

for a few species of birds, but a comparative study of a number of species of the same group should furnish new and important data.

One of the most interesting features concerns the circumstances under which these activities occur. Are they regular after sleeping or after feeding or at any particular time of the day? In the *Anatidæ*, moreover, there occurs what has been termed 'false-preening' and 'false-bathing'. Many of the true preening- and bathing-movements are used by the birds as part of the display, or after a disturbance, and probably under a variety of other conditions.

These are some of the problems which it is hoped to study during the next two years. The *Anatidæ* as a group are very suitable for an analysis of these activities and the collection at the New Grounds offers an ideal opportunity for a study of this kind.

RESEARCH FACILITIES

The Council is anxious that the facilities for scientific research offered by the Trust's collection and installations at the New Grounds should be put to the fullest possible use. The studies now being undertaken deal with only a few of the many scientific problems presented by this group of birds. The Trust will welcome the opportunity of helping students to undertake special studies connected with the *Anatidæ*.

THE NE-NE PROJECT

AT THE invitation of the Board of Commissioners of Agriculture and Forestry of the Territory of Hawaii, the Trust has taken an active part in the attempt to save the Ne-ne or Hawaiian Goose from imminent extinction. Only 24 individuals are known to survive. Mr. John Yealland, our Curator, went to Hawaii early in the New Year and returned on 3rd May. His passage across the U.S. was made possible by the generous assistance of two Members—Mrs. Carl Tucker and Mrs. Gladwin—and the journey was further facilitated by the U.S. Fish and Wildlife Service. The Council feels that this project, although a new departure, falls without doubt within the scope of the objects for which the Trust was formed. A practical contribution to the preservation of a vanishing species is a matter of world-wide significance. Mr. Yealland contributes the following note on his successful mission:—

In the wild state the Hawaiian or Sandwich Island Goose (*Branta sandvicensis*) occurs and, so far as is known, has always occurred entirely on the island of Hawaii, and except for a few isolated records on the neighbouring island of Maui, not on the other islands of the Sandwich group. During the first four months of 1950 only five wild birds, two of them young ones, were seen, and it seems unlikely that there are more than 12 or 15 others.

In captivity on Hawaii there are a further 17 and outside Hawaii only the pair presented to the Trust by Mr. Shipman, who has kept a flock at Keaau, near Hilo, since 1918. Thus it seems that the world stock in April 1950 is between 24 and 40 birds.

The diminution of the Ne-ne—its native name—from an estimated 25,000 less than a century ago, is known to be due to several causes, the chief of which has been their destruction by the islanders for food, particularly during the flightless moulting period, when they are easily run down.

On the island there are numbers of feral cats, dogs and pigs, all of which must have destroyed many nests, eggs and goslings, and early in the present century the mongoose was introduced in the hope that it would kill the rats that were damaging the sugar cane; but evidently it found other foods, including the eggs and young of the geese, more easily obtainable, for the rats continued to thrive and the mongoose is now very common below 4,000-5,000 feet, though less so above that altitude because of the cooler conditions. A changed pattern of vegetation may also have been a contributory cause.

The island, which is of volcanic origin, is dominated by three mountains; Mauna Loa, an active volcano, Mauna Kea, an extinct one, both of some 13,700 feet and Hualalai, and it is on the slopes of Mauna Loa and Hualalai that the geese have lived and the few remaining ones have been seen.

On the sides of Mauna Loa the lava flows are, of course, of varying ages; these form, as it were, islands of vegetation more or less surrounded by the more recent flows (on which little or nothing is growing). It is these 'islands'—known by the natives as Kipukas—which were favoured by the geese. Indeed, the one which I went to was called Kipuka Ne-ne. In general character they are a kind of moorland—moss and lichen covered rocks, a few trees, various grasses and other plants, some of them bearing berries which are eaten by the geese, a favourite being the Ohelo—*Vaccinium reticulatum*. Here and there the lava is impervious enough to hold water, so that there are some shallow pools, but no large areas of water.

Some years ago an attempt was made on the island to propagate the Ne-ne in captivity and some success was met with, but then, it seems, all the birds were given to various ranchers and there is now only one survivor.

When, in 1949, the Board of Commissioners of Agriculture and Forestry set up a project for the breeding of the geese in vermin-proof pens on Hawaii, Mr. Shipman lent two pairs of the birds from his flock. Without these four and the pair presented to the Trust, the Keaaau flock now consists of only eight birds, although at one time Mr. Shipman informed me that he had 43 birds. They are all full-winged and a number have from time to time reverted to the wild state, while some disappeared when a tidal wave swept through the garden in 1946.

The site of the new project (which is being carried out under the supervision of Mr. J. Donald Smith, the Board's Game Conservationist) is at Pohakuloa, some 40 miles from Hilo on the 'saddle' road between Mauna Loa and Mauna Kea at 6,000 feet.

This area has an annual rainfall of only ten inches, but there is a plentiful water supply laid on from tanks further up the mountain side. The day is generally warm but there is sometimes frost at night. The earth is very porous but by means of a water-sprinkling system an excellent growth of grass and clover has been obtained in the pens, each of which measures 50 feet by 50 feet, so that each pair has 2,500 square feet of ground surface.

During December one pair laid four eggs, two of which hatched and the young were reared without difficulty, mainly on the grass and clover of the pen, with the addition of watercress, which grows where the water tanks overflow, and milk thistle. Although the adults must have been much inbred and closely related one to the other, the young ones seem to be excellent birds and when I came away they were eight weeks old, and almost as large as the parents.

The second pair did not attempt to nest and it may have been that the female was too young to breed. Nor did the third pair breed; it is made up of a gander

loaned by the Honolulu Zoo (the survivor of the previous propagation scheme) and a young goose which was caught last autumn by a hunter's dog and was quite uninjured. Both pairs were seen to display, and the display consisted of dipping and washing movements carried out by both sexes, but generally on land. The third pair, and especially the gander, showed some interest in two of the three artificial nests, each containing a single hard-boiled turkey's egg, which had been provided in their pen.

Unfortunately all the eggs laid at Keaau were infertile and the reason is not easy to see, for the birds, which have bred there in former years, live on several acres of lawn and lake and seem to be in perfect health.

There is sound reason to believe that the new project will produce an increasing number of good young birds each year; but that is only half the battle, for the provision of suitable places on Hawaii where the geese may live in peace and safety presents many difficulties. To introduce the species to some other place as a wild bird may not be altogether desirable, but there is no doubt that it would be wise to establish a reserve of birds in suitable collections where young ones of sound quality could be bred.

THE PERRY RIVER EXPEDITION, 1949

THE Director was a member of an expedition to Arctic Canada during the summer. Its principal objects were ornithological; a study of the breeding geese was made and live specimens were brought back for the collection. A preliminary report follows :

The Perry River lies in the North West Territories of Canada between Hudson Bay and the Mackenzie Delta. It drains into Queen Maud Gulf at a point about 75 miles north of the Arctic Circle in longitude 102° West. Although not particularly far north it has hitherto proved rather inaccessible and no scientific expedition had previously been into the area.

This is a brief preliminary report covering the activities of the 1949 Perry River Expedition which was supported by the Arctic Institute of North America with funds provided by the United States Government. Support was also received from *Life Magazine*, Ducks Unlimited and Colonel Arthur Sullivan, K.C. The members of the expedition were Harold Hanson of Urbana, Illinois, Paul Queneau of Westport, Connecticut, Peter Scott of Slimbridge, England, and James Bell (pilot for the last two weeks) of Sudbury, Ontario.

The party arrived by train at Edmonton, Alberta, on 23rd May, flew from Edmonton to Yellowknife on 27th May and took off from there for the Perry River on 31st May in an Associated Airways Anson, Douglas Ireland, pilot. Conversion from wheels to skis was made during a forced landing on a frozen lake. Some difficulties were experienced on the flight north largely due to weather, and arrival at Perry River, via Musk-Ox Lake and Bathurst Inlet, was not until 6th June. Camp was made on a gravel ridge in the lee of a prominent hill about 14 miles up the Perry and half a mile east of it. The tundra was snow-blanketed, practically the only ground showing being the upper wind-blown portions of the rocky hills. The surrounding area was explored on foot and, after break-up, by canoe until 18th July, when Jim Bell, veteran bush pilot of Nickel Belt Airways, joined the party with a Fairchild Husky on floats.