

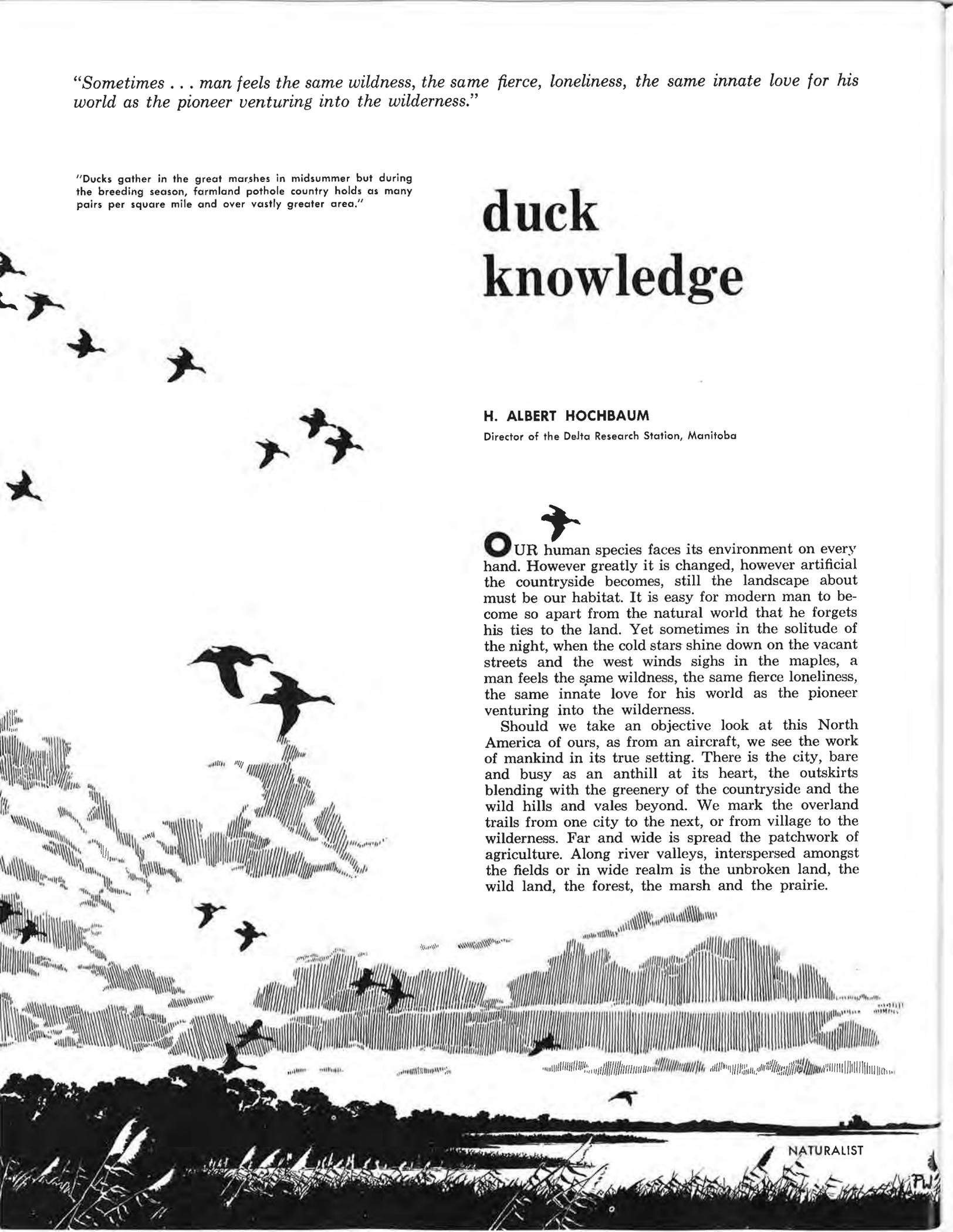
"Sometimes . . . man feels the same wildness, the same fierce, loneliness, the same innate love for his world as the pioneer venturing into the wilderness."

"Ducks gather in the great marshes in midsummer but during the breeding season, farmland pothole country holds as many pairs per square mile and over vastly greater area."

duck knowledge

H. ALBERT HOCHBAUM

Director of the Delta Research Station, Manitoba



OUR human species faces its environment on every hand. However greatly it is changed, however artificial the countryside becomes, still the landscape about must be our habitat. It is easy for modern man to become so apart from the natural world that he forgets his ties to the land. Yet sometimes in the solitude of the night, when the cold stars shine down on the vacant streets and the west winds sighs in the maples, a man feels the same wildness, the same fierce loneliness, the same innate love for his world as the pioneer venturing into the wilderness.

Should we take an objective look at this North America of ours, as from an aircraft, we see the work of mankind in its true setting. There is the city, bare and busy as an anthill at its heart, the outskirts blending with the greenery of the countryside and the wild hills and vales beyond. We mark the overland trails from one city to the next, or from village to the wilderness. Far and wide is spread the patchwork of agriculture. Along river valleys, interspersed amongst the fields or in wide realm is the unbroken land, the wild land, the forest, the marsh and the prairie.

Here is the pattern of our time. The cities broaden, the fields replace more of the forest, the marshland withers. The hand of man is ever reaching, grasping for more wild wealth to feed the cities. To live on the land is to change it. Gravel roads replace mud; black-top covers gravel. So far are we from nature, many of us, that we cannot understand how the black-top road has changed the face of the land.

Such is the course of human progress. Rendering the back country easier to attain in terms of facilities makes it also more accessible in time. Whether a farmer, a clerk, a laborer or an executive, the working man has more leisure at his disposal to be with family and friends in the out-of-doors. Ever more this means the wilds must be parcelled into smaller shares. Every individual, however free to be afield, must be satisfied with smaller and less pristine portions than his father enjoyed.

In this new age of rockets, mankind suddenly has become aware that science is not for the select few. Science must become some part of the way of life for all, a discipline for youngsters in the lower grades of school, a goal for advanced collegians. In our present awareness of the dignity of science, we are impressed by the need to train more physicists and chemists, our requirements to produce more technical manpower for the defense of our society and its North American way of life. Yet at the same time it is clear that all our efforts must not be aimed toward the development of more powerful rocket fuels and the other tools and techniques of defense. We are coming to realize that the continued well-being of our society hinges on a better understanding of ourselves and this environment wherein, for better or worse, we must live now and forevermore.

State concern with waterfowl is relatively new. Illinois, with its Natural History Survey, pioneered in studies of waterfowl way back in the middle 1930's, and the Natural History Survey has been a stimulating leader in the field ever since. Until a few years ago, however, many states considered the study and management of migratory game strictly a federal responsibility. They should look after resident resources, but the welfare of waterfowl was beyond the realm of their concern. Even as late as 1947, when a special conference was held at Bottineau, North Dakota to discuss the problem of breeding-ground survey and management, there were only two or three state men to join with the many federal biologists. Now, ten years later, state biologists outnumber Federal men in the annual breeding ground surveys. Some states have programs of waterfowl research within their own borders more auspicious than anything the federal government has attempted.

The same sort of thing has happened in University circles. When academic interest in conservation biology was aroused about 25 years ago, most of the studies developed around native game. There was, of course, the pioneering work of Logan Bennett at Iowa State College, but it wasn't until after the war that graduate schools became really interested in waterfowl. Now an impressive portion of waterfowl research is being accomplished by university graduate students, the University of Minnesota, along with the University of Missouri and the University of Wisconsin, a leader in this field.

One great advantage of this university work is that the scientists are far less hampered by administrative restrictions than in state and federal programs. With the freedom of action that goes with private support and with independence from pre-existing commitments of particular bureaus and associations, the graduate student interested in waterfowl is able to conceive the pattern of his studies and reach his own conclusions with freedom. Moreover, the University student may go beyond state borders in his investigations. However locally the ducks may be harvested, October supplies depend upon better understanding of birds over wide ranges of the breeding grounds. Thus Bue and Blankenship, two University of Minnesota students, carried out important investigations into the breeding of waterfowl in western South Dakota; and Charles Evans, another Minnesota graduate student, investigated the mobility of waterfowl broods in the pothole country of Manitoba.

The Delta Waterfowl Research Station, in southern Manitoba, has provided headquarters for many of these graduate students wishing to study waterfowl on the nesting range. This Station was established by James F. Bell of Minneapolis, who in the early 1930's realized that a sustained supply of ducks in the face of increasing pressures depended upon better understanding of the birds at their source. It was his idea to create a situation where scientists could not only work on the home grounds of waterfowl, but live there as well to carry on their studies in close harmony with the marsh environment at their doorstep. Mr. Bell established a hatchery, laboratory and living quarters at the edge of the great Delta Marsh. These he has since presented to the North American Wildlife Foundation, the Station's sponsor, the original facilities further enlarged by gifts of land and buildings by other members of the Foundation and by the Village of Delta.

In the dozen years since the war, forty graduate biologists from fifteen universities in the United States and Canada have come to Delta to accomplish the original research required to fulfill their obligations for the Masters and Ph. D. degrees. Their findings, in more than fifty journal papers and books, comprise the largest series of waterfowl publications produced by any single agency in the country. A counterpart of the Delta idea has now developed in the United States where, in northern Ohio, at the edge of the famous Lake Erie Marshes, the Winous Point Club, oldest duck club in North America, has established a similar biological station where university graduate students may find at marsh edge the facilities to study ducks.

While graduate students working at the Delta Station are free to investigate any phase of waterfowl biology, the main span of studies has been directed toward a better understanding of breeding behavior. Step by Step, species by species, Delta biologists are attempting to unravel the mysteries surrounding the reproduction of ducks and geese.

On the face of it, the problem of waterfowl reproduction seemed simple enough 20 years ago. Administrators believed then that most ducks were produced on a relatively few large, pristine marshlands. Annual breeding ground surveys were made in summer when post-breeding males and new-flying young had fore-

gathered in tens of thousands on the big marshes. Biologists of the time thought they were produced there; save the best of these big places as refuges, restore those that had been drained, and the breeding situation for waterfowl would be secure.

Modern studies indicated, however, that waterfowl do not concentrate their numbers on the large marshlands for the breeding season. Following their spring migration northward, the gregariousness of the mated pairs is lost. Each individual couple strives to isolate itself from others of its own species so that there is a vast spreading-out far and wide over the land. Small sloughs and potholes—even temporary spring puddles on agricultural land—serve as home base for these isolated pairs during the egg-laying stage of the reproduction cycle. In the larger marshes, ducks in pairs are scattered thinly along the shorelines with the wide bays of open water little used. Thus, on some of our most famous breeding marshes, such as the Lower Souris Refuge, in North Dakota and the Delta Marsh in Manitoba, counts show densities of nesting pairs no greater, sometimes smaller, than breeding populations in farmland pothole country.

This understanding of the importance of small waters has underlined the need to save the remaining sloughs and potholes on agricultural land. And yet in the United States the subsidized drainage of farmland waters carries on. In 1956, Salyer pointed out that the annual loss of good waterfowl breeding water to subsidized drainage amounted to an annual reduction of marsh three times the area of the Lower Souris Refuge.

It is against the law for a landowner to kill a duck in spring or to wilfully destroy its eggs and young. But through all these post-war years when conservationists have been seeking every way possible to maintain a sustained yield of waterfowl, Federal subsidies have been destroying marshland that can never be

replaced. Nor, because of the innate requirement for breeding ground isolation, can ducks made homeless by drainage find new range on refuge marsh or other public land. The density of breeding populations on the refuges is not governed by the protection offered thereon but, as elsewhere, by the inborn requirement for spacing. Thus, as agricultural drainage carries forward, there is each year a loss of breeding potential as true and real as if the farmer had taken nesting birds for his table.

Duck hunters sometimes become exasperated when reviewing the work of the research biologist. They want facts "right now" that will tell how waterfowl production may be managed so that the supply of ducks can provide better yields than 1.7 birds per day, which was the state-wide average for Minnesota in 1956. Here in this field of breeding biology, the scientist has provided cues which, if acknowledged by those administering waterfowl policy, must work for increased production on a long-term basis. Already, indeed, some of this information is being put to work. On refuges and on privately managed marshes, manipulations of land and water are going ahead in acknowledgment of the need for breeding pairs to separate. More shoreline edge is being created by the lowering of large pools, long held too deep to permit the growth of emergent vegetation; by the digging of new channels and waterways, by the construction of islands and by the blasting of new potholes in open land bordering big marshes. Hunting regulations in Minnesota and several other states have been scheduled with the aim of protecting locally-bred waterfowl on their home marshes during early autumn. There is talk of a new kind of state and federal refuge—not one big unit of marshland, but a vast galaxy of marshlets, sloughs and potholes within the matrix of private cropland. Minnesota has already taken a pioneering step forward in the procurement of small, scattered wetlands. This is a fine example, a magnificent acknowledgment of the importance of small waters. Even so, in the economics of our time, we must remember that the fate of waterfowl will always rest in the hands of the land-owner. If all marshwater is drained from private land, there will not be enough room on public marshes to breed ducks in numbers our sons and grandchildren will require for their wildfowling.

However valuable the waterfowl of America may be in terms of millions of dollars, those responsible for land policy still believe that the dollar value of wheat and barley and other crops to be yielded from drained marshland even more important to our society. Somehow, if we are to maintain a healthy nation, a strong society in the tense and trying days of our time, we must learn that we cannot measure all values in dollars, that however rich in wheat a country may be, its manpower cannot remain virile without incentives, such as wildfowling, for the expression of the instinctive drives which, with or without the wild woods and marshlands, must always remain our heritage, a part of our makeup which may be thwarted and bent but never denied. In our human mastery over this environment of ours, it is much better that we adjust our economy to permit the small waters to remain rather than to ask our descendants to adjust their lives to a world lacking in ducks and marshland.

