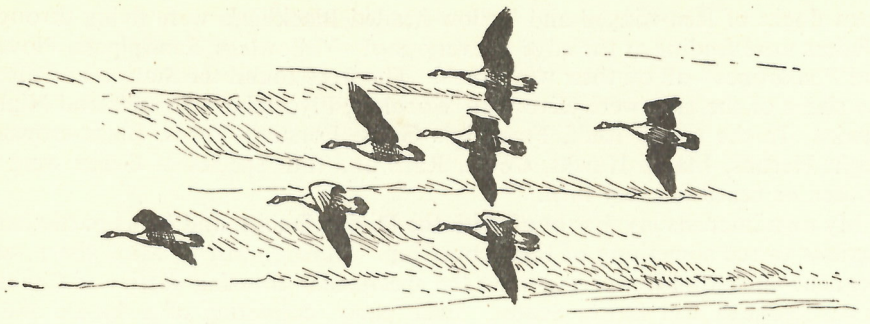

A VISIT TO THE DELTA WATERFOWL RESEARCH STATION

By D. F. McKinney

(*Dr McKinney has returned to Delta in the Summer of* 1954 *as Assistant Director of the station.*—ED.)

DURING the summer of 1952, I was fortunate enough to be able to spend ten weeks at the Delta Waterfowl Research Station in Manitoba, Canada. This visit was initiated by an invitation from the Director of the Station, Mr H. Albert Hochbaum, who was able to arrange for a research grant. The long journey would not have been possible, however, without the help of a generous grant towards travelling expenses made by the Bristol Zoological Society.

The Delta Station is situated 75 miles north-west of Winnipeg, on the southern shore of Lake Manitoba. It is on the edge of the great Delta marsh—an expanse of *Phragmites* split up by innumerable interlocking bays and pools. This marsh supports large numbers of breeding waterfowl and it is also a concentrating point for migrants travelling to and from more northerly haunts.

Like the Trust, Delta is a centre for various types of waterfowl research. For a number of reasons, however, the work of the two organisations does not overlap. At Delta, the number of captive birds is comparatively small and no attempt is made to collect waterfowl from all over the world. The species which are kept are the local ones and these are used for experiments or close observations on behaviour. Furthermore, the aims of the Delta research projects are more directly concerned with the study and management of wild populations of waterfowl on the breeding grounds. For work of this kind the Station is ideally situated and, apart from serving as the base for studies on the Delta marsh, it controls a number of sub-stations on neighbouring breeding grounds and acts as an organising centre for the aerial surveys of breeding populations which are carried out annually over much of central Canada.

I must admit, however, that my first impressions of Delta were not concerned with these important researches. When I arrived, early in May, the northward migration to the breeding grounds was in full swing and there were birds everywhere. The last of the Whistling Swans, Richardson's Geese and Snow Geese were just preparing to leave and there were a few Buffleheads about. Most of the breeding ducks had arrived and some had already started to nest. Ruddy Ducks were displaying on the bays, Pelicans sailed round over the marsh and

great flocks of Red-winged and Yellow-headed Blackbirds were flying through. Waders were feeding at the edge of every pool—Yellowlegs, Sandpipers, Plovers and Phalaropes—all on their way north. The trees round the Station and along the shore of the lake were alive with Warblers, Flycatchers, Orioles and Nighthawks. In the marsh itself, Franklin's Gulls, Forster's Terns, Black-crowned Night Herons, Marsh Hawks, Coots, Rails and four species of Grebe were to be seen or heard at every turn.

My own interests lay first of all with the Diving Ducks, and I was particularly anxious to see something of their courtship. During most of May, there were frequent opportunities for watching the spectacular courting parties of Canvasback, Redhead and Lesser Scaup. Each party, consisting of a female and a number of males, comes together on the water, the males displaying and chasing each other. If the males crowd round the female too closely, she takes wing and an aerial pursuit-flight occurs. The ' nuptial flight ' of paired Canvasbacks provides another thrilling sight as the male speeds after the female and from time to time succeeds in catching her tail-feathers in his bill.

One of my aims was to record the display postures of the Ring-necked Duck (*Aythya collaris*) and compare them with the displays of the other Diving Ducks. Luckily there were some pinioned Ringnecks on the captive pond at the Station and often a few wild males flew in to display with them. Courtship movements often provide useful clues to relationships between different species and it was particularly interesting to note that, while giving several movements which are common throughout the group of Diving Ducks, the male Ringneck gives multi-syllabic courting whistles similar to those of the Scaups and Tufted Duck.

During June, I spent some time watching the incubation behaviour of Blue-winged Teal, Shoveler and Canvasback. These species provided interesting comparisons with the Mallard which had been studied at the New Grounds. Suitable nests were easy to find, but close observation from hides was not without its difficulties. Most wild ducks are extremely shy at the nest and long and careful conditioning is necessary before they will behave normally in view of a hide. At the nest of a Blue-winged Teal, a hide was gradually moved closer during the course of a week. I then approached the nest, flushed the bird, opened out the nest a little and entered the hide. An hour later, the duck returned and settled on the eggs. I began to record her egg-turning and nest-building movements noting especially that she devoted a great deal of energy to bending the grass down over the nest which I had opened out. So successful were these camouflaging efforts that after an hour I was forced to give up watching—from a distance of six feet, the bird was quite invisible beneath a canopy of bent grasses.

During the summer, regular seminars are held in the Great Hall of the Kirchoffer Lodge at Delta. These talks and discussions provide an opportunity for the staff and visiting research workers to keep in touch with each other's studies. It was at these seminars and in discussions with the many visitors to the Station that I learnt something of the important waterfowl research which is going on in this part of Canada. The behaviour of migrating waterfowl has been the main interest of Mr Albert Hochbaum for some years and he is now completing his book on the subject. Dr William H. Elder of the University of Missouri has been visiting Delta annually for many years and it was here that he developed the use of X-rays for determining the amount of lead shot embedded in the bodies of living ducks. This technique is now used as a means of estimating the ' gunning pressure.' Dr Elder is also carrying out an investigation of the

physiological function of the preen-gland in ducks. Mrs M. M. Nice from Chicago has spent several seasons at Delta investigating the behaviour of very young ducklings.

In addition to these senior workers, Delta provides the facilities of a field station for University research students who are able to carry out two- or three-year investigations on which to base their doctoral theses. From the University of Missouri come Ronald Balham to study the family life of the Canada Goose and Milton Weller to investigate the behaviour of Redhead broods. Alex Dzubin, from the University of British Columbia, is in charge of an important ecological study on a square mile of ' pothole ' breeding ground in the farming area of Minnedosa. Eugene Bossenmaier, of the University of Minnesota, has just completed a study of the habits of moulting ducks on Whitewater Lake, Manitoba.

Each year, teams of biologists are engaged in surveying the breeding populations of waterfowl over central Canada. These biologists are employed by various Dominion and United States organisations and it is on the results of their findings that the relative success of each breeding season is estimated. This estimate is in turn used to calculate how many ducks can ' safely ' be shot in the following winter. Local authorities all over the winter range can then adjust the bag-limits and shooting seasons accordingly. Delta, as well as providing a base for many of these survey biologists, also acts as a centre for research on the techniques of waterfowl census. Arthur Hawkins and Edward Wellein of the U.S. Fish and Wildlife Service direct this inventory research. Surveys are carried out both on land and from the air. William Keil of the University of Wisconsin has been carrying out annual transects on foot over the Minnedosa pothole country and his population estimates are carefully compared with those obtained by aerial transects over the same areas.

Although the nature of much of the research varies from year to year, the Delta Station maintains two permanent working tools in the form of the Decoy pipe and the Hatchery. The construction of the decoy pipe was described in the Fifth Annual Report and it is operated with traditional Dutch techniques by the professional decoyman Nan Mulder. All the birds which are caught are ringed and released and in addition many are marked with paint so that their movements may be studied locally. The Hatchery, which is under the supervision of Peter Ward, performs one of the most important routine functions of the Station. Every year, hundreds of first clutches of duck eggs are collected in the marsh and hatched out in a large modern incubator. The ducklings are reared in spacious indoor pens and in a large outdoor flight pen. Some of the birds reared in this way are used for experimental work of various kinds and the remainder are ringed and released.

It has not been possible to give a complete picture of the Delta Research Station. However, for those members of the Trust who are interested to know more of the Delta marsh itself, they cannot do better than refer to Mr Albert Hochbaum's book *The Canvasback on a Prairie Marsh.* There can surely be no place more suitable for the purposes of waterfowl research. My visit to the Station was long enough to enable me to enjoy the company and generous hospitality of the members of the staff and many of the summer visitors. I learnt a great deal about North American waterfowl from their stimulating discussions and I look forward to renewing many friendships when ' exchanges ' between the Trust and Delta become more frequent.