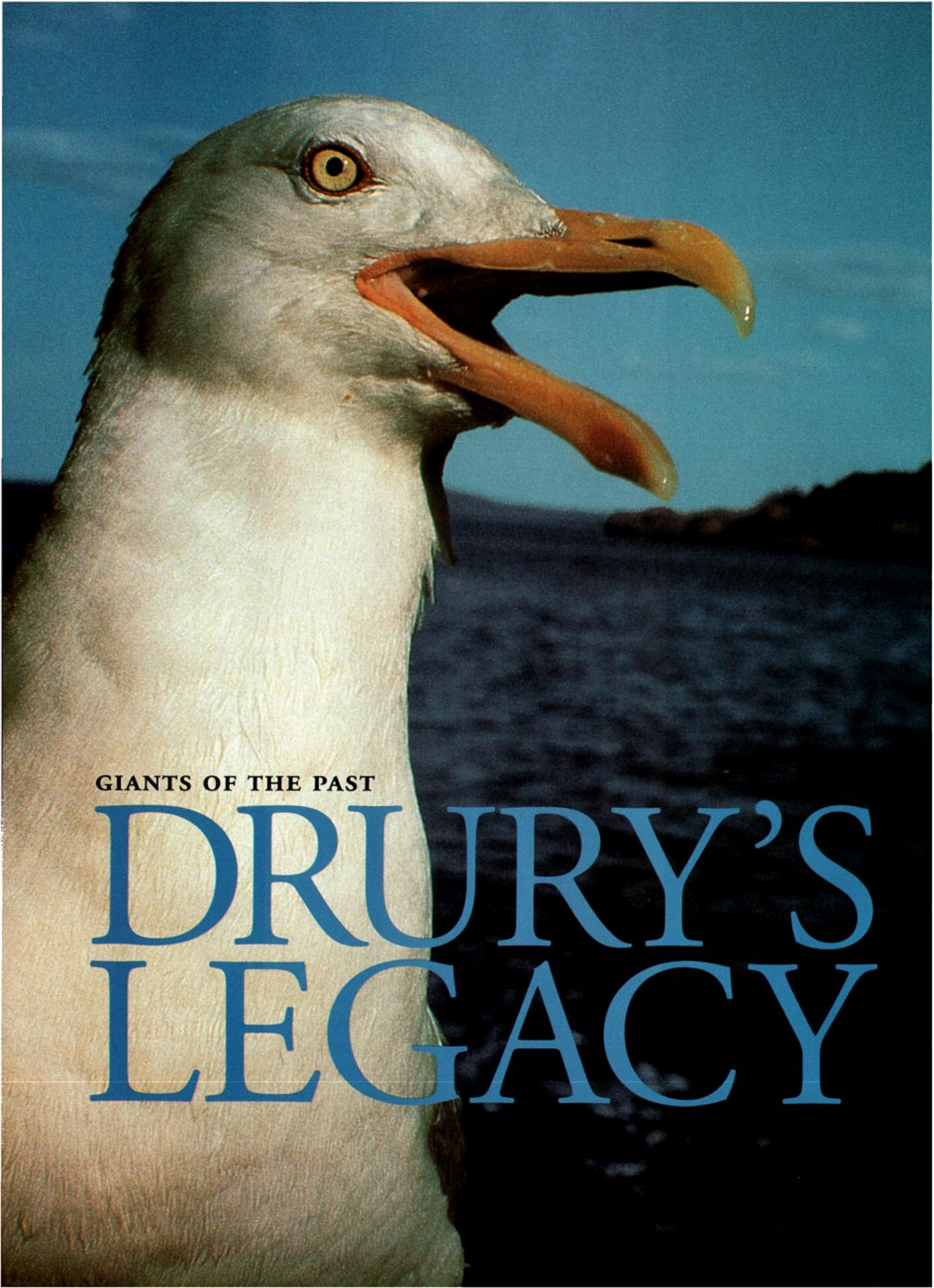

GIANTS OF THE PAST

DRURY'S LEGACY

"**OUR IDEA** was to study gulls, not in one colony as most biologists do, but over about 60 colonies in New England, to get an idea of their impact on airports," Bill Drury told his students one spring afternoon a couple of years ago. "We like to think of all animals as efficiently making a living. But for gulls, we found this isn't so. A few are really competent, some less so, and some are just plain incompetent."

The occasion was a field trip on which Drury took his class in field ornithology from the College of the Atlantic in Bar Harbor, Maine, to nearby Little Duck Island. That trip sticks in the mind as a cameo of a great teacher and provocative scientist, who died at 71-years-old March 26, 1992. Drury was a tall man, his favorite cloth cap concealing a spectacularly bald head. He had been staring across a stretch of wind-rippled water at the Herring Gulls in the blue distance. Their white breasts seemed to gather, each to itself, the sum of heaven's light. But now Drury was thinking of the gulls less sublime side, their tendency to haunt garbage dumps or cluster on airport runways. His studies of their movements and loafing habits nearly thirty years earlier had helped to make

WILLIAM DRURY GENTLY PRODDED OTHERS TO TAKE ANOTHER, FRESHER LOOK AT THEIR NOTIONS OF HOW THINGS WORK.

BY FRANK GRAHAM, JR.

Boston's Logan Airport a safer place for aircraft.

"You can't imagine what awful parents gulls can make," he said on the island's rocky edge. "We found some that, after their chicks hatched, couldn't go on to the next step. When the chicks started peeping, the parents just built a new nest on top of the old one. Pretty soon they had buried their own chicks and the peeping stopped. It put an end to that little problem, anyway!"

As his students followed Drury up the island's apron of rocks into the high grass, he explained how the variations in gulls' skills make hash of the "animal life expectancy tables" so beloved of biologists. The incompetent gulls die early, leaving few survivors. Able ones live on, producing more chicks and making "pests" of themselves, in the eyes of humans.

"The point is that science must analyze even the fate of individual animals in defining the relationships between human society and the natural world," Drury said. "Both nature and humans are becoming more complex than we want them to be."

Drury was reveling in his element: upsetting others' notions of how things work, gently prodding them to take another, fresher look, focusing on the individual rather than "types."

"Natural selection was the principle which guided most of his explanations about life," Steve Katona, one of Drury's faculty colleagues, remembers. "But his perspective was unusual and humane in emphasizing not the winners, but the 'losers.' He recognized the important contributions of individuals that did things a little differently, because those variants often provided novel responses to problems that could be important under other circumstances or in the future."

Drury made his living as an ornithologist and teacher, but always thought of himself as an ecologist—an ecologist in the old-fashioned "naturalist" sense. Having come to birds through geology and botany, he saw them carrying out their lives among plants that were firmly rooted in complex landscapes. He knew the land, as few scientists do, in all its parts. He distrusted the "mathematicians" who had invaded his profession, believing that anyone who claimed to find order in natural communities was operating under a crippling delusion.

But Drury's view of intelligence was broad enough to encompass many varieties. Natural selection, which works on the fact that each individual is different, was his credo.

"He pointed out that there were few Harvard Ph.D. candidates that he would like to trust at the wheel of a lobster boat off Vinalhaven in a fog," John Anderson, another colleague at the College of the Atlantic, recalled during a memorial service for Drury. "He objected to strict standards of 'knowledge,' telling me of a lobsterman who said, 'I don't know where the rocks are, only where they ain't.'"

Yet Drury's mind was capacious, stuffed with all sorts of information about boats and birds and art and poetry. Anderson recalls Drury navigating the potentially treacherous waters among Maine's islands, leaning over the rail to observe seabirds while

swapping passages from Shakespeare's plays with him. Then, during a break for lunch, he might set about demolishing some ecological theory held as gospel by his peers.

Bill Drury came by his iconoclasm naturally. His parents were artists and non-conformists, instilling in their son a tendency to question whatever orthodoxy was handed down to him. Born in 1921 in Newport, Rhode Island, he attended St. George's School, where his father taught art. At Harvard, pursuing studies in geology and botany, Drury seemed to console himself for what he found to be generally mediocre teachers by ornamenting his field studies with first-rate sketches. (His illustrations of birds and plants have been mounted, along with selections of his father's work, for a colloquium in his memory at the College of the Atlantic Memorial Day weekend.)

Returning from service in the Navy during World War II, Drury earned his Ph.D. in geology and botany at Harvard. During those years, he had two experiences that influenced his later career. First, he formed a close friendship at Harvard with Ernst Mayr, the foremost evolutionary biologist of our time. He found Mayr "a breath of fresh air," and received from him a firm grounding in aspects of natural selection that later made Drury suspicious of the work of many other ecologists.

A second turning point came on an early trip to Alaska, where he carried out his doctoral studies on plant distribution in bogs in the Upper Kuskokwim River region.

"The seminal event for Bill was finding a spruce forest growing on top of an ice field," recalls Ian C.T. Nisbet, a longtime friend and co-worker. "He realized that if this was a climax forest, there was something awfully wrong with orthodox theories of plant succession."

In general, orthodox theory describes plant succession as both unidirectional and deterministic. A typical scenario is said to be that, following a major disturbance, small pioneer species, such as mosses or lichens, invade the area and take hold. As the pioneers grow, they alter the soil and microclimate for other species—let's say herbaceous plants—which then become dominant. The herbs, in turn, prepare the way for shrubs, the shrubs for short-lived hardwood trees, and the latter for the "climax" species, such as spruce, or oak and beech.

Obviously, no traditional "succession" of plants had prepared the way for that ice-bound spruce forest, nor did Drury's studies in bogs and marshes

confirm any ordered transition that might have been expected from current theory. He and Ian Nisbet wrote a landmark (and, in some quarters, notorious) critique of succession theories in 1973, using the theorists' own studies to show that so-called transitional species often create conditions that suppress climax species and even reverse plant succession (as Drury had found in Alaska). The theory, Drury and Nisbet argued, neglects the force of natural selection.

"That plants should release products which facilitate the growth of their own species and inhibit the growth of other species makes better sense according to natural selection than that they should alter their habitat in such a way as to facilitate the growth of other competing species," they wrote. "Several publications indicate that some 'early successional' species do produce chemicals which inhibit the growth of later stage species."

But more and more, Drury's research became focused on birds. While still teaching ecology and evolutionary biology at Harvard, he joined the Massachusetts Audubon Society and directed its education and research programs from 1956 until 1976.

"Much of Bill's work was on colonial waterbirds, and he played a catalytic role in the formation of the Colonial Waterbird Society," says Nisbet, who worked with him at Mass Audubon. "He also did behavioral studies on Killdeer and other plovers, and he and I used radar in our migration studies."

But of all his research, the work on gulls drew the most attention. Bird-aircraft collisions had become increasingly common by 1960, and the U.S. Fish and Wildlife Service funneled Federal Aviation Administration funds to Mass Audubon for a study on "problem gulls" at Boston's Logan Airport.

"Fortunately, the Fish and Wildlife Service wasn't simply interested in the question of how to solve the problem, but also in the forces that combine to create a problem," Drury said years later. "We quickly saw that if the people who designed Logan had set out to make a bird sanctuary instead, they couldn't have done a better job. The site was surrounded by city dumps and sewer outfalls where the gulls could feed. The airport even had a dump of its own, and it was dotted with fresh water ponds and salt marshes where the gulls could loaf. Finally, it had long, isolated runways stretching into the harbor where the gulls could roost undisturbed at night. No wonder they flocked there!"

As he and Nisbet emphasized in one paper, many of the species that humans label "pests" are especially difficult to control because they have been selected by evolution to be adaptable. Very precise local "control" can help, but the habits of people, and not

PHOTOGRAPHS OF WILLIAM DRURY BY PHIL SCHOFIELD HERRING GULL PAGE 44 BY ARTHUR MORRIS/VIREO

gulls, were at the heart of the problem.

"For such species, an attempt by man to suppress its population is merely another environmental change, to which it already has the capacity to adjust," they wrote. "Hunting, poisoning, and other such remedies at the point where they are 'pests' can have only a very limited effect because the birds adapt and become wary. The strategy of management is then to seek the weak links in the adaptive system and to use them to make the species adjust in ways that will benefit us."

Changes recommended by Drury and his co-workers led the authorities to alter terrain at Logan, and helped alert the public to the need for proper landfills and other alternatives to society's worsening solid waste problems. Drury and Nisbet also added to our knowledge of the behavior and distribution of gulls and of wildlife populations in general.

Drury was on the panel of President John F. Kennedy's Science Advisory Committee that investigated pesticide use in this country after the publication of Rachel Carson's *Silent Spring*. He was especially critical of the failure of scientists to speak out.

"Let me illustrate this communications problem," he said at the time. "At Harvard, there is a group of scientists studying baboons. These scientists are really studying people, of course, but they pretend they aren't. They've learned that when a baboon which is low in the peck order discovers a new food, none of the others will pay attention to it. But if a baboon high in the peck order discovers a new food, all the other members of the troop want to try it, too. What we need now are people high in the scientific peck order to take up the cry aggressively against the present pesticide policies. Until then, the rest of the scientific troop won't pay much attention."

Each summer during the mid-1970s, Drury took his wife Mary, one or two of their four sons, and a handful of students to Alaska. Operating out of abandoned mining shacks near Nome, they carried on ecological studies among the tumultuous colonies of murres, kittiwakes, and other cliff-nesting seabirds. Meanwhile, his observations on gulls and their impacts on terns and other seabirds took him increasingly into the Gulf of Maine. The Drurys had a retreat on Green's Island in Penobscot Bay, and from there he cruised to Down East seabird islands aboard a lobster boat, the *Medric*, provided by Mass Audubon.

In 1976, when the small, ecology-oriented College of the Atlantic offered him a position as professor of ecology and natural history, he decided to return to teaching. By all accounts he was an enormous and inspiring success, taking into the field even people who "hated science" and subtly turning them into biology students.

"ALTHOUGH BILL HAD NO PATIENCE FOR DOGMA, HE HAD INFINITE PATIENCE AS A TEACHER."

"Although Bill had no patience for dogma, he had infinite patience as a teacher," John Anderson has recalled. "He let me settle in, and then began a dialogue that will be with me as long as I am a practicing ecologist. 'Maybe I am too simple-minded,' he would say, then he would gently introduce me to the inconsistencies of my argument, the artifacts that I had imposed in order to reconcile a cantankerous, disorderly world with the smooth precision of theory. He seldom told me that I was wrong. Rather, he raised questions in my mind that caused me to go out and take a look, or to go back and take a second look at what was really happening."

One of Drury's considerable success stories in Maine is the tern colony at Petit Manan Island off Milbridge. When he arrived, the colony had been decimated by gulls. Organizing a control program that precisely targeted, with an avicide, the offending gulls, he gave the terns a chance to return, which they "accepted" in sufficient numbers to make Petit Manan one of the largest colonies in the northeast. Today, the continual presence of students from the college keep gulls at a distance, and even Atlantic Puffins have taken up nesting sites there, along with Laughing Gulls and Common, Arctic, and Roseate terns.

One major project left unfinished at his death was a book on ecology, which he had been wrestling with for over twenty years. John Anderson, Bill's son John, and some of his former students are trying to piece together, from the mass of material left in his computer, the residue of a life's work.

"He was unable to finish much of what he set out to do, but in a sense 'finish' was not part of his vocabulary," Anderson says of his former colleague. "An ending implied stasis or final causes, and Bill's world of change had no stasis, no finish, no end."

Like all the objects of his research and devotion, Bill Drury's perceptions shifted to accommodate each fresh observation, each questioning student. Perhaps that's the way to define a great teacher—and a provocative scientist.

LITERATURE CITED

DRURY, W.H. AND I.C.T. NISBET. 1969. Strategy of management of a natural population: the Herring Gull in New England. *Proc. World Conf. Bird Hazards to Aircraft.* Kingston, Ontario.

DRURY, W.H. AND I.C.T. NISBET. 1973. Succession. *Journal of the Arnold Arboretum:* 54: 331-368. Reprinted in: *Benchmark Papers in Ecology; Vol. 5 (F.B. Golley, Ed.):* 287-321. Davidson, Hutchinson & Ross, Stroudsburg, Pa.

—Frank Graham, Jr. is a longtime contibutor to American Birds, *and author of* The Audubon Ark.