one that has never been destroyed by fire or lumbering. The stand in question contains every size tree from tiny seedlings just coming through the forest floor to mature trees 30 or more inches in diameter. The reason this virgin stand exists is because of its inaccessibility in olden times before it came into State ownership.

Part of this stand is located in the saddle between Cornell and Slide mountains, and the Slide-Cornell-Wittenberg trail passes through it. The best way to reach it is to climb Slide Mountain from Winnisook and then follow the Cornell Trail down into the notch between the two mountains.

If one is able to make this trip it will be found most rewarding. I have walked through this stand of timber many times and it has never failed to inspire me and fill me with awe. Mr. Crane expresses it

very well when he says, "There you may see what this section was like thousands of years before man went to war with Nature, and there you will have a vision of what it will be like again thousands of years after man has again made his peace with her."—Edward G. West, Superintendent, Land Acquisition

Big beech

Gentlemen: I know you are always interested in the location of large trees situated here in the East.

I, too, would like to know how this one stacks up against any you have records on. I measured this copper beech, located in Riverdale, in New York City. It is 224 inches in circumference, six feet from the ground (18 ft., 8 in.).

It is located on the grounds of Elie Nadelmans' home—the famed sculptor.

Paul Malinowski, New York

• *Thank you for your letter concerning the large copper beech which you measured at Riverdale. Our interest and information on big trees is primarily limited to native forest species rather than shade or ornamental trees. However, we do have one publication that contains data on large ornamentals and that is "The Trees of Long Island," by George H. Peters. This is an excellent bulletin complete with pictures and a four-page table of "The biggest trees of all species reported growing on Long Island 1948-1957." Should you desire a copy, it can be obtained from the Long Island Horticultural Society at the Long Island Agricultural Technical Institute, Farmingdale, L. I., for \$1.*

The blue'in lists a specimen of purple beech, sometimes called copper beech, at 15', 7" taken at the standard circumference and diameter measuring height of 4', 6" above the ground. This tree was reported as growing on Underhill Street in Oyster Bay. We have one other report of a copper beech 13' in circumference at 4', 6" in Washington, D. C. This latter data is from an American Forestry Association report of 1941. It would appear then that your tree is of record size. Thank you for taking the time to send us this information; we are pleased to add it to our file on The Big Trees of New York.—E. H. Huber, Senior Forester, N.Y.S. Conservation Dept.

North woods tails

Dear Sir: On two different recent dates this last summer, a friend and the writer have found detached tails of flying squirrels lying in the woods. Both were from adult specimens and both had apparently been recently killed at night. Only the tails were found and there was nothing left of the bodies.

The predators in this area (Loon Lake in Warren County) include, among possible others, red fox, wildcat, red-shouldered hawks, screech owl, barred owl, great horned owl and feral house cats.

I believe the weight of evidence would be in support of the view that this might be the work of the barred owl. I heard

this species in the vicinity in July, 1961.

Perhaps you have some additional information on this or another suggestion about their destruction.

E. P. Cresser, Sr., Chairman,
Biology Dept., Hofstra College

• *This might be entitled something like "Tails of the North Woods." We agree with you that the most likely predator is the barred owl since the great horned owl would undoubtedly gulp down a flying squirrel completely, tail and all. It is possible that the screech owl may be the culprit and it is possible that the saw-whet owl is present in the area. Of course, these animals would have the best chance of capturing flying squirrels, but the feral house cat is also a prime suspect. The pet house cat of a neighbor on two occasions in recent years brought to the neighbor, the tails of flying squirrels.*

Any four-legged predator might discard the tail of any squirrel. The tails are so furry that almost any predator capturing the animal would discard the tail if it had any choice in the matter. Perhaps some of the other readers of The Conservationist might have had experiences with other animals eating entire squirrels except for the tail. This could be a new trend among the predators of the State. I am sorry this is all the thoughts I am capable of adding at the moment.—E. M. Reilly, Jr., Curator, Zoology, N. Y. S. Museum and Science Service

Lamps and Iron

Dear Sirs: Your November issue was particularly interesting to me because of the article on the Farmer's Museum in Coopers-town. Most of the items illustrated and described were familiar to me but there were two things that were altogether new and I would like to know more details if the editor or the author, Steve Trimm, can provide them.

1. (In the trapper's cabin) #21: "Animal fat was melted and used for lamp fuel." This is news to me. I've heard of using animal fat or tallow for candles, but thought it would harden too much to use as oil in lamps. Can you tell me which animal fat was used and how it was treated not to harden? Could it be used with wick in kerosene lamps?

2. Under "The Village," p. 19, it says the iron industry developed rapidly and bog iron was in good supply. What is bog iron, how would one recognize it or search for it? How does one work it?

Mrs. Henry Carse,
Hinesburg, Vermont

• *Animal fat was used as more of a "grease fuel." It was burned in so-called "betty lamps" which were used long before Athens was founded. This lamp was a shallow grease or fat-filled metal dish with a lip or spout which held the wick. This wick absorbed grease and so needed less care and attention. The melted fat did harden but not before it had saturated the wick. Such fuel could not be used successfully in a kerosene lamp.*

Bog iron is, as the name implies, a type of iron found in swampy regions. In Colonial

days large lumps of it were dredged up by the use of long handled tongs. As far as working it is concerned, little heat was needed for it was fairly easy to pound into shape. It was a "soft" form of the metal. I am not sure how one would recognize it unless that person had experience with it before. It's a variety of brown iron ore or limonite—Steve Trimm.

Merganser

Dear Sir: I saw a duck on our back pond about a month ago and I haven't been able to identify it as yet. The article in your last magazine didn't have it in either. It was a medium-size bird with a rusty red head and neck. It could raise the head feathers up and down. Its upper parts were grayish black, the belly was white and it had black, webbed feet. It dove and could stay under water for some time, always coming up some distance from where it went down. A hawk dove for it and it went under water and stayed for longer than before. I watched him for about an hour through binoculars. He was alone and seemed to be quite content being that way. There were no nests or any other signs of any other ducks. The fish in the pond are trout, but he didn't catch any while I watched; he probably was eating something else. Could you tell me what kind of duck it is?

Mrs. Willard C. Azer, Canajoharie

• The best possibility is that you have seen a female hooded merganser. The bird books generally show just a hint of rusty red in the head of this bird, but this is highly variable and in some birds there is much more red. They also have the black, webbed feet you describe. You describe it as being "a medium-size bird"; if you mean a medium-size duck it might be either a female American merganser (also called common merganser) or a female red-breasted merganser whose heads are generally much redder than that of the female hooded merganser but which generally have bright red bills and feet. The color of the feet might vary considerably. The hooded merganser can only be described as a smaller member of the duck family. All the mergansers raise and lower the crest frequently, almost as a nervous habit and all are expert divers. You might refer to the picture of these birds in Eaton's "Birds of New York," probably available at your local library or in the color plates of Peterson's "Field Guide to the Birds."—E. M. Reilly, Jr., Curator, Zoology, N.Y.S. Museum and Science Service

Extra bones

Dear Sirs: Perhaps you can give me some information on suckers (fish, that is). My husband says that there are no more extra bones in a sucker than in any other fish. I say there is. Do you have any information on this subject, any articles or research information? Or, if not, would you know where such information might be found? We would both appreciate knowing.

Mrs. Thomas H. Williams, Willard

• Since fish possess a skeleton including skull, vertebral column, ribs and supporting bones for fins, all this may be considered as "standard equipment," but some fish have "extras" in the form of fine bones variously distributed through the muscular structure. These may add considerable strength to the musculature but constitute a nuisance in eating suckers, shad and other fish which have them. They are particularly numerous toward the tail region in suckers and some people discard this region before cooking these fish.—John R. Greeley, Chief aquatic biologist



After the tap

Gentlemen: I think some the readers of THE CONSERVATIONIST would be interested in the enclosed picture which was taken by Russell S. Bergh, our photographer.

In my position as an industrial arts teacher at Middleburgh Central School, I have run across and saved these examples over the past few years. Having tapped trees many times, I often wondered about the effect of this tapping on the tree. The holes on the outside of the tree usually disappear in a matter of a year or two, but as the picture indicates, the effect on the interior of the tree would appear to be permanent.

The center block seems to be cut from a block of wood which was very near the original tap as the outline of the bit shows quite clearly. The other examples show clearly the discoloration of wood above and below the taps which have not grown in. In the large board, the greatest distance which the discoloration extends from the hole is about 6 inches.

Kenvyn B. Richards,
Instructor, Industrial Arts,
Middleburgh

Piercing frogs

Dear Editor: A few years ago at the American Legion Mountain Camp, Tupper Lake, New York, I was attracted to a group of four boys congregated near a small brook. Wondering what they were doing, I investigated.

They were watching a frog which had caught a toad. The frog had half consumed the toad and was endeavoring to swallow it. I had heard that snakes do this on

numerous occasions with toads, but never thought that a frog was an enemy of the toad. I took motion pictures of it, so that I would have the proof.

Is this an unusual incident in the frog and toad life?

Vincent H. Schnurr, Staten Island

• Yes, frogs eat toads if they can encompass them. In fact, they will not refuse any amphibian. That's why I hated to see the bull frog introduced into the West. Sorry day for all other small frogs and toads.—A. H. Wright, Professor Emeritus, Cornell University

Pine grosbeaks

Dear Sir: Yesterday, March 2, 1962 here in northern Allegany County, I took a look at the spruce trees in our back yard and thought I was seeing a robin. Then with field glasses. I discovered a flock of six or eight, perhaps more, pine grosbeaks. I believe they were all males, as they were real bright pink over the head and breast.

I looked up your article in THE CONSERVATIONIST for Dec.-Jan., 1960-61, and realized how unusual was their appearance in this section and I thought you might be interested.

Two years ago, I discovered the rose-breasted grosbeak and they stay through the summer. They do not come until spring. But this winter we have had as many as sixteen in a flock of evening grosbeaks coming for sunflower seeds. I often notice that some are real gray and have very little yellow on them and now I am wondering if perhaps some of them are the female pine grosbeaks. My "Field Guide to the Birds" does not show either female very plain. But it seems strange that no females were with the flock of male pine grosbeaks.

Mrs. Howard Stickle, Freedom

• I am interested to learn that pine grosbeaks are present in northern Allegany County this winter. Such positive and well-dated records are always of value.

As I indicated in THE CONSERVATIONIST, records of grosbeaks are relatively few and scattered, especially in central New York. I cannot account for an all-male flock of pine grosbeaks, except that, by accident, you saw only the male component of a bigger flock. I doubt that you would confuse the female pine grosbeak with the female of the evening grosbeak—the former is a considerably bigger bird and, while it has a stout bill, it is nothing like the big one with which the latter is endowed.

Good luck with your bird watching!—David B. Cook, Senior Forester

Good sign

Dear Editor: I was impressed with the apparent effectiveness of a small sign which had been placed at the small campsite near the landing at South Pond (State land).

"Never let it be said to your shame. That this place was more beautiful ere you came."

Howard I. Becker, Rexford

Here ~~is~~ there

Gentlemen: Reports from Bavaria in the Aug.-Sept. issue, particularly the one by Lt. Munster concerning hunting in that country, were especially interesting to this former Bavarian.

I wonder, however, if the reader gets a true picture of conditions over there, when he reads of a long list of game, long seasons and numerous game taken by the average hunter.

Red deer, (stag) chamois, mouflon, fallow deer and auerhahn are not game for the average hunter. The last auerhahn (large grouse cock) in my former neck of the woods, was bagged by my grandfather some 55 years ago and this species is to be found today only in one remaining region, (Bay. Wald) and there only in very small numbers. Mouflon and fallow deer are private preserve game; red deer inhabit mountainous regions; chamois are at home only in the high Alps.

Roe deer (30 to 45 pounds) are plentiful, small game such as hare (7 to 8 pounds) pheasant, partridge, ducks vary in number from year to year. Like everywhere else, they depend on the weather during the breeding and nesting season. Farm machinery, chemical fertilizer and insecticides are the same problem everywhere. The hare, given favorable conditions, always comes back with a bang; bird hunting on the other hand, remains spotty at best, Mallards, which once thrived in old fashioned overgrown ponds, stay away in droves once these ponds have been cleaned of reeds for better fishing. The wild boar staged a great comeback since the war, is often a nuisance to the farmer and a headache to the hunter. I have seen farmers leaving large watch dogs chained in the fields at night, during the critical period, to keep the wild pigs away.

The game in Germany is privately owned; it belongs to the owner of the land. Unless an owner has 88 hektar (roughly 200 acres in one piece) a large holding by European standards, he cannot exercise the right to hunt. With others in his community, through his town or village he sells that right, in most cases by public auction to the highest bidder for a period of 6 years. Owning one revier or hunting area does not disqualify a man from acquiring a second revier with perhaps different game species. It also follows that unless old age or death come into play, the acquisition of a revier by one party, one or more men, means the loss of that revier to another party.

The revier owner is responsible for the crop damage done by "his" game. In the case of the wild boar, this can become an important item. The game killed belongs to the revier owner. Game is sold to game dealers and marketed through special stores and is considered a part of the economy.

The hunter, who does not own a revier, can only hunt as a guest. The State of Bavaria permits some fee-hunting of red deer on state land. But all other hunting and caring for the game on state land is part of the work of the state foresters.

Lt. Munster, who does his hunting in the Rhineland, not in Bavaria, spoke of ad-

vanced conservation practice. He probably had in mind, the custom in deer hunting of eliminating undesirable young animals from the herd, using only good stock for breeding so far as possible and harvesting mature trophies. Deer hunting is mostly done from stands, so-called high seats or pulpits, where observation and selection is possible.

The new roe deer season dates are June 1 to October 15 for bucks, September 1 to January 15 for does and fawns. The application of animal husbandry rules in deer hunting has resulted in more and better deer and finer trophies.

The European woodcock, about a third larger than our variety, migrates south in the winter notwithstanding a woodcock season that runs from October 16 to April 15. Upon returning in the spring, it still gets the same reception. One must have experienced the suspense and thrill of the courtship flight at dawn or dusk in March to understand why in this case, conservation takes a back seat and why the hunter, if he is near woodcock ground at all, rather indulges in some early spring shooting instead of waiting for the fall, the season that finds him busy with many other activities.

That six-month training course for hunters, followed by a stiff examination, liability insurance that he must carry, the "Abschussplan," the game quota imposed on a revier and its fulfillment, the exhibition of all trophies at the annual trophy show—all these measures were not required by law years ago, as is the case today.

Laws, customs, dress, the hunters' language and naturally the money involved, have kept the sport of hunting unique and exclusive. As a result of many pressures today, such as increasing population, decreasing game land, many new roads and faster transportation, prosperity and the willingness of some to pay fabulous prices for the privilege of hunting, more and stricter laws and regulations—all these combined tend to make hunting today a less leisurely and more competitive sport.

Not measuring outdoor enjoyment in number of game killed and satisfied in the knowledge that the next fellow, regardless of financial status, position or army rank, can and does share in the fun and recreation provided by the great outdoors, New York State offers to such a person a variety in the line of hunting, fishing, camping and trail hiking, not often found elsewhere. The first time I became aware of this fact was many years ago when, equipped with trail maps and other information, supplied free of charge by the Department, I found myself standing somewhere in the Adirondacks in front of a weatherbeaten sign reading: "This is your forest preserve, enjoy it, help to preserve it. Cons. Dept., State of New York."

The significance of that message and its impact on this newcomer was an experience never to be forgotten.

Albert Mergler, Flushing

Electronic rabbit

Dear Sir: The enclosed wire is the wire that runs from the coil to the bottom of the distributor on a 1959, 6-cylinder Ford station wagon.

Last Saturday morning, my car was parked under our carport. On that morning, as on other mornings, while I filled the bird feeder, our English springer checked our garage for mice which somehow manage to pilfer a few grains of corn from our supplies.

After this, we left the garage, and I let the dog into the station wagon. With the first turn of the starter a rabbit scooted out from somewhere under the car and, to my dismay, the car refused to start. I released the hood and started checking wires only to discover the enclosed wire (see picture) severed in two places and the missing piece lying on the drive under the engine.



At the Police Station they doubted that it was a cottontail wire cutter.

The next morning, my dog and I made a thorough check of the garage and also checked under the station wagon in the carport to be sure the rabbit wasn't sitting there. I pulled the hood latch and, again, out from under the car ran my wire cutting friend. No wire was cut this time, but bunny fur was evident on and about the area of the first incident. That rabbit sits on the oil filter and the wire must have been in his way. Now I ask you, should I have fried rabbit, or am I after bigger game?

Fred C. Dietrich, North Tonawanda

● *The cottontail, with his sharp incisors, is capable, I am sure, of snipping of the wire. But why he did it? I've never heard that rabbits had a predilection for either copper wire or rubber insulation.—Editor*

Long Island cherry

Gentlemen: As a subscriber to your magazine, I am taking the liberty of asking you if you could give me some information on the wild cherry tree which is found growing on Long Island.

1. I would like to know if it will grow when transplanted? 2. How many years it takes to grow to full maturity? 3. How many board feet of lumber is in the average tree?

Any other information will be appreciated such as the various uses of the wood.

Paul Jaworowski, Jr., Freeport

● *Our former District Ranger for Long Island, Ed. Richards, tells me that the tree you are probably referring to is black cherry (Prunus serotina) which grows to considerable size on the good forest sites on both the north and south shores of Long Island. This species grows throughout New York State but reaches its best development on rich,*

deep soils and attains sizes up to 3' in diameter and 100' tall with the 18"-24" diameter trees not uncommon in the older stands. A tree 18" D.B.H. (4½ ft. above the ground) and yielding two 16' logs would scale 200 board feet, International Rule. No specific statement can be made as to age and rate of growth because of the many variable factors involved in tree growth but on the average it would take some 60-80 years to produce such a tree.

I see no reason why this tree cannot be transplanted if proper methods are used.

There are at least two other species of cherry found on Long Island but both of these are small trees or shrubs and never grow to sawtimber size. One is called pin or fire cherry (*Prunus pennsylvanica*) and the other is choke cherry (*Prunus virginiana*).

For assistance in future tree identification, you may wish to write for the popular Cornell 4-H Club Bulletin 85, "Know Your Trees," by Cope and Winch. This is a fine publication and may be obtained free of charge from The Mailing Room, Stone Hall, College of Agriculture, Ithaca, New York. For a more complete and semi-technical reference complete with identification keys, I refer to the "Illustrated Guide to Trees and Shrubs," by Arthur Harmond Graves of the Brooklyn Botanic Gardens. This excellent book is available from Harper and Brothers, 51 East 33rd Street, New York 16, New York. The price is \$6.50.—E. H. Huber, Senior Forester

References—geology

Gentlemen: I want to thank you for the article, "Mirror to the Past," by Dr. Donald W. Fisher in the December-January, 1961-62 issue of THE CONSERVATIONIST. It is very well written and easily understood by one who does not have much formal education in the particular field covered by the article.

Gentlemen, I wish to learn more about the matter covered by the article, so may I presume on you to send me information concerning where the following information may be obtained:

1. Article or map with more detail about locations where strata like the sodus shale, Wolcott limestone, Oriskany sandstone, etc., come to the surface.
2. Book or article on geology of New York State.

J. J. DeVoldre, Camillus

• Most of our publications are rather technical but do explain where the various rock units covered within each report may be found. I especially call your attention to New York State Museum Bulletin 341, "The Clinton of Central and Western New York" which describes the Sodus shale and Wolcott limestone in detail, and where they may be examined. Bulletin 303, "Geology of the Berne Quadrangle" locates exposures of the Oriskany sandstone.

I regret that we have no single book on the subject of the geology of New York for the layman. When the new New York State Geologic Map is ready for distribution (sometime in late spring or early summer) there will be an abbreviated geologic history offered

on the inside covers of the folio containing the colored geologic maps.—Donald W. Fisher, State Paleontologist, N.Y.S. Museum and Science Service

English wood-pigeons

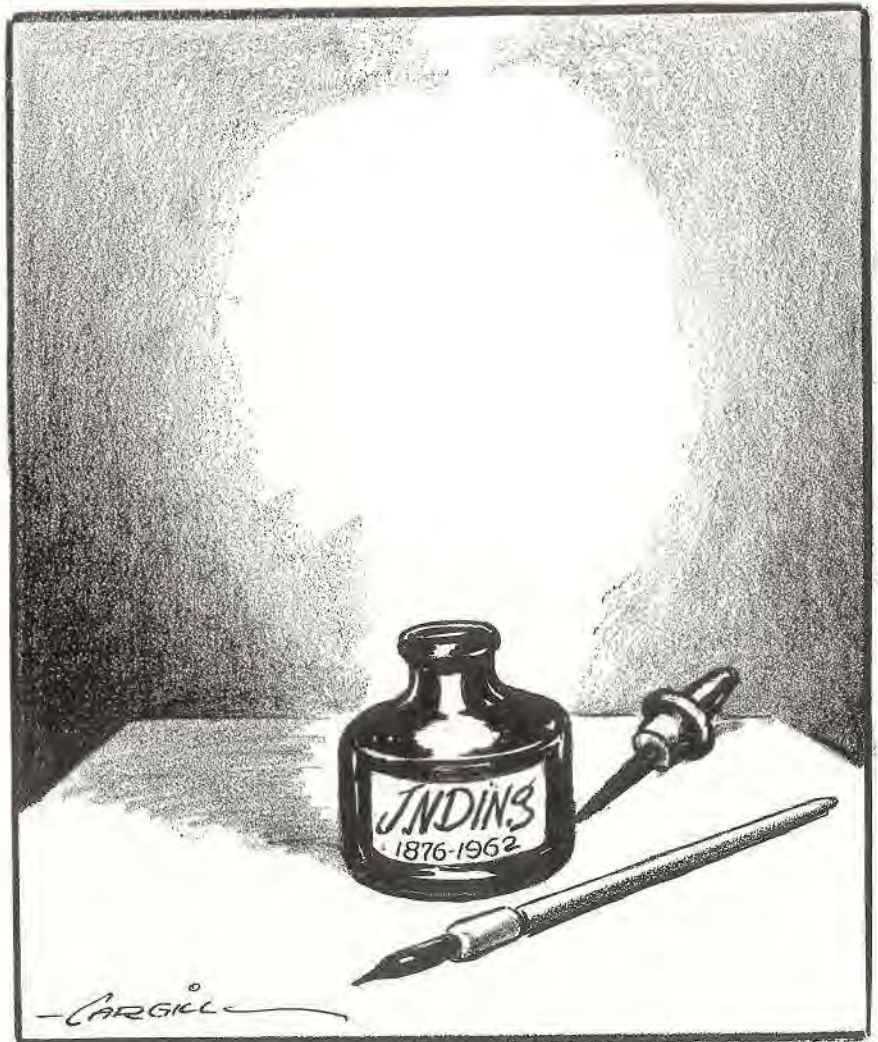
Dear Sir: I feel that perhaps a post script to H. Dorin's letter, concerning English wood pigeons which appeared in THE CONSERVATIONIST for December-January, is needed. In this country, wood pigeons are just about at the top of the list of agricultural pests and do millions of pounds worth of damage a year. The Ministry of Agriculture is constantly trying to devise methods of control. They are, of course, very migratory, but I do not think that anyone letting a shoot would get an appreciable increase in rent by stating that he had flocks on his ground al-

though they are indeed most sporting birds.

A record for a single gun was established last January when Major A. Coats shot 550 pigeons in about 4½ hours on a farm in Hampshire. I have never yet met a farmer who did not complain bitterly of the damage done by these birds.

I do not think it is quite correct to say that shooting in this country has "never been a popular sport." It is hard to make comparisons, however, for conditions and management differ so greatly between America and Great Britain, and I did once calculate that in the light of total populations, the percentage of gun or game license holders was much higher in America, I believe about three times as great.

Anthony Clarkson, Editor,
Gamekeeper and Countryside,
Hertford, England



"Ding" Darling

Dear Editor: I am sending you a cartoon on the death of the famous cartoonist and conservationist, Jay N. Darling.

Mr. Darling was a personal friend of mine, and a great help to me when I started as a cartoonist many years ago, and I should like to express in this cartoon what millions of Americans thought of him as a cartoonist, as a conservationist, and one of nature's noblemen. I merely wish to remember my

old friend "Ding," and help to remind conservationists everywhere that he was the greatest.

Jess T. Cargill

Ed. note—Our thanks to "Ding's" fellow cartoonist, Cargill. Elsewhere in this issue, the reader will find a brief account of "Ding" Darling's life and accomplishments as a conservationist.

How to Capture a Wild Flower—on Film

by Carl A. Carozzi, Assistant Professor of Conservation, Cornell University

I was kneeling on the ground, bent over, peering through my view finder at the image of a delicate spring flower. My thumb was poised on the shutter release. I was about to capture a wild flower, on film.

I had just purchased an inexpensive 35 mm camera and a two diopter (2 x magnification) portrait lens. The folder of instructions that came with the portrait lens stirred a spark of imagination in me when it explained how close up photographs of small objects could be made.

I was living in Texas then and it was spring. The sand hills around San Antonio were thronged with wild flowers, likely subjects for my first experiments with close up photography. I purchased a small tripod (one that would allow me to get down to the level of the flowers) and a cable shutter release (to prevent camera movement when the shutter is tripped, see sketch 1) and set out to take my first wild flower picture. I also had a light meter to help me determine the lens aperture setting and a tape measure to determine accurately the distance from the lens of the camera to the subject. This must be done as the use of a portrait lens changes the focal length of the camera and prevents use of the range finding apparatus on the camera (except in reflex cameras with a prismatic eye level view finder).

It is important to measure very carefully to determine the correct distance between the lens and the flower, as the subject must be between the minimum and maximum points of focus. This guarantees that both the nearest part and the furthest part of the subject will be reproduced clearly. (This limitation in focus is called "depth of field" and is illustrated in sketch 4.)

I assured myself that the depth of field, which is very short in close up work, would not be exceeded either to the front or the back by measuring to the center of the subject rather than the forward edge. Then I took a reading on my light meter to determine what my lens aperture setting and shutter speed should be. These are critical factors because the shutter speed must be fast enough to stop any small movement of the subject and the aperture setting should be made as small as is allowed by the prevailing light conditions because smaller apertures increase the depth of field. The photographer must exercise some judgment, for shutter speed and

aperture size compensate for one another. That is, faster shutter speeds reduce the amount of light reaching the film and larger lens apertures increase the amount of the light reaching the film, or vice versa.

I had to use a little "Kentucky windage" with my camera because it had an eye level view finder and there is a difference between what your eye sees through the view finder and what the camera lens "sees." (This difference is called parallax. See sketch 2.) After aiming the camera somewhat higher than the subject to correct for the parallax, I held my breath and tripped the shutter. The Texas bluebonnet, reproduced on the opposite page is the first flower I ever captured on film.

As my experience increased, I began to read more about the techniques of close up portraiture. I found that there were limitations to the use of the equipment that I had, and that the *sine qua non* for taking close up pictures was the 35 mm single lens reflex camera.

The 35 mm single lens reflex has its greatest advantage over the conventional 35 mm camera in that the problem of parallax is completely eliminated. The photographer sees focused on a coupled ground glass range finder exactly what the camera lens "sees" (see sketch 3). Also, the full range of focus can be seen on the ground glass and this eliminates the need to measure with a tape the distance between the camera lens and the subject. In addition to these advantages which are built into the range finding system, reflex cameras have detachable lenses permitting the insertion of various extension devices between the body of the camera and the lens. The effect of extending the lens of the camera further away from the film is to magnify the image of the subject on the film. Such a system eliminates the need for attaching supplemental portrait lenses to the camera. The ideal attachment for doing this is a bellows extension (see sketch 4). The bellows, which is on a geared track, permits the photographer to move the lens continuously away from or towards the camera body, thus gaining a continual range of possible focus.

High magnification is needed when taking pictures of extremely small subjects such as flowers. Without some system for magnifying the subject it would appear as a tiny speck on the finished slide or print.

To achieve magnification it is often

advisable to use a lens other than the one which comes with the camera. Usually 35 mm camera lenses have a focal length of 50 or 57 mm (distance from lens to the film). By using lenses with focal lengths of 100 or 135 mm it is possible to obtain a telephoto effect because they are optically ground to magnify to a greater degree than the conventional camera lens. One can take the same picture with such a lens without the necessity of placing the camera as near the subject. The advantage gained is that depth of field is increased when the distance between the camera and the subject is greater.

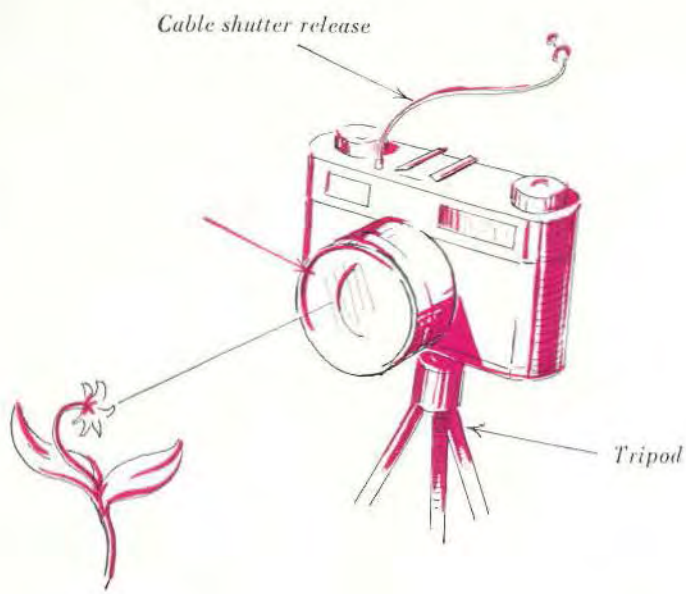
The only difficulty encountered by the photographer when using an extension bellows is that as the lens is moved away from the body of the camera the effective size of the aperture is reduced. This means that when taking a picture the photographer must compensate for this light reduction factor by either opening the aperture or reducing the shutter speed. Fortunately, the compensating factors have been worked out on prepared tables which can be purchased at any photographic supply store.

The wild flower photographer will find that natural light conditions vary greatly as he moves from bright sunlit fields to the darkest recesses of the forest. Because of this, light is most often the limiting factor in taking a high quality wild flower portrait. Frequently the use of flash illumination or large reflectors is the only way to take a picture when light conditions are poor. In addition, there is also a range of color films of varying sensitivity to light. There are subtle differences in color reproduction among the various films under different light conditions. But the photographer can experiment to the point where he becomes adept at choosing the right combination of equipment and film to reproduce most faithfully the subject he is after.

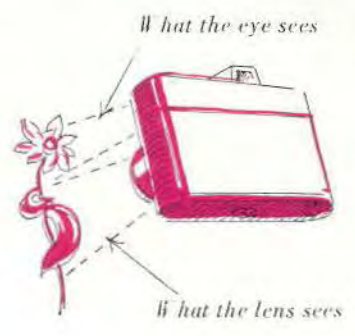
I reconfirmed my artistic judgment with regard to composition and with a silent prayer tripped the shutter.

I took that slide out of my file recently in preparation to having it reproduced here. As I looked at it illuminated by the light reflected off the snow coming through my office window, I could almost taste the smell of warm spring earth. I was once more persuaded that this was surely one of the better ways to experience the re-awakening that comes each spring.

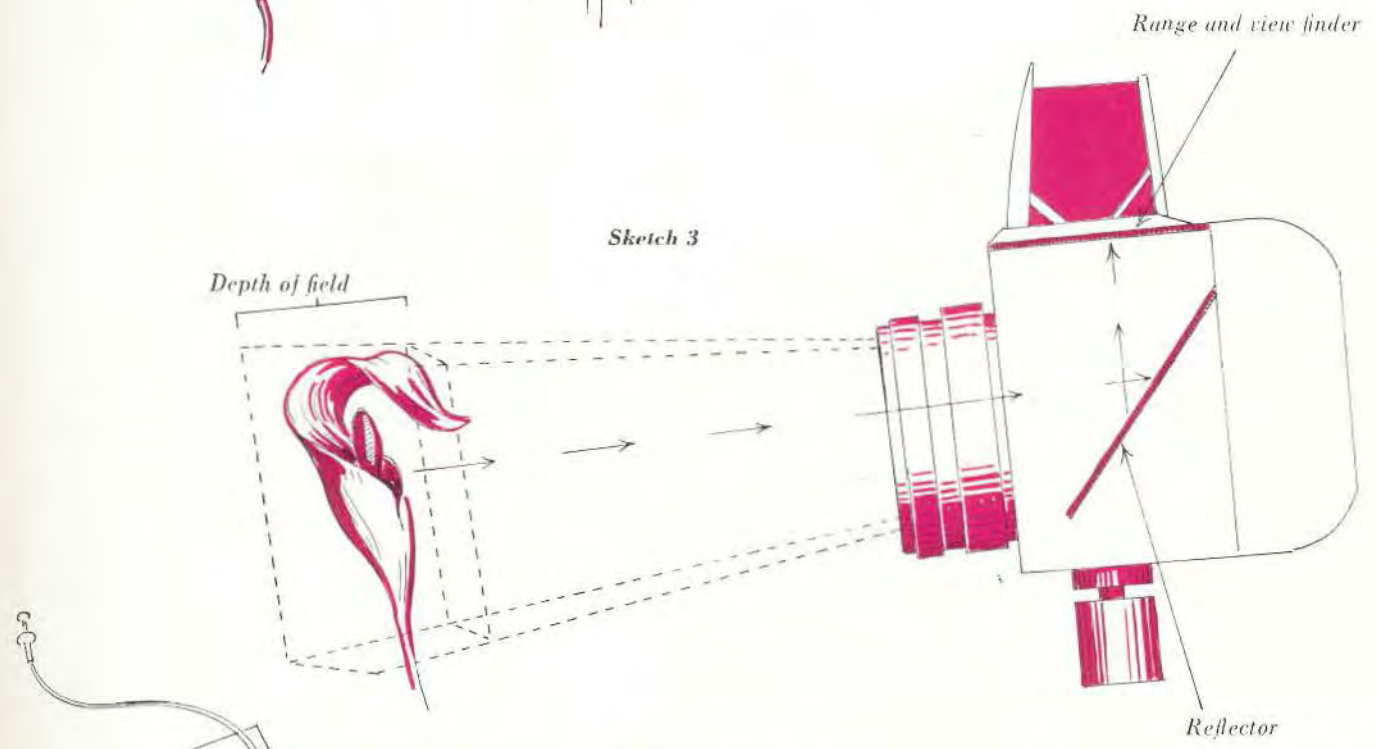
Sketch 1



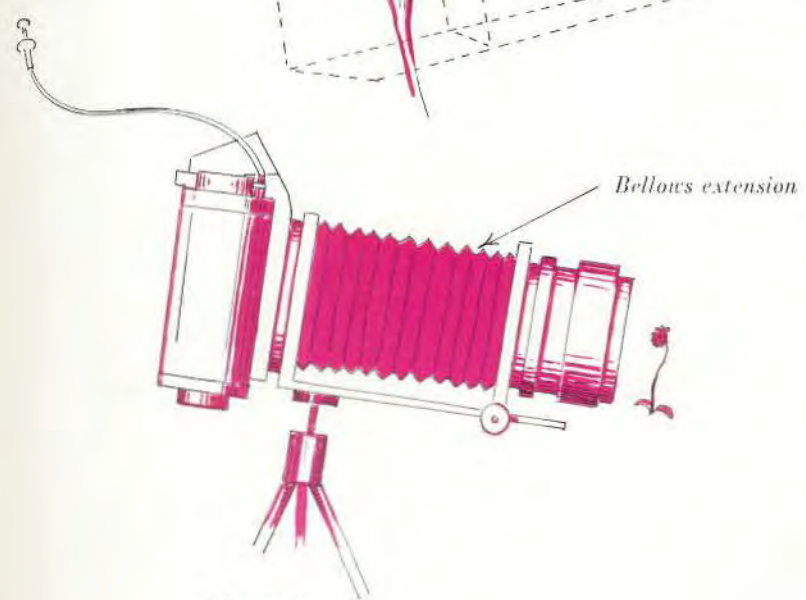
Sketch 2



Sketch 3



Sketch 4



Texas Bluebonnet

2

