



HERE COME THE BIOLOGISTS

By Gordon MacQuarrie

Now that the airplane is here to stay and no one objects to vaccination against smallpox, it is remembered that yesterday's fishing and hunting man got his information about coming seasons from a whiskered old guide who lived a quaint and smoky life back in the cutover. This oracle of the furling pipe was an eminent figure of his time. He tested the thickness of muskrat houses and peeled onions in the dark of the moon to forecast weather. In the off seasons when he wasn't guiding, he had a lot of time to think, and he could show you how a hair from a horse's tail would turn into a snake if you put it in a rainbarrel. A few of them are still around, but not too many, and those that persist are often synthetic, self-made characters upholding an old tradition for the sake of local color, and usually sadly in need of dry cleaning.

The genus began disappearing as long as 20 years ago when bright young men with book l'arnin' began getting interested in game and fish. In the hey-day of those uncombed fakers, if a hunter wanted a prognosis about an impending duck season, the old fraud would provide him with a prediction based on the bluewing teal nests he encountered in casual rambles between his still and his salt lick.

Today there is no guessing on continental duck production. The game managers, the game biologists, the conservation wardens, of all the states and the prairie provinces of Canada just pile up a factual picture of the duck population by going out in the field and counting them. That count and attendant forecasts of plenty or scarcity has been reliable for more than 15 years, and gets more accurate with each passing year.

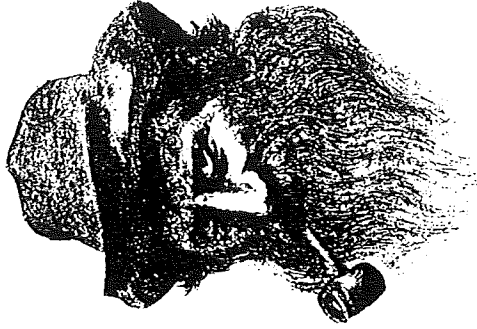
They will tell you, will these bright young men from the universities, what the average size of the duck clutch was in Manito-



This article, never before published, was written by Gordon MacQuarrie shortly before his death on Nov. 10, 1956. MacQuarrie founded the Milwaukee Journal's outdoor page in 1936 and was the state's foremost outdoor writer for two decades.

Since his death, the Gordon MacQuarrie Foundation, Inc. has been established to promote conservation journalism.

ba, how the birds made out in the critical drought periods, and during moulting, and when the wildfowl get off for the south, it is these trained men of science who forecast with remarkable accuracy what the duck hunter may expect along the flyways of America.



So it goes in a world of change and progress. The old giveth 'way before the new. The prophet with the whiskers and the gurgling cornocob did give something to the world, but not much, except humor, on this order: At a wordy public battle in Wisconsin, this reporter listened to the whiskered pundits of the backwoods. They de-claimed in the presence of several qualified and patient biologists, plus William J. P. Aberg, who was then chairman of the state conservation commission. Pains were taken to set the old geezers aright. Toward the end of the day, Bill Aberg, waving the olive branch, asked one particularly rock-headed bush rat what he really thought about the proposed deer management plans. The gaifer did then asseverate:

"I haven't made up my mind. But when I do I'm going to be damn bitter about it."

The changing scene of conservation and wildlife requires trained eyes to prescribe for it. Twenty years ago the word "biologist" was just becoming known in the picture of natural resources conservation, as the public saw it. It was in the 20's and 30's that the era of transition set in, when "biologist" came into the picture, and when the prophetic old timers who quoted their gram-paws began to assume less importance in what is a very scientific and complicated business.

Today no state in the union is without its corps of fish and game biologists, game managers, foresters, forest entomologists, pathologists, and their like. Some state departments are now demanding that the bright young men they hire hold doctor's degrees, no less. If this revolution in management of fish and game--this whole new attitude toward the soil, its landscape and its creatures--must be attributed to one person, it would have to be the Great Aldo Leopold, who honored the University of Wisconsin with his civilized mind in the last 20 years of his life.

There is not a man in this field who will deny that the modest Leopold, with the brain of a scientist and the heart of a poet, was the fountainhead, the inventor, the pioneer genius. He is fast becoming legend. All over the United States today, and in Canada, and some foreign lands, you will find Leopold's boys--men who took degrees under him while he was director of Wisconsin department of wildlife research. Author of hundreds of scientific papers, Leopold was also the author of the more tender and possibly immortal "A Sand County Almanac," in which he set down the foundations of his thinking.

Leopold originated the concept of "the land ethic." He said

a great many things now quoted widely, but let it not be forgotten that in his day he was upbraided--even reviled--by those assorted ignorami whose knowledge of wildlife ended with what Grampaw told them. Leopold said:

"We abuse land because we regard it as a commodity belonging to us. When we see land as a commodity to which we belong, we may begin to use it with love and respect. There is no other way for land to survive the impact of civilized man, nor for us to reap from it the esthetic harvest it is capable, under science, of contributing to culture."

Leopold owned a little shack on 160 acres of land on the Wisconsin river near Portage. There he liked to putter around with bird banding and wildlife habitat improvements, and if you got up early enough in the morning, he would supply you with sourdough pancakes baked on his open hearth.

Returning from his shack to Madison, one day, with his son Starker, the latter halted the car in a little town for a pack of cigars. From the store came the blare of a radio, broadcasting a critical football game between the Chicago Bears and the Green Bay Packers. This puzzled Leopold. When Starker returned he was asked, in complete seriousness: "Starker, who are the Packers?"

It took just about one year for this newspaper reporter to convince Aldo Leopold that he was really interested in the things stirring in the Leopold department at the University. Once he made up his mind that I would not brutalize the facts of this tender, beginning science, he became the greatest news tipster of my experience. He was alive with ideas, and it should be added that he knew news when he saw it, and knew what to do with it.

I sat beside him one day in 1938 at a conservation meeting of some kind, I forget what. Leopold leaned over and tapped me on the knee---"Get in touch with David Thompson and the others in the Illinois Natural History Survey. They know something new about fish management."

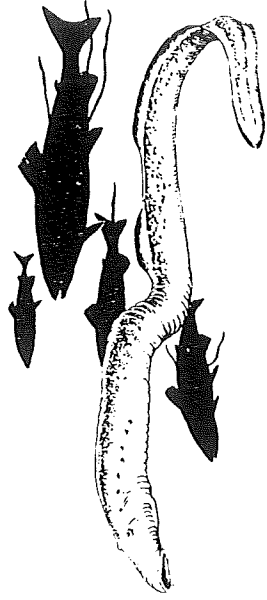
The story that came out of that tip was of the Illinois scientists almost completely upsetting old theories of fish management. They put the fish hatchery in its place, a subordinate place. They stressed management of habitat. They urged more hook and line pressure on public waters, less restrictions on sports angling. That basic concept has spread to almost all of the states.

Leopold's influence is greater today than when he lived. His own sons and hundreds of others are going at the business of producing fish and game by methods undreamed of two decades ago. And yet, they often fail. But they expect that, as doctors expect to lose patients. Then again, they often succeed, and quite gloriously.

Wisconsin's deepest lake, Big Green, provides lake trout

fishing for sportsmen, although, since the 90's when lake trout were introduced in it, that fish has not been able to reproduce itself in Big Green. The youngsters in fishery biology in the Wisconsin Conservation department figured out what was wrong and solved the problem.

By skin diving, they learned that the lake bottom was muddy, with no rocks. Lake trout eggs fell to the smooth bottom and were being gulped by thousands of mud puppies. So, these bright young men persuaded the Green Lake county board to dump thousands of tons of big rocks and little rocks into 80 feet of water. Thereafter, the lake trout eggs fell between the rock crevices where the mud puppies could not get at them. Big Green is now reproducing lake trout; there is no further need to plant it with fish brought expensively from a distance.



Those same

young fishery

biologists think

ahead, too. Since

the sea lamprey, invader from the Atlantic, has practically exterminated the lake trout of Lake Michigan, they guess, now, that some day, when the lamprey hordes are controlled--if ever--they will have to go back to Big Green for lake trout and lake trout eggs for re-planting Lake Michigan. It is important to them that the lakers in Big Green are Lake Michigan lake trout, a strain well suited to that lake--and possibly for biological reasons not now known.

They go out of their way, do these young biologists and game managers, to provide good hunting and fishing for sportsmen, and often they wonder if they are being appreciated. Like as not they are not appreciated much; in fact they are not even well understood, and it is a fact that they are their own poorest public relations agents.

A trained biologist testifying before a state legislature's committee is a sitting duck. They are not trained in debate. They know nothing of the parliamentary tricks. Any apple knocking assemblyman with an axe to grind can take these youngsters apart without reaching too deeply into his mental resources.

There's a big, shallow duck lake by the name of Mud, in Columbia county, Wisconsin. All of its shoreline was privately owned and the owners contended that the lake was not navigable, and so, charged the public hunters who used their shoreline for duck blinds. Fred Zimmerman, waterfowl biologist, put a stop to that nonsense. He did it by the simple process of dropping a boat in the lake and rowing around in it to prove it was navigable. He made quite a fuss about it, and, in the fullness of time the case got to the Wisconsin public service commission, which controls all water levels in the state. The commission ruled that Zimmerman had proved Mud to be a navigable body. That softened up the shoreline owners so that they listened to reason and leased 500 acres of Mud lake's shoreline to the state, for public access. It is doubtful, today, if a dozen hunters remember that it was young Zimmerman who proved Mud lake's non-navigability was a myth.

No contests in which these biologists have been engaged have been more bitter, or more fraught with sloppy emotion, than the problem of managing deer in this country, especially the white-tailed deer. Pennsylvania, New York, Michigan, Colorado, Minnesota, to name a few, have gone through the battle to reduce deer herds to the point where the animals can be sustained by their natural food, without dying of malnutrition in hard winters.

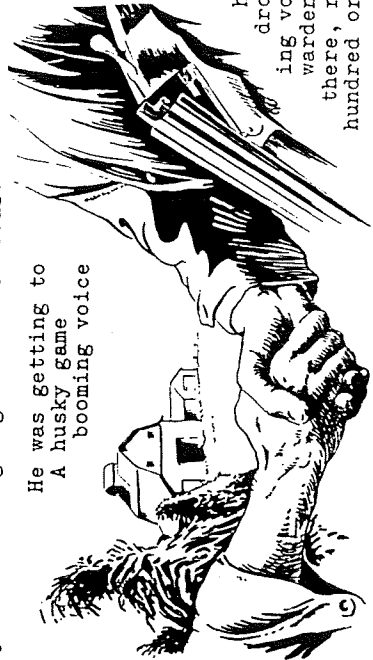
Not all of the states have won that battle. This is because they permit, for political reasons, the untrained and the emotional to have a hand in the management of this critter.

The biologists are not guessing about deer; they don't care a fig what Grampaw said about them, or how he made the popple trees bend and sway with the bar-o-o-m of his .45-90. The biologists have pitted their conclusions, drawn from long study, against the empirical opinions of the whiskered, gurgly pipe school--and in many states they have won, at least for the present. But, the barbershop biologist, lineal descendant of the "old guide," is a tough and resourceful fellow, and he will be around for some time to come, albeit in a diminishing role as the years pass by.

When these young scientists first pressed into the conservation picture there was some resentment from some game wardens. It was natural, and it was expected. The game wardens saw these youngsters becoming important men in local communities, asked to speak before the luncheon clubs, too! Mostly that human difficulty seems to have been resolved and the wardens are on the team--some of them more vehement than the trained biologists in sticking up for science against guesswork.

I think I saw the perfect example of that cooperation at one of those white-hot state hearings on deer management in a northern town. A particularly vocal local expert was opposing the biologists on everything, and repeatedly breaking into deliberations without permission from the chair. This bird had a system. He would stand up and yell: "I can take you out there and show you just what is going on in the woods."

He was getting to
A husky game
booming voice



be very tedious. warden with a saw his chance. The nuisance jumped to his feet and began, "I can take you out there--" whatever else he said was drowned in the roaring voice of the game warden: "Take HIM out there, right now!" Three hundred or so people in the



crowded room laughed as one and before the hearing was finished the biologists had their way--thanks to an assist from a big brother warden.

The nature fakers, who have not been effectively squelched in this country since Teddy Roosevelt's classic blasts at them from the White House, get short shrift from the young men of same biology. At a meeting of trappers I heard one of the barbershop experts tell a conservation commissioner that a beaver can think. George Knudsen, Wisconsin's beaver study leader, put an end to that foolishness by explaining, with many examples and photographs, that beaver are actually given too much credit. Among other things, he showed how they fell trees so that they cannot possibly be used for food, or dam building.

It took the biologists of the country to teach the muskrat trappers to take the rat crop as it came along, and not permit them to increase beyond the carrying capacity of their habitat, with resultant disease. The biologists get out in the marshes and wade, lifting the tops off muskrat houses in the spring to see how many young are being produced. They can forecast heavy or light rat production from such spring surveys.

The biologists re-make trout streams. Hundreds of them have been brought back to good trout production. Wisconsin's one-time famous Prairie river of Marathon county, is as good an example as any. A young fishery manager, Ralph Jones, with a crew, worked on the Prairie for five years. He found a river of shallow, gravelly rapids, with few holes and too warm summer temperatures. Stream structures were put in to create holes. Cattle were fenced out, but crossings and watering places left for them by intricate fencing which prevented them from trampling down banks. Trees that halt soil erosion were planted by the tens of thousands. The Prairie has come back.

Quite often, the stream biologists deflate fishermen by proving that streams alleged to be "fished out" actually carry big populations of highly desirable trout. A classic example of this came off in California under the direction of Paul R. Needham, a fisheries man so good that California stole him from New York.

Needham counted the trout in a California stream where "nobody was catching any fish." In 10 sections of the stream he counted more than 24,000 brown trout of catchable size--and he never said a word about fish being smarter than fishermen.

The biologists and managers are putting lands to use so that they fulfill their best potential. Wisconsin's 30,000-acre Horicon marsh is one of scores. Both federal and state men have had a hand in these jobs. Horicon had a long history of land abuse, via expensive attempts to drain it and grow crops. It didn't work. Everybody lost money. But, gradually, the state and federal governments acquired the 13-mile long marsh. They re-established water levels, for water is a chief and simple tool of the managers. In an average year nowadays, 50,000 Canada geese call Horicon home in autumn and spring.

is their best ally. They peg away hard at this, with literature, movies and lectures. It is a fact that very often, after the public has been thoroughly briefed, it strings along with the bright young men with the college degrees.



It takes a trained biologist to say "I don't know." The rest of us have all sorts of glib answers for nature's mysteries. James W. Kimball was a game biologist in Nebraska and South Dakota before he became Minnesota's director of fish and game research. He was in South Dakota during the biggest irruption of ringneck pheasants known in the world. Flocks of a thousand or more were quite common. They declined in numbers and Kimball, who undoubtedly knew more about the birds than anyone in South Dakota, said, when asked why they declined: "I don't know the cause." He speculated. He discussed his end-less investigation. But he finally said what only brave men say, "I don't know."

A lot of battles have been won and a great many more remain to be fought. The public is learning. And it is hard, hard work for the young men of scientific fish and game management. They remind me of the story of the boy who acquired a stepfather after his mother's divorce. His own father was permitted to visit the boy at intervals. Once, visiting his offspring, the father asked how things were going.

"Pretty good, dad."

"You get enough to eat, son?" "Yes, plenty to eat."

"You get some spending money now and then?" "Yes, dad, plenty of spending money."

"How about recreation?" "Well, my stepfather takes me for a rowboat ride every morning. No, dad, I don't mind the rowing. And I don't mind my stepfather throwing me overboard every morning. It's fighting my way out of that sack that gets me down."

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The managers are good at little, patchwork jobs, too. A typical such is French creek, 1200 acres in central Wisconsin. The biologists and managers took a look. Nobody wanted it. The state bought it, cheap. In one day, the managers, with one bulldozer, pushed up the earthen wings of a little dam. The next day they finished the dam with poured concrete and plank flash boards and that put the French creek flat under control with that all-important tool, water.

The result: unwanted wire grass was killed. In its place came plants valuable to wildlife--cattails, bulrushes, roundstem, and smartweed, the latter a prime mallard food. That worked so well, by attracting waterfowl, that the state went a step farther. It leased 3,000 acres around the French creek marsh for a public hunting ground. The once useless flat has been put to work at what it can do best.

Despite the public scorn they have been subjected to, these new scientists are quiet and orderly fellows. They just keep on plugging away. They like their jobs because they feel they are being useful. It is not so much a business with them as a way of life.

There's a plant, leatherleaf, that likes shallow water and damp ground. It is a plant created by nature as a machine for turning water into solid ground. It is worthless to game, except for cover. The northern states are full of it. In places in the north it is as great a curse as the floating hyacinth of Florida. It crowds out useful plants, like wild rice. Up north, on Rice Creek flowage in Wisconsin, Larry Jahn, Wisconsin waterfowl research leader, went to work on a thousand acres of leatherleaf with chemicals. The cost was slight. When it was killed back, he spent \$50 of the state's money for wild rice, purchased from a Menominee Indian. The rice now dominates that marsh and it is a favored duck hunting place.

The little jobs they do are so often overlooked, or forgotten. Up in northwest Wisconsin, George Curran, a game manager, found Totogatic lake, headwaters of a good-sized river, plugged with an illegal dam, put there by real estate interests to raise the lake's level and provide better swimming. Curran brought that case to the public service commission. The commission directed Curran to knock out the dam and restore Totogatic to its natural level. Curran did it the next day, with two boxes of dynamite. Totogatic's level dropped a couple feet and within two years the drowned wild rice in it completely covered the lake. Back came the ducks--and back came the Indians of the nearby Odanah reservation to harvest wild rice there for the first time in 10 years.

Always the managers and the biologists are working uphill, against pre-fixed public notions of how game and fish should be managed. No one goes to a barber shop to have his appendix out, but when it comes to calling the shots on fishing and hunting, everyone is an expert.

The young men know, as they go along, that education

